Combined Sewer Overflow
Public Notification Program
2024 Annual Report

City of Lakewood, Ohio
May 1, 2025

Ver. 2024-04-03

City of Lakewood, Ohio
CSO Public Notification Program
Annual Report for 2024

The City of Lakewood has combined sewer overflows (CSOs) on Lake Erie and Rocky River. Public access areas affected by CSOs are Rocky River and Lake Erie beaches. The City notifies the public by email and on a website within four (4) hours of being made aware of a CSO event. Lakewood reports CSO activity monthly to the Ohio EPA, and annually to the US EPA.

The City has three (3) rain gauges that recorded 29.38 to 33.25 inches of total rainfall throughout the year. The rainfall for 2024 was significantly less than 2023. The total CSO volume was less as well, though there were a greater number of CSO events. By comparison, the 2024 total CSO volume was less than any of the previous 5 years by more than 100 MG. As the lining project of the interceptor progresses, the WWTP in Lakewood has observed a decrease in dry weather flow as observed by the WWTP Staff. This reduction in flow, a decrease in total rainfall, and general weather intensity variability are all contributing factors as to why the total CSO volume was lower in 2024. Table 1 lists the values of CSO events and rainfall (average of the three gauges) for the past five years.

Table 1
Annual CSO and Rainfall Data

Year	Number of CSO Events	Total Million Gallons (MG) of CSO Volume	Total Yearly Rainfall (in)
2020	76	305.83	38.93
2021	68	169.17	33.95
2022	66	171.53	34.66
2023	65	227.32	45.27
2024	71	67.65	30.90

The rainfall led to seventy-one (71) combined sewer overflow events in 2024. Table 2 is a listing of these wet weather CSO events for 2024. The last column of Table 2, Total Rain (in), is the rainfall only for events that produced one or more CSOs. The total rainfall of these events is less than the total for the entire year. Figure 1 is a map showing the locations of the outfalls listed in Table 2.

Table 2 Wet Weather Events Producing CSOs						
Event	**Location**	**Event Start**	**Event End**	**Total Volume (MG)**	**Duration (Hrs)**	**Total Rain (in)**
1[1,2]	LEWS 1040	1/9/24 6:15 AM	1/9/24 3:15 PM	0.03	9.0	0.41
	CSO-052	1/9/24 6:45 AM	1/9/24 10:10 AM	0.07	3.4	
2[1,2]	LEWS 1040	1/12/24 4:05 PM	1/12/24 6:05 PM	0.08	2.0	0.25
	CSO-052	1/12/24 4:25 PM	1/12/24 6:10 PM	0.37	1.8	
	CSO-056B	1/12/24 4:30 PM	1/12/24 5:00 PM	0.01	0.5	
3[1,2]	LEWS 1040	1/13/24 2:15 AM	1/13/24 2:55 AM	0.03	0.7	0.13
	CSO-052	1/13/24 2:25 AM	1/13/24 3:10 AM	0.11	0.8	
4[1,2]	LEWS 1040	1/24/24 12:45 PM	1/24/24 2:40 PM	0.03	1.9	0.20
	CSO-052	1/24/24 12:50 PM	1/24/24 2:50 PM	0.26	2.0	
5[1,2]	RRES 1145	1/25/24 11:25 PM	1/26/24 3:05 AM	0.03	3.7	0.48
	LEWS 1040	1/26/24 1:10 AM	1/26/24 5:35 AM	0.25	4.4	
	CSO-052	1/26/24 1:15 AM	1/26/24 4:50 AM	0.87	3.6	
	LEWS 1180	1/26/24 1:20 AM	1/26/24 1:35 AM	0.05	0.3	
	CSO-055	1/26/24 1:20 AM	1/26/24 2:35 AM	0.08	1.3	
	LEWS 1055	1/26/24 1:20 AM	1/26/24 2:55 AM	0.08	1.6	
	CSO-056B	1/26/24 1:20 AM	1/26/24 4:05 AM	0.39	2.8	
	LEWS 1130	1/26/24 1:25 AM	1/26/24 2:00 AM	0.02	0.6	
	CSO-056A	1/26/24 1:25 AM	1/26/24 3:45 AM	0.14	2.3	
	CSO-059	1/26/24 1:25 AM	1/26/24 3:55 AM	0.19	2.5	
	LEWS 1070	1/26/24 1:30 AM	1/26/24 5:55 AM	0.09	4.4	
6[1,2]	LEWS 1040	1/27/24 11:45 PM	1/28/24 7:30 PM	0.70	19.8	1.03
	CSO-052	1/27/24 11:50 PM	1/28/24 6:40 PM	2.62	18.8	
	CSO-056B	1/28/24 3:05 AM	1/28/24 4:50 PM	0.95	13.8	
	CSO-056A	1/28/24 3:20 AM	1/28/24 4:20 PM	0.35	13.0	
	LEWS 1070	1/28/24 3:30 AM	1/28/24 7:40 PM	0.30	16.2	
	CSO-059	1/28/24 3:50 AM	1/28/24 4:45 PM	0.48	12.9	
	LEWS 1055	1/28/24 11:00 AM	1/28/24 2:15 PM	0.01	3.3	

Table 2 Wet Weather Events Producing CSOs						
Event	**Location**	**Event Start**	**Event End**	**Total Volume (MG)**	**Duration (Hrs)**	**Total Rain (in)**
7[1,2]	LEWS 1040	2/22/24 10:30 AM	2/22/24 2:55 PM	0.09	4.4	0.53
	CSO-052	2/22/24 11:25 AM	2/22/24 3:05 PM	0.56	3.7	
	CSO-056B	2/22/24 11:40 AM	2/22/24 1:00 PM	0.07	1.3	
	CSO-056A	2/22/24 11:50 AM	2/22/24 12:40 PM	0.01	0.8	
	LEWS 1070	2/22/24 12:15 PM	2/22/24 2:35 PM	0.02	2.3	
8[1,2]	CSO-055	3/5/24 12:45 PM	3/5/24 3:45 PM	0.09	3.0	0.41
	LEWS 1130	3/5/24 12:55 PM	3/5/24 1:35 PM	0.01	0.7	
	RRES 1145	3/5/24 12:55 PM	3/5/24 4:20 PM	0.11	3.4	
	CSO-056A	3/5/24 1:00 PM	3/5/24 1:45 PM	0.05	0.8	
	LEWS 1055	3/5/24 1:00 PM	3/5/24 1:45 PM	0.02	0.8	
	CSO-056B	3/5/24 1:00 PM	3/5/24 1:50 PM	0.13	0.8	
	CSO-052	3/5/24 1:00 PM	3/5/24 1:55 PM	0.13	0.9	
	LEWS 1040	3/5/24 1:00 PM	3/5/24 4:15 PM	0.08	3.3	
9[1,2]	RRES 1145	3/6/24 9:10 AM	3/6/24 1:20 PM	0.01	4.2	0.31
	LEWS 1040	3/6/24 11:45 AM	3/6/24 2:05 PM	0.02	2.3	
10[1,2]	RRES 1145	3/9/24 6:40 AM	3/9/24 10:20 AM	0.02	3.7	0.25
	CSO-056B	3/9/24 9:50 AM	3/9/24 10:30 AM	0.05	0.7	
	CSO-056A	3/9/24 9:55 AM	3/9/24 10:25 AM	0.01	0.5	
	LEWS 1055	3/9/24 9:55 AM	3/9/24 10:35 AM	0.01	0.7	
	LEWS 1040	3/9/24 9:55 AM	3/9/24 10:55 AM	0.06	1.0	
	CSO-052	3/9/24 10:05 AM	3/9/24 10:50 AM	0.04	0.8	
11[1,2]	RRES 1145	3/14/24 10:15 AM	3/14/24 3:45 PM	0.01	5.5	0.15
	LEWS 1040	3/14/24 3:15 PM	3/14/24 3:55 PM	0.03	0.7	
	CSO-052	3/14/24 3:30 PM	3/14/24 3:55 PM	0.03	0.4	
12[1,2]	LEWS 1040	3/26/24 5:40 AM	3/26/24 7:30 AM	0.06	1.8	0.23
	CSO-052	3/26/24 6:05 AM	3/26/24 7:20 AM	0.13	1.3	
	CSO-056B	3/26/24 6:15 AM	3/26/24 7:05 AM	0.03	0.8	
13[1]	LEWS 1040	3/30/24 8:15 AM	3/30/24 9:00 AM	0.02	0.8	0.18

Table 2 Wet Weather Events Producing CSOs						
Event	**Location**	**Event Start**	**Event End**	**Total Volume (MG)**	**Duration (Hrs)**	**Total Rain (in)**
14[1,2]	RRES 1145	4/1/24 12:35 AM	4/1/24 6:35 AM	0.03	6.0	0.66
	LEWS 1040	4/1/24 12:50 AM	4/1/24 8:10 AM	0.39	7.3	
	CSO-056B	4/1/24 1:15 AM	4/1/24 7:10 AM	0.75	5.9	
	CSO-052	4/1/24 1:25 AM	4/1/24 6:35 AM	0.24	5.2	
	LEWS 1055	4/1/24 1:35 AM	4/1/24 6:05 AM	0.04	4.5	
	CSO-056A	4/1/24 3:25 AM	4/1/24 7:00 AM	0.22	3.6	
	LEWS 1070	4/1/24 3:30 AM	4/1/24 8:15 AM	0.12	4.8	
	CSO-055	4/1/24 3:50 AM	4/1/24 4:55 AM	0.03	1.1	
	CSO-059	4/1/24 3:50 AM	4/1/24 7:15 AM	0.43	3.4	
	LEWS 1045	4/1/24 3:55 AM	4/1/24 7:05 AM	0.06	3.2	
	LEWS 1130	4/1/24 4:20 AM	4/1/24 5:10 AM	0.01	0.8	
15[1,2]	CSO-055	4/1/24 8:45 PM	4/1/24 10:20 PM	0.06	1.6	1.06
	RRES 1145	4/1/24 8:45 PM	4/2/24 7:45 AM	0.03	11.0	
	LEWS 1040	4/1/24 8:55 PM	4/3/24 1:00 AM	1.25	28.1	
	LEWS 1055	4/1/24 9:05 PM	4/2/24 9:15 AM	0.09	12.2	
	CSO-056B	4/1/24 9:05 PM	4/2/24 10:20 AM	1.96	13.3	
	LEWS 1130	4/1/24 9:10 PM	4/1/24 10:35 PM	0.02	1.4	
	CSO-056A	4/1/24 9:10 PM	4/2/24 9:55 AM	0.63	12.8	
	CSO-059	4/1/24 9:15 PM	4/2/24 10:15 AM	1.25	13.0	
	LEWS 1070	4/1/24 9:50 PM	4/2/24 11:55 AM	0.38	14.1	
	LEWS 1045	4/1/24 10:05 PM	4/2/24 10:05 AM	0.17	12.0	
	LEWS 1130	4/2/24 4:45 AM	4/2/24 7:40 AM	0.02	2.9	
	CSO-055	4/2/24 6:30 AM	4/2/24 7:30 AM	0.03	1.0	
	CSO-052	4/2/24 6:45 AM	4/2/24 9:05 AM	0.03	2.3	
16[1]	LEWS 1040	4/3/24 8:00 AM	4/3/24 8:10 AM	0.02	0.2	0.00
17[1]	LEWS 1040	4/3/24 8:15 PM	4/3/24 9:15 PM	0.04	1.0	0.11
18[1,2]	CSO-055	4/9/24 9:15 PM	4/9/24 9:45 PM	0.03	0.5	0.29
	RRES 1145	4/9/24 9:30 PM	4/9/24 10:25 PM	0.03	0.9	
	LEWS 1055	4/9/24 9:35 PM	4/9/24 10:40 PM	0.06	1.1	
	CSO-056A	4/9/24 9:35 PM	4/9/24 10:45 PM	0.03	1.2	
	CSO-056B	4/9/24 9:35 PM	4/9/24 10:50 PM	0.15	1.3	
	LEWS 1040	4/9/24 9:35 PM	4/9/24 11:40 PM	0.10	2.1	
	LEWS 1070	4/9/24 9:40 PM	4/9/24 11:35 PM	0.01	1.9	

Table 2 Wet Weather Events Producing CSOs						
Event	**Location**	**Event Start**	**Event End**	**Total Volume (MG)**	**Duration (Hrs)**	**Total Rain (in)**
19[1,2]	LEWS 1040	4/10/24 10:10 PM	4/11/24 9:10 PM	1.58	23.0	1.06
	CSO-055	4/11/24 12:20 AM	4/11/24 2:15 PM	0.06	13.9	
	RRES 1145	4/11/24 12:20 AM	4/11/24 4:30 PM	0.07	16.2	
	CSO-056B	4/11/24 12:35 AM	4/11/24 5:20 PM	1.15	16.8	
	LEWS 1055	4/11/24 12:40 AM	4/11/24 4:40 PM	0.06	16.0	
	CSO-056A	4/11/24 12:40 AM	4/11/24 5:05 PM	0.34	16.4	
	CSO-059	4/11/24 12:40 AM	4/11/24 5:15 PM	0.56	16.6	
	LEWS 1070	4/11/24 1:05 AM	4/11/24 6:40 PM	0.33	17.6	
	CSO-052	4/11/24 8:15 AM	4/11/24 4:55 PM	0.27	8.7	
20[1]	LEWS 1040	4/12/24 6:20 AM	4/12/24 5:25 PM	0.20	11.1	0.24
21[1,2]	RRES 1145	4/17/24 4:15 PM	4/17/24 5:35 PM	0.07	1.3	0.45
	CSO-055	4/17/24 4:30 PM	4/17/24 5:10 PM	0.11	0.7	
	LEWS 1040	4/17/24 4:35 PM	4/17/24 6:20 PM	0.21	1.8	
	CSO-056B	4/17/24 4:45 PM	4/17/24 6:00 PM	0.24	1.3	
	LEWS 1055	4/17/24 4:50 PM	4/17/24 5:45 PM	0.06	0.9	
	CSO-056A	4/17/24 4:50 PM	4/17/24 6:00 PM	0.07	1.2	
	CSO-059	4/17/24 4:55 PM	4/17/24 6:05 PM	0.07	1.2	
	LEWS 1070	4/17/24 4:55 PM	4/17/24 6:40 PM	0.03	1.8	
22[1,2]	LEWS 1040	4/19/24 6:00 AM	4/19/24 7:10 AM	0.01	1.2	0.13
	CSO-052	4/19/24 6:35 AM	4/19/24 9:25 AM	0.06	2.8	
23[1]	LEWS 1040	5/4/24 2:25 PM	5/4/24 5:00 PM	0.09	2.6	0.07
	LEWS 1055	5/4/24 2:35 PM	5/4/24 3:15 PM	0.02	0.7	
24[1,2]	RRES 1145	5/9/24 10:00 AM	5/9/24 5:55 PM	0.01	7.9	0.41
	LEWS 1040	5/9/24 10:05 AM	5/9/24 7:55 PM	0.11	9.8	
	CSO-056B	5/9/24 5:35 PM	5/9/24 6:05 PM	0.02	0.5	
25[1,2]	CSO-055	5/11/24 7:25 AM	5/11/24 8:55 AM	0.05	1.5	0.76
	RRES 1145	5/11/24 7:50 AM	5/11/24 1:35 PM	0.07	5.8	
	CSO-056B	5/11/24 7:55 AM	5/11/24 10:15 AM	0.20	2.3	
	LEWS 1040	5/11/24 7:55 AM	5/12/24 8:25 PM	0.33	36.5	
	CSO-056A	5/11/24 8:20 AM	5/11/24 10:10 AM	0.04	1.8	
	LEWS 1055	5/11/24 8:30 AM	5/11/24 9:25 AM	0.02	0.9	
	LEWS 1070	5/11/24 9:05 AM	5/11/24 10:50 AM	0.03	1.8	
	CSO-055	5/11/24 11:00 PM	5/11/24 11:35 PM	0.02	0.6	
	RRES 1145	5/11/24 11:25 PM	5/11/24 11:50 PM	0.06	0.4	
	CSO-056B	5/11/24 11:30 PM	5/12/24 12:10 AM	0.05	0.7	
26[1]	LEWS 1040	5/17/24 6:00 AM	5/17/24 5:40 PM	0.04	11.7	0.20
	CSO-056B	5/17/24 7:30 AM	5/17/24 8:05 AM	0.02	0.6	

Table 2 Wet Weather Events Producing CSOs						
Event	**Location**	**Event Start**	**Event End**	**Total Volume (MG)**	**Duration (Hrs)**	**Total Rain (in)**
27[1]	CSO-055	6/5/24 5:05 PM	6/5/24 7:10 PM	0.07	2.1	0.35
	LEWS 1040	6/5/24 5:35 PM	6/5/24 9:00 PM	0.09	3.4	
	CSO-056A	6/5/24 7:15 PM	6/5/24 7:45 PM	0.02	0.5	
	CSO-056B	6/5/24 7:15 PM	6/5/24 8:50 PM	0.05	1.6	
28[1]	CSO-055	6/17/24 1:55 PM	6/17/24 2:25 PM	0.08	0.5	0.06
	CSO-056A	6/17/24 2:35 PM	6/17/24 3:00 PM	0.04	0.4	
	LEWS 1055	6/17/24 2:40 PM	6/17/24 3:05 PM	0.01	0.4	
29[1,2]	CSO-055	6/18/24 12:40 PM	6/18/24 1:40 PM	0.12	1.0	0.71
	LEWS 1040	6/18/24 1:05 PM	6/18/24 3:10 PM	0.36	2.1	
	RRES 1145	6/18/24 1:10 PM	6/18/24 2:10 PM	0.09	1.0	
	LEWS 1130	6/18/24 1:10 PM	6/18/24 2:25 PM	0.02	1.3	
	LEWS 1055	6/18/24 1:10 PM	6/18/24 2:35 PM	0.20	1.4	
	CSO-056A	6/18/24 1:10 PM	6/18/24 2:40 PM	0.12	1.5	
	CSO-059	6/18/24 1:10 PM	6/18/24 3:00 PM	0.27	1.8	
	LEWS 1070	6/18/24 1:10 PM	6/18/24 3:30 PM	0.06	2.3	
	CSO-052	6/18/24 1:15 PM	6/18/24 2:50 PM	0.99	1.6	
30[1,2]	CSO-055	6/23/24 1:15 PM	6/23/24 1:45 PM	0.06	0.5	0.41
	LEWS 1040	6/23/24 1:40 PM	6/23/24 2:45 PM	0.17	1.1	
	RRES 1145	6/23/24 1:45 PM	6/23/24 2:20 PM	0.06	0.6	
	CSO-056A	6/23/24 1:50 PM	6/23/24 2:25 PM	0.02	0.6	
	LEWS 1055	6/23/24 1:50 PM	6/23/24 2:30 PM	0.09	0.7	
	CSO-052	6/23/24 1:50 PM	6/23/24 2:50 PM	0.64	1.0	
	CSO-059	6/23/24 1:55 PM	6/23/24 2:30 PM	0.01	0.6	
31[1,2]	CSO-055	6/29/24 3:45 AM	6/29/24 11:25 AM	0.12	7.7	0.46
	RRES 1145	6/29/24 4:15 AM	6/29/24 11:05 AM	0.02	6.8	
	CSO-056A	6/29/24 4:20 AM	6/29/24 11:25 AM	0.05	7.1	
	CSO-056B	6/29/24 4:20 AM	6/29/24 11:30 AM	0.17	7.2	
	LEWS 1055	6/29/24 4:25 AM	6/29/24 11:25 AM	0.03	7.0	
	LEWS 1040	6/29/24 4:30 AM	6/29/24 12:15 PM	0.09	7.8	
	CSO-052	6/29/24 4:35 AM	6/29/24 5:00 AM	0.05	0.4	
	CSO-052	6/29/24 11:05 AM	6/29/24 11:40 AM	0.10	0.6	
32[1,2]	CSO-055	7/5/24 4:05 PM	7/5/24 4:35 PM	0.06	0.5	0.36
	RRES 1145	7/5/24 4:35 PM	7/5/24 5:05 PM	0.02	0.5	
	LEWS 1040	7/5/24 4:35 PM	7/5/24 5:40 PM	0.15	1.1	
	CSO-056A	7/5/24 4:40 PM	7/5/24 5:15 PM	0.02	0.6	
	CSO-056B	7/5/24 4:40 PM	7/5/24 5:15 PM	0.11	0.6	
	CSO-059	7/5/24 4:40 PM	7/5/24 5:20 PM	0.01	0.7	
	LEWS 1055	7/5/24 4:40 PM	7/5/24 5:20 PM	0.07	0.7	
	CSO-052	7/5/24 4:40 PM	7/5/24 5:40 PM	0.58	1.0	

Table 2 Wet Weather Events Producing CSOs						
Event	**Location**	**Event Start**	**Event End**	**Total Volume (MG)**	**Duration (Hrs)**	**Total Rain (in)**
33[1,2]	CSO-055	7/10/24 2:40 AM	7/10/24 3:10 AM	0.05	0.5	0.23
	RRES 1145	7/10/24 3:10 AM	7/10/24 3:45 AM	0.02	0.6	
	LEWS 1130	7/10/24 3:15 AM	7/10/24 3:50 AM	0.01	0.6	
	CSO-056A	7/10/24 3:20 AM	7/10/24 3:55 AM	0.02	0.6	
	CSO-056B	7/10/24 3:20 AM	7/10/24 3:55 AM	0.06	0.6	
	LEWS 1055	7/10/24 3:20 AM	7/10/24 4:00 AM	0.02	0.7	
	LEWS 1040	7/10/24 3:20 AM	7/10/24 4:05 AM	0.07	0.8	
	CSO-052	7/10/24 3:25 AM	7/10/24 4:15 AM	0.17	0.8	
34[1,2]	CSO-055	7/14/24 5:25 PM	7/14/24 6:00 PM	0.12	0.6	0.61
	RRES 1145	7/14/24 5:50 PM	7/14/24 6:30 PM	0.11	0.7	
	CSO-056B	7/14/24 5:55 PM	7/14/24 7:00 PM	0.56	1.1	
	LEWS 1055	7/14/24 6:00 PM	7/14/24 6:50 PM	0.25	0.8	
	CSO-056A	7/14/24 6:00 PM	7/14/24 7:00 PM	0.10	1.0	
	CSO-052	7/14/24 6:00 PM	7/14/24 7:05 PM	0.82	1.1	
	CSO-059	7/14/24 6:00 PM	7/14/24 7:10 PM	0.09	1.2	
	LEWS 1040	7/14/24 6:00 PM	7/14/24 7:15 PM	0.22	1.3	
	LEWS 1070	7/14/24 6:00 PM	7/14/24 7:45 PM	0.05	1.8	
	CSO-058	7/14/24 6:05 PM	7/14/24 6:30 PM	0.02	0.4	
35[1]	CSO-055	7/17/24 2:25 AM	7/17/24 2:55 AM	0.05	0.5	0.02
	CSO-056B	7/17/24 3:05 AM	7/17/24 3:25 AM	0.03	0.3	
36[1,2]	CSO-055	7/24/24 12:15 PM	7/24/24 1:45 PM	0.27	1.5	0.36
	CSO-056A	7/24/24 12:55 PM	7/24/24 2:25 PM	0.19	1.5	
	RRES 1145	7/24/24 1:05 PM	7/24/24 1:50 PM	0.11	0.8	
	LEWS 1055	7/24/24 1:15 PM	7/24/24 2:10 PM	0.14	0.9	
	LEWS 1220	7/24/24 1:20 PM	7/24/24 1:40 PM	0.01	0.3	
	LEWS 1040	7/24/24 1:20 PM	7/24/24 2:20 PM	0.11	1.0	
	CSO-059	7/24/24 1:20 PM	7/24/24 2:30 PM	0.16	1.2	
	LEWS 1070	7/24/24 1:20 PM	7/24/24 3:00 PM	0.05	1.7	
	CSO-058	7/24/24 1:25 PM	7/24/24 1:50 PM	0.02	0.4	
	CSO-052	7/24/24 1:25 PM	7/24/24 2:10 PM	0.16	0.8	
37[1,2]	CSO-055	7/29/24 11:25 AM	7/29/24 12:25 PM	0.25	1.0	0.69
	RRES 1145	7/29/24 11:55 AM	7/29/24 12:40 PM	0.14	0.8	
	CSO-052	7/29/24 12:00 PM	7/29/24 1:30 PM	0.96	1.5	
	CSO-056B	7/29/24 12:10 PM	7/29/24 1:25 PM	0.32	1.3	
	LEWS 1040	7/29/24 12:10 PM	7/29/24 1:50 PM	0.33	1.7	
	LEWS 1055	7/29/24 12:15 PM	7/29/24 1:15 PM	0.11	1.0	
	CSO-056A	7/29/24 12:15 PM	7/29/24 1:25 PM	0.09	1.2	
	CSO-059	7/29/24 12:15 PM	7/29/24 1:40 PM	0.17	1.4	
	LEWS 1070	7/29/24 12:20 PM	7/29/24 2:10 PM	0.04	1.8	

Table 2 Wet Weather Events Producing CSOs						
Event	**Location**	**Event Start**	**Event End**	**Total Volume (MG)**	**Duration (Hrs)**	**Total Rain (in)**
38[2]	CSO-052	7/30/24 10:10 PM	7/30/24 10:35 PM	0.04	0.4	0.08
39[1,2]	RRES 1145	8/2/24 1:00 PM	8/2/24 2:35 PM	0.04	1.6	0.50
	LEWS 1040	8/2/24 1:05 PM	8/2/24 3:05 PM	0.16	2.0	
	CSO-052	8/2/24 1:05 PM	8/2/24 3:10 PM	0.59	2.1	
	CSO-056A	8/2/24 1:10 PM	8/2/24 2:55 PM	0.08	1.8	
	CSO-056B	8/2/24 1:10 PM	8/2/24 3:00 PM	0.21	1.8	
	LEWS 1055	8/2/24 1:15 PM	8/2/24 1:50 PM	0.04	0.6	
	CSO-059	8/2/24 1:15 PM	8/2/24 3:00 PM	0.03	1.8	
	LEWS 1070	8/2/24 2:15 PM	8/2/24 3:35 PM	0.02	1.3	
40[1,2]	RRES 1145	8/3/24 7:40 AM	8/3/24 8:15 AM	0.02	0.6	0.29
	CSO-056A	8/3/24 7:50 AM	8/3/24 8:35 AM	0.04	0.8	
	LEWS 1055	8/3/24 7:50 AM	8/3/24 8:35 AM	0.08	0.8	
	CSO-056B	8/3/24 7:50 AM	8/3/24 8:40 AM	0.10	0.8	
	CSO-059	8/3/24 7:55 AM	8/3/24 8:40 AM	0.02	0.8	
	LEWS 1040	8/3/24 7:55 AM	8/3/24 8:55 AM	0.15	1.0	
	LEWS 1070	8/3/24 7:55 AM	8/3/24 9:20 AM	0.01	1.4	
	CSO-052	8/3/24 8:10 AM	8/3/24 8:55 AM	0.19	0.8	
41[2]	CSO-052	8/4/24 11:35 PM	8/5/24 12:00 AM	0.04	0.4	0.07
42[1,2]	RRES 1145	8/5/24 12:40 PM	8/5/24 2:15 PM	0.02	1.6	0.19
	CSO-056B	8/5/24 12:45 PM	8/5/24 1:15 PM	0.05	0.5	
	CSO-052	8/5/24 12:50 PM	8/5/24 1:35 PM	0.19	0.8	
	LEWS 1040	8/5/24 12:50 PM	8/5/24 2:30 PM	0.03	1.7	
43[1,2]	RRES 1145	8/6/24 2:55 PM	8/6/24 7:25 PM	0.05	4.5	0.48
	CSO-056B	8/6/24 3:00 PM	8/6/24 7:35 PM	0.10	4.6	
	CSO-052	8/6/24 3:00 PM	8/6/24 8:00 PM	0.62	5.0	
	CSO-059	8/6/24 3:05 PM	8/6/24 3:40 PM	0.01	0.6	
	LEWS 1055	8/6/24 3:05 PM	8/6/24 3:45 PM	0.03	0.7	
	CSO-056A	8/6/24 3:05 PM	8/6/24 7:30 PM	0.03	4.4	
	LEWS 1040	8/6/24 3:05 PM	8/6/24 7:50 PM	0.10	4.8	
44[1,2]	CSO-056B	8/9/24 4:25 AM	8/9/24 5:20 AM	0.13	0.9	0.19
	CSO-056A	8/9/24 4:30 AM	8/9/24 5:15 AM	0.05	0.8	
	CSO-052	8/9/24 4:40 AM	8/9/24 5:40 AM	0.33	1.0	
	LEWS 1040	8/9/24 4:50 AM	8/9/24 6:40 AM	0.03	1.8	
45[1,2]	CSO-056B	8/16/24 8:10 PM	8/16/24 11:05 PM	0.09	2.9	0.28
	LEWS 1055	8/16/24 8:10 PM	8/16/24 11:05 PM	0.02	2.9	
	CSO-055	8/16/24 9:50 PM	8/16/24 10:30 PM	0.01	0.7	
	CSO-052	8/16/24 10:20 PM	8/16/24 11:25 PM	0.46	1.1	
	CSO-056A	8/16/24 10:30 PM	8/16/24 11:05 PM	0.02	0.6	
	LEWS 1040	8/16/24 10:30 PM	8/16/24 11:15 PM	0.04	0.8	

Table 2 Wet Weather Events Producing CSOs						
Event	**Location**	**Event Start**	**Event End**	**Total Volume (MG)**	**Duration (Hrs)**	**Total Rain (in)**
46[1,2]	CSO-055	8/17/24 4:55 PM	8/17/24 6:10 PM	0.08	1.3	0.33
	RRES 1145	8/17/24 5:25 PM	8/17/24 6:45 PM	0.02	1.3	
	CSO-056B	8/17/24 5:35 PM	8/17/24 7:00 PM	0.09	1.4	
	CSO-056A	8/17/24 5:40 PM	8/17/24 7:00 PM	0.03	1.3	
	CSO-059	8/17/24 6:20 PM	8/17/24 7:10 PM	0.02	0.8	
	CSO-052	8/17/24 6:20 PM	8/17/24 7:20 PM	0.42	1.0	
	LEWS 1055	8/17/24 6:25 PM	8/17/24 7:00 PM	0.03	0.6	
	LEWS 1040	8/17/24 6:25 PM	8/17/24 7:15 PM	0.11	0.8	
47[1,2]	CSO-056B	8/18/24 9:30 AM	8/18/24 10:30 AM	0.03	1.0	0.15
	LEWS 1040	8/18/24 9:30 AM	8/18/24 10:40 AM	0.04	1.2	
	CSO-052	8/18/24 10:10 AM	8/18/24 10:45 AM	0.10	0.6	
48[1,2]	CSO-055	8/25/24 7:55 AM	8/25/24 8:25 AM	0.03	0.5	0.14
	CSO-056B	8/25/24 8:35 AM	8/25/24 9:05 AM	0.04	0.5	
	LEWS 1040	8/25/24 8:40 AM	8/25/24 9:10 AM	0.02	0.5	
	CSO-052	8/25/24 8:40 AM	8/25/24 9:30 AM	0.17	0.8	
49[1]	LEWS 1055	8/30/24 1:05 PM	8/30/24 1:30 PM	0.02	0.4	0.02
50[1,2]	CSO-055	9/6/24 2:25 PM	9/6/24 9:40 PM	0.52	7.3	1.52
	RRES 1145	9/6/24 2:55 PM	9/6/24 10:25 PM	0.10	7.5	
	LEWS 1055	9/6/24 3:00 PM	9/6/24 10:30 PM	0.29	7.5	
	CSO-056B	9/6/24 3:00 PM	9/6/24 10:40 PM	1.52	7.7	
	CSO-052	9/6/24 3:05 PM	9/6/24 10:50 PM	2.34	7.8	
	LEWS 1040	9/6/24 3:05 PM	9/6/24 11:25 PM	1.01	8.3	
	CSO-059	9/6/24 3:10 PM	9/6/24 10:55 PM	1.09	7.8	
	LEWS 1070	9/6/24 3:15 PM	9/6/24 11:40 PM	0.22	8.4	
	LEWS 1045	9/6/24 3:45 PM	9/6/24 10:20 PM	0.02	6.6	
51[1]	LEWS 1040	9/22/24 11:20 PM	9/22/24 11:50 PM	0.01	0.5	0.19
52[1,2]	LEWS 1040	9/24/24 5:50 AM	9/24/24 10:15 AM	0.07	4.4	0.33
	CSO-052	9/24/24 9:25 AM	9/24/24 10:05 AM	0.09	0.7	
	CSO-056B	9/24/24 10:15 AM	9/24/24 11:10 AM	0.06	0.9	
	CSO-056A	9/24/24 10:25 AM	9/24/24 11:05 AM	0.01	0.7	
53[1,2]	CSO-055	9/28/24 8:55 AM	9/28/24 9:35 AM	0.04	0.7	0.33
	RRES 1145	9/28/24 8:55 AM	9/28/24 10:00 AM	0.01	1.1	
	LEWS 1040	9/28/24 9:10 AM	9/28/24 10:30 AM	0.13	1.3	
	CSO-052	9/28/24 9:25 AM	9/28/24 10:30 AM	0.28	1.1	
	LEWS 1055	9/28/24 9:40 AM	9/28/24 10:20 AM	0.02	0.7	
	CSO-056A	9/28/24 10:40 AM	9/28/24 11:30 AM	0.03	0.8	
	CSO-056B	9/28/24 10:40 AM	9/28/24 11:35 AM	0.12	0.9	
54[1]	LEWS 1040	10/1/24 9:25 PM	10/1/24 10:00 PM	0.01	0.6	0.16

Table 2 Wet Weather Events Producing CSOs						
Event	**Location**	**Event Start**	**Event End**	**Total Volume (MG)**	**Duration (Hrs)**	**Total Rain (in)**
55[1,2]	CSO-055	10/12/24 11:45 PM	10/13/24 5:20 AM	0.05	5.6	0.59
	LEWS 1055	10/13/24 12:35 AM	10/13/24 5:40 AM	0.03	5.1	
	LEWS 1040	10/13/24 12:35 AM	10/13/24 6:00 AM	0.20	5.4	
	CSO-052	10/13/24 12:50 AM	10/13/24 4:50 AM	0.22	4.0	
	CSO-056A	10/13/24 1:35 AM	10/13/24 6:55 AM	0.10	5.3	
	CSO-059	10/13/24 1:45 AM	10/13/24 6:55 AM	0.06	5.2	
	LEWS 1045	10/13/24 3:15 AM	10/13/24 7:45 AM	0.15	4.5	
	LEWS 1070	10/13/24 4:00 AM	10/13/24 6:25 AM	0.05	2.4	
56[1,2]	CSO-055	10/13/24 3:50 PM	10/13/24 10:05 PM	0.01	6.3	0.91
	LEWS 1040	10/13/24 4:40 PM	10/14/24 8:30 AM	0.40	15.8	
	CSO-056A	10/13/24 8:25 PM	10/13/24 11:45 PM	0.02	3.3	
	CSO-052	10/13/24 10:15 PM	10/13/24 10:45 PM	0.06	0.5	
	CSO-055	10/14/24 4:15 AM	10/14/24 6:45 AM	0.06	2.5	
	RRES 1145	10/14/24 5:00 AM	10/14/24 7:10 AM	0.06	2.2	
	LEWS 1055	10/14/24 5:20 AM	10/14/24 6:40 AM	0.02	1.3	
	CSO-052	10/14/24 5:20 AM	10/14/24 7:35 AM	0.71	2.3	
	LEWS 1070	10/14/24 5:45 AM	10/14/24 8:25 AM	0.06	2.7	
	LEWS 1045	10/14/24 6:00 AM	10/14/24 10:10 AM	0.13	4.2	
	CSO-056A	10/14/24 6:10 AM	10/14/24 8:30 AM	0.10	2.3	
	CSO-059	10/14/24 6:30 AM	10/14/24 8:40 AM	0.16	2.2	
57[1,2]	LEWS 1055	10/15/24 8:35 AM	10/15/24 11:45 AM	0.03	3.2	0.31
	LEWS 1040	10/15/24 8:35 AM	10/15/24 12:55 PM	0.23	4.3	
	CSO-055	10/15/24 10:10 AM	10/15/24 11:25 AM	0.01	1.3	
	LEWS 1070	10/15/24 10:25 AM	10/15/24 1:10 PM	0.03	2.8	
	CSO-059	10/15/24 10:30 AM	10/15/24 12:15 PM	0.02	1.8	
	CSO-052	10/15/24 11:15 AM	10/15/24 11:55 AM	0.08	0.7	
	LEWS 1045	10/15/24 11:45 AM	10/15/24 1:45 PM	0.04	2.0	
	CSO-056A	10/15/24 11:55 AM	10/15/24 1:35 PM	0.04	1.7	
58[1,2]	LEWS 1040	10/29/24 5:30 AM	10/29/24 6:05 AM	0.04	0.6	0.17
	CSO-052	10/29/24 5:40 AM	10/29/24 6:05 AM	0.05	0.4	
	CSO-056B	10/29/24 5:40 AM	10/29/24 6:05 AM	0.03	0.4	
59[1]	LEWS 1040	11/6/24 2:35 AM	11/6/24 3:20 AM	0.01	0.8	0.22
60[1,2]	LEWS 1040	11/10/24 8:30 AM	11/10/24 11:30 AM	0.11	3.0	0.40
	CSO-052	11/10/24 8:40 AM	11/10/24 11:30 AM	0.22	2.8	
	CSO-056A	11/10/24 9:45 AM	11/10/24 12:30 PM	0.02	2.8	
61[1,2]	LEWS 1040	11/14/24 7:40 AM	11/14/24 10:20 AM	0.07	2.7	0.42
	CSO-052	11/14/24 8:00 AM	11/14/24 9:50 AM	0.10	1.8	

Table 2 Wet Weather Events Producing CSOs						
Event	**Location**	**Event Start**	**Event End**	**Total Volume (MG)**	**Duration (Hrs)**	**Total Rain (in)**
62[1,2]	CSO-055	11/25/24 10:30 PM	11/25/24 11:35 PM	0.04	1.1	0.21
	LEWS 1040	11/25/24 11:25 PM	11/26/24 12:25 AM	0.08	1.0	
	LEWS 1055	11/25/24 11:30 PM	11/26/24 12:15 AM	0.02	0.8	
	CSO-052	11/25/24 11:40 PM	11/26/24 12:40 AM	0.30	1.0	
	CSO-056A	11/26/24 12:25 AM	11/26/24 1:20 AM	0.03	0.9	
63[1,2]	CSO-056B	11/28/24 7:45 AM	11/28/24 8:25 AM	0.02	0.7	0.25
	LEWS 1040	11/28/24 7:45 AM	11/28/24 8:25 AM	0.01	0.7	
	CSO-052	11/28/24 7:55 AM	11/28/24 8:30 AM	0.06	0.6	
64[1]	LEWS 1055	12/7/24 5:25 AM	12/7/24 10:20 AM	0.16	4.9	0.00
65[1]	LEWS 1040	12/8/24 1:10 AM	12/8/24 1:20 AM	0.04	0.2	0.00
66[1,2]	LEWS 1040	12/9/24 4:35 AM	12/9/24 8:05 AM	0.18	3.5	0.48
	CSO-056B	12/9/24 4:40 AM	12/9/24 8:05 AM	0.28	3.4	
	LEWS 1055	12/9/24 4:45 AM	12/9/24 6:25 AM	0.01	1.7	
	CSO-052	12/9/24 4:55 AM	12/9/24 5:20 AM	0.05	0.4	
	CSO-056A	12/9/24 5:50 AM	12/9/24 8:55 AM	0.09	3.1	
	CSO-059	12/9/24 6:50 AM	12/9/24 8:55 AM	0.10	2.1	
67[1,2]	LEWS 1040	12/15/24 6:40 AM	12/15/24 10:00 AM	0.04	3.3	0.27
	CSO-056B	12/15/24 6:55 AM	12/15/24 8:25 AM	0.04	1.5	
	CSO-052	12/15/24 7:05 AM	12/15/24 8:15 AM	0.12	1.2	
68[1,2]	LEWS 1040	12/16/24 8:55 PM	12/16/24 9:35 PM	0.03	0.7	0.11
	CSO-052	12/16/24 9:05 PM	12/16/24 9:50 PM	0.09	0.8	
69[1,2]	CSO-055	12/29/24 4:35 AM	12/29/24 8:35 AM	0.24	4.0	1.25
	RRES 1145	12/29/24 4:45 AM	12/29/24 4:20 PM	0.02	11.6	
	CSO-056B	12/29/24 4:55 AM	12/29/24 3:45 PM	1.89	10.8	
	LEWS 1040	12/29/24 4:55 AM	12/29/24 6:45 PM	1.14	13.8	
	LEWS 1055	12/29/24 5:00 AM	12/29/24 3:10 PM	0.31	10.2	
	CSO-052	12/29/24 5:05 AM	12/29/24 3:30 PM	2.86	10.4	
	LEWS 1045	12/29/24 6:00 AM	12/29/24 3:35 PM	0.06	9.6	
	CSO-056A	12/29/24 6:05 AM	12/29/24 4:35 PM	0.44	10.5	
	CSO-059	12/29/24 6:20 AM	12/29/24 4:50 PM	1.78	10.5	

Table 2 Wet Weather Events Producing CSOs						
Event	**Location**	**Event Start**	**Event End**	**Total Volume (MG)**	**Duration (Hrs)**	**Total Rain (in)**
70[1,2]	LEWS 1040	12/30/24 3:15 AM	12/30/24 7:15 AM	0.12	4.0	0.29
	CSO-056B	12/30/24 4:05 AM	12/30/24 6:10 AM	0.06	2.1	
	CSO-052	12/30/24 4:15 AM	12/30/24 5:25 AM	0.10	1.2	
71[1,2]	LEWS 1040	12/31/24 11:20 AM	12/31/24 11:30 PM	0.34	12.2	0.67
	CSO-056B	12/31/24 11:25 AM	12/31/24 12:40 PM	0.13	1.3	
	CSO-052	12/31/24 11:30 AM	12/31/24 12:40 PM	0.20	1.2	
	CSO-056A	12/31/24 12:30 PM	12/31/24 1:35 PM	0.03	1.1	
	CSO-052	12/31/24 8:00 PM	12/31/24 11:54 PM	0.60	3.9	
	CSO-056B	12/31/24 8:00 PM	12/31/24 11:54 PM	0.33	3.9	
	LEWS 1045	12/31/24 8:45 PM	12/31/24 11:40 PM	0.01	2.9	
	CSO-056A	12/31/24 9:10 PM	12/31/24 11:54 PM	0.06	2.7	
	CSO-059	12/31/24 9:50 PM	12/31/24 11:54 PM	0.14	2.1	

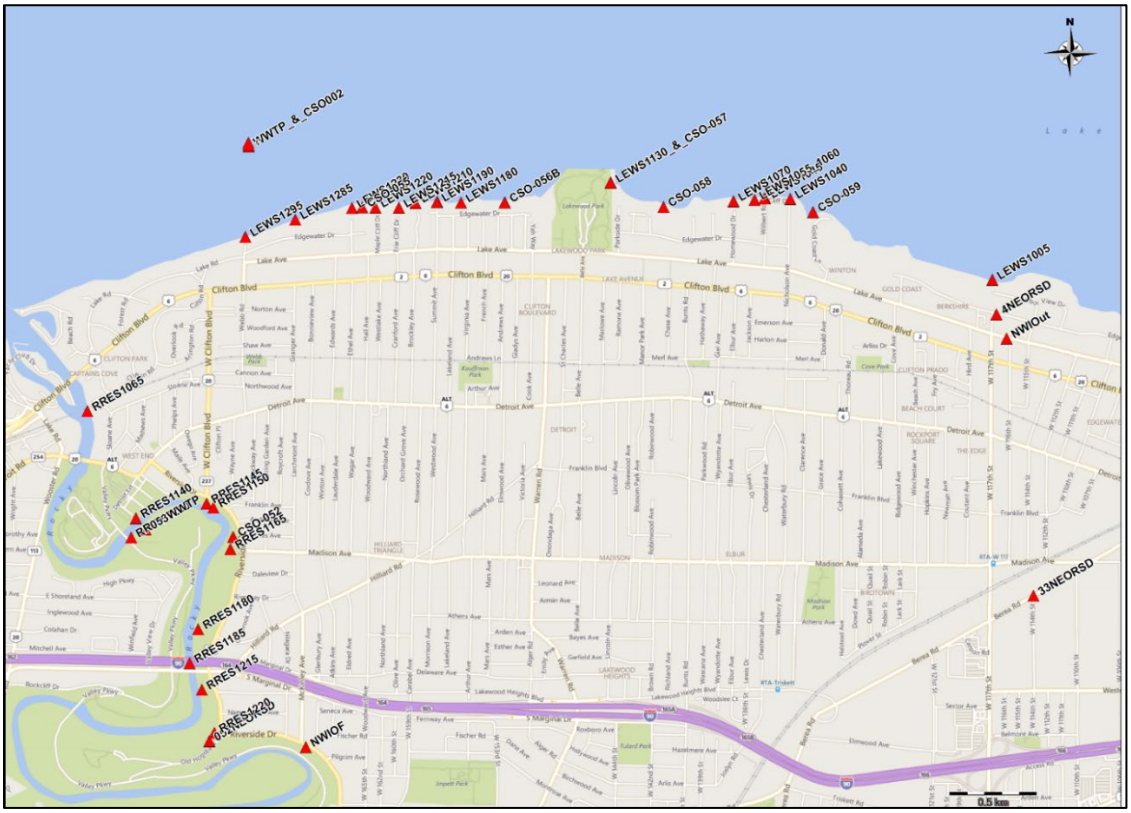

Figure 1: Map of the CSO Outfalls

The City of Lakewood has an Integrated Wet Weather Improvement Plan (IWWIP) that will reduce combined sewer overflow events to four or less in a typical year of rainfall. The City submitted the IWWIP to the EPA on March 1, 2019, and currently incorporates:

1) the installation of a high-rate treatment (HRT) facility for CSO-002 (substantially completed in March 2022);

2) combined sewer overflow storage tank project for CSO-052 (currently in design) which would discharge to the WWTP once the plant has recovered from the rain event;

3) sewer manhole separation projects that reduce infiltration to the sewers at both the public and private levels;

4) combined sewer overflow storage tank project for CSO-059 (preliminary flow and pollutant data collection beginning in 2025) which would discharge back to the Lakewood Interceptor Sewer once its water level has receded after a rain event; and,

5) increasing permeable surfaces where appropriate.

The City's IWWIP is continually progressing.

In addition to the 2019 IWWIP submittal improvements, the City has also undertaken re-lining of the interceptor (expected completion December 2025).

The federal district court entered the partial wet weather consent decree for City of Lakewood, the United States (US EPA) and the State of Ohio (Ohio EPA) on January 31, 2023.

For more information, contact:

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216.529.6807 or email Mark.Papke@lakewoodoh.gov

COMPLIANCE WITH EPA'S NINE MINIMUM CONTROLS

The City of Lakewood operates and maintains its collection system in accordance with the U.S. EPA's 1994 nine minimum controls (*Federal Register / Vol.59, No.75 / Tuesday, April 19, 1994 / Notices* Section II B. page 18691). A brief description of the controls and Lakewood's activities for this reporting year follows:

Control 1—Reducing CSOs through Operation and Maintenance

Lakewood continued to implement its operation and maintenance program for the combined sewer collection system, including cleaning and televising sewer mains, catch basins and manholes. In 2023 the interceptor rehabilitation work began and is expected to continue throughout 2025.

Control 2—Storing CSOs in Collection System

To maximize as much sewage storage as possible in the collection system, the interceptor is filled prior to any CSO discharge to the greatest extent possible. This is routinely done to reduce the magnitude, frequency, and duration of CSOs. In 2019, Lakewood modified several overflow structures within the collection system (raised weirs, etc.) to store more flow within in the pipes before an overflow occurs. The data for 2021 demonstrated a reduction in overflow number and volume. In 2022, Lakewood raised a weir to reduce overflows at RRES1180 to further store combined sewage in the collection system.

Control 3—Optimizing Pretreatment Program

Lakewood monitored the industrial pretreatment discharges. This was done to minimize CSO pollutants from the discharges of non-domestic users.

Control 4—Maximizing Flow through the Treatment Plant

Lakewood continued to operate the WWTP at its maximum treatable flow rate during wet weather flow conditions. This is routinely done to reduce the magnitude, frequency, and duration of CSOs. In 2022, Lakewood substantially completed the High-Rate Treatment (HRT) facility at the WWTP. The HRT reduces CSOs at CSO-002 to four or less in a typical year.

Control 5—Preventing Dry-Weather Overflows

There were no dry weather overflows at Lakewood's CSO outfalls during this reporting year.

Control 6—Controlling Solids and Floatables

Lakewood maintains street sweeping from March – November every year as well as catch basin and sewer main cleaning.

Control 7—Preventing Pollution of Receiving Water Bodies

To reduce the impact of CSOs, the first flush during the CSO event is routed to additional treatment capacity at the plant. The City also implements sewer improvement projects as a part of most public works improvements projects. These sewer improvement components include manhole separation and CIPP sewer lining where necessary to reduce flow communication between "over" and "under" sewers. The City's "under" sewers route to the WWTP, whereas the "over" sewers generally route to receiving waters.

Control 8—Notifying the Public

The public notification process continued to inform the EPA, Cuyahoga County Board of Health and interested citizens when CSOs occur. CSOs are publicly reported here: https://cso.lakewoodoh.gov/.

Control 9—Monitoring CSO Outfalls to Confirm the Effectiveness of CSO Controls

Lakewood continued to monitor the CSO outfalls to characterize CSO discharges. Monitoring included metering the volume of the CSO discharge, visually inspecting the overflow for floatables, and sampling the initial overflow for pollutant concentrations.