

ANNUAL CONSENT DECREE
PROGRESS REPORT
FY 2023



One Donham Plaza
Middletown, OH 45042

July 28, 2023



Middletown has prepared the following Annual Consent Decree Progress Report in accordance with Section VII, Paragraph 31 of the Consent Decree. Pursuant to Paragraph 36, the following statement certifies that the information contained within this document is true, accurate, and complete:

I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I have no personal knowledge that the information submitted is other than true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.

City of Middletown

Signed: 

Printed Name: Nakita Lancaster

Title: Assistant Public Works & Utilities Director

Date: 7/28/2023

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1. INTRODUCTION AND PURPOSE

On April 12, 2018 (Effective Date), the U.S. District Court for the Southern District of Ohio entered a Consent Decree (CD) between the City of Middletown, the United States America and the State of Ohio (Ohio) to address alleged violations of the Clean Water Act (CWA).

This annual Progress Report is submitted pursuant to Section VII of the CD. Middletown has prepared this report in accordance with the requirements set forth in Paragraph 31 of the CD in order to apprise U.S. EPA and Ohio EPA of the work and activities undertaken by Middletown from the July 1, 2022 through June 30, 2023 (the “reporting period”).

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2. COMPLIANCE DEADLINES AND MILESTONES

The following table summarizes the CD milestones and requirements during the reporting period and the status of Middletown's activities to address such milestones and requirements.

Table 2-1. Consent Decree Milestones

Consent Decree Submittal	CD Para.	Status
Planning/Design for Bulls Run to Sunset Park CSO Project	Appx C	Complete
Construction for Bulls Run to Sunset Park CSO Project	Appx C	Complete
Construction for Lakeside Redirect CSO Project	Appx C	Complete
Condition Assessment for sewer pipe rehabilitation and replacement	Appx C	In Progress
Downtown CSO Storage Basin	Appx C	In Progress
WWTP, Secondary Settling and Sludge Pumping	Appx C	In Progress
WWTP, Secondary Aeration	Appx C	In Progress

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3. ANNUAL PROJECT AND ACTIVITY UPDATE

3.1 Condition Assessment

In accordance with Section IV of CD, Middletown is working towards the Performance Criteria outlined in Paragraph 17. Middletown has completed a Condition Assessment Plan for the sanitary and combined sewer systems. Middletown prioritized the inspection of the sanitary and combined sewer systems based on the overall risk score to include pipes that were within 30 years of their remaining useful life. The prioritization was used to develop a schedule to complete inspection of 706,813 LF of pipe by December 31, 2022.

In 2021, Middletown entered into a contract with RedZone Robotics to conduction the condition assessment. RedZone Robotics has completed inspections of approximately 574,000 LF of pipe. Approximately 125,000 LF were not inspected due to heavy debris. The other 7,800 could not be accessed due to various reasons, including manholes that could not be located.

A cleaning contractor (Metropolitan Environmental) was hired by the City to clean approximately 125,000 LF of sewer in 2022. Due the heavy cleaning that was required, the contractor was only able to complete approximately 80,000 LF of inspections.

The City hired a consultant to assist with the review of CCTV data from both RedZone and Metropolitan Environmental. The review was prioritized to PACP defect scores of 4's and 5's. Approximately, 6,500 LF of pipe was rehabbed during the reporting period of July 1 2022 to June 30, 2023. There are an additional 8,500 LF scheduled for rehab based on the consultant review.

A full rehabilitation and replacement schedule has not been completed. Based on the review of pipes with PACP defects of 4's or 5's, all critical rehab projects have been included in the 15,000 LF discussed above. The remaining CCTV data will be reviewed to determine if pipes assigned lower defect scores will be eligible for rehabilitation. Generally, the condition of the City's sewer assets appear better than expected.

3.2 Downtown CSO Storage Basin

In accordance with Appendix C of the CD, Middletown has commenced with the design of the Downtown CSO Storage Basin. The City has selected the progressive design-build delivery method to complete the project.

Design began in July 2022. The design-build team provided an alternatives analysis, modeling technical memorandum, and basis of design report prior to commencing with detailed design. The design-build team recently completed the 60% design drawings and specifications. A PTI application was submitted to Ohio EPA in May 2023.

3.3 Secondary Settling and Sludge Pumping

The secondary settling and sludge pumping project is scheduled to begin in 2039, per Appendix C of the CD. However, in 2021 WWTP staff reported concerns about the existing MCC. The MCC was originally installed in 1972 and was experiencing failures. The City hired a design consultant in 2021 to perform an electrical upgrade for the Secondary Building. As the project was developed, additional scope items were added such as

adding variable frequency drives for the sludge pumps, new pump motors, and flow meters for the sludge piping.

The project was bid for construction in July 2022. Once the contractor began ordering equipment for the project, it was determined that replacing the pump motors was not possible. A change order was issued in March 2023 to include the replacement of all ten (10) pumps in Secondary Building. This included four return sludge pumps, four waste sludge pumps, and two dilution pumps. Construction has been ongoing since March 2023 and is anticipated to be completed by the end of the year.

3.3 Secondary Aeration

The secondary aeration project is scheduled to begin in 2028, per Appendix C of the CD. However, the existing blowers have been in operation since the 1970's and have exceeded their useful life. Two of the five blowers that are there have been rebuilt over the last several years at significant expense due to being obsolete. The remaining blowers are similarly in poor condition and may need to be rebuilt soon. In addition to age of the equipment, the blowers are oversized for the current oxygen demands at the plant. The aeration system does not have any automation for process control so as conditions change at the WRF, operators manually throttle valves based on institutional knowledge of where the valve set point should be.

The City hired an engineering consultant in May 2023 for preliminary engineering services. The scope of work consists of an alternatives analysis to determine the best approach for upgrading the secondary aeration system. The recommended alternative will be used to develop an RFP for detailed design.

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4. SYSTEM PERFORMANCE DURING 2023

4.1 NPDES Permit Violations

During the reporting period, from July 1, 2022 to June 30, 2023, there were two NPDES violations due a power outage at secondary substation. The secondary substation feeds the aeration blowers. A rental generator was delivered to the site to provide power but due to technical issues, the generator did not operate initially. During that time, DO was not supplied to the aeration tanks resulting in an ammonia limit violation and DO/pH violation. The violations were reported to Ohio EPA in May 2023.

Water in Basement (WIB) reports are summarized by calendar year. In the 2022 Annual Report, 7 WIBs were reported. Those WIBs were for the calendar year 2021. This is a correction to what was stated in the 2022 Annual Report which indicated that those WIBs were associated with the FY (July 1, 2021 – June 30, 2022).

In 2022, there 15 WIBs reported for the calendar year. Roots were the main cause of the WIBs and only two were related to debris in the line. Areas with roots have been identified and will be monitored and treated moving forward.

4.2 CSOs and Dry Weather Overflows

During the reporting period, from July 1, 2022 to June 30, 2023, there were three dry weather overflows. An obstruction caused a dry weather overflow at the Bulls Run overflow on December 9, 2022. Sewer maintenance promptly removed the blockage. There were two dry weather overflows at the Lafayette overflow on March 10 and March 13, 2023. These were also caused by blockages that were cleared by sewer maintenance.

Known combined sewer overflow (CSO) events that occurred during the reporting period are summarized in Table 4-1.

Table 4.1: Combined Sewer Overflows

Date		Lafayette	15 th Ave	14 th Ave	Verity PKWY	9th Ave	2 nd Ave	Bulls Run	Lakeside
7/6/2022	Volume (MG)	0.04	0.89	6.16	1.651	0.98	0.05	6.12	
	Duration (minutes)	85	115	85	95	85	10	570	
7/7/2022	Volume (MG)							0.33	
	Duration (minutes)							515	
7/8/2022	Volume (MG)	0.21	0.12	3.45	0.16	0.08		0.25	
	Duration (minutes)	75	95	50	75	45		140	
7/17/2022	Volume (MG)	0.09	1.62	4.39	5.70	2.52	0.14	21.80	
	Duration (minutes)	325	460	205	325	210	30	960	
7/18/2022	Volume (MG)		0.08		0.01			1.23	

Table 4.1: Combined Sewer Overflows

Date		Lafayette	15 th Ave	14 th Ave	Verity PKWY	9th Ave	2 nd Ave	Bulls Run	Lakeside
	Duration (minutes)		175		30			595	
7/27/2022	Volume (MG)	0.01	0.08	0.01	0.12	0.05	0.00	0.90	
	Duration (minutes)	40	105	30	80	40	5	305	
7/31/2022	Volume (MG)							0.001	
	Duration (minutes)							30	
8/1/2022	Volume (MG)							0.04	
	Duration (minutes)							90	
8/4/2022	Volume (MG)		0.32	0.09		0.38	0.08	4.83	
	Duration (minutes)		310	50		60	20	300	
8/5/2022	Volume (MG)		0.26					0.04	
	Duration (minutes)		755					105	
8/6/2022	Volume (MG)		0.34	0.34		0.40	0.09	5.33	
	Duration (minutes)		75	65		80	20	300	
8/7/2022	Volume (MG)							0.89	
	Duration (minutes)							1440	
8/8/2022	Volume (MG)							0.20	
	Duration (minutes)							525	
8/9/2022	Volume (MG)		0.06	0.02		0.05		1.36	
	Duration (minutes)		75	45		45		1275	
8/10/2022	Volume (MG)							0.004	
	Duration (minutes)							75	
8/21/2022	Volume (MG)		0.11	0.17		0.50	0.07	2.869	
	Duration (minutes)		60	50		65	15	120	
9/3/2022	Volume (MG)		0.86	2.09	3.56	1.51	0.04	12.78	
	Duration (minutes)		315	225	330	245	25	900	
9/4/2022	Volume (MG)							0.12	
	Duration (minutes)							735	
9/5/2022	Volume (MG)		4.15	11.07	12.10	3.90	0.09	40.00	
	Duration (minutes)		335	305	425	455	30	1230	
9/6/2022	Volume (MG)		0.13	0.63	1.16	0.64	0.03	11.87	

Table 4.1: Combined Sewer Overflows

Date		Lafayette	15 th Ave	14 th Ave	Verity PKWY	9th Ave	2 nd Ave	Bulls Run	Lakeside
	Duration (minutes)		115	85	180	150	10	1280	
9/11/2022	Volume (MG)		0.12	0.04	0.43	0.25	0.05	2.17	
	Duration (minutes)		70	50	65	65	15	240	
10/12/2022	Volume (MG)	0.11	0.06	0.03	0.25	0.11		1.93	
	Duration (minutes)	60	50	30	55	40		180	
10/14/2022	Volume (MG)			0.03					
	Duration (minutes)			5					
10/26/2022	Volume (MG)							0.37	
	Duration (minutes)							195	
10/30/2022	Volume (MG)		0.002		0.002			0.27	
	Duration (minutes)		20		10			135	
10/31/2022	Volume (MG)							0.01	
	Duration (minutes)							75	
11/11/2022	Volume (MG)	0.04	0.03		0.04	0.01		1.38	
	Duration (minutes)	50	100		60	30		465	
11/18/2022	Volume (MG)			0.08					
	Duration (minutes)			5					
11/21/2022	Volume (MG)			0.0113					
	Duration (minutes)			5					
11/27/2022	Volume (MG)	0.08	0.03	0.0003	0.14	0.05		2.61	
	Duration (minutes)	65	80	5	75	60		645	
11/30/2022	Volume (MG)			0.13		0.42		0.27	
	Duration (minutes)			165		100	95		120
12/6/2022	Volume (MG)				0.639	0.42		3.446	
	Duration (minutes)				100	95		215	
12/7/2022	Volume (MG)							1.70	
	Duration (minutes)							1440	
12/8/2022	Volume (MG)							0.84	
	Duration (minutes)							1440	
12/9/2022	Volume (MG)							0.02	

Table 4.1: Combined Sewer Overflows

Date		Lafayette	15 th Ave	14 th Ave	Verity PKWY	9th Ave	2 nd Ave	Bulls Run	Lakeside
	Duration (minutes)							145	
12/14/2022	Volume (MG)							0.37	
	Duration (minutes)							185	
12/15/2022	Volume (MG)		0.003					0.62	
	Duration (minutes)		25					360	
12/22/2022	Volume (MG)							0.08	
	Duration (minutes)							65	
12/31/2022	Volume (MG)		0.01		0.04	0.01		1.62	
	Duration (minutes)		35		35	25		930	
1/3/2023	Volume (MG)	0.18	0.02	0.003	0.09	0.05		1.77	
	Duration (minutes)	110	65	20	45	45		665	
1/5/2023	Volume (MG)			0.340					
	Duration (minutes)			10					
1/6/2023	Volume (MG)			21.49					
	Duration (minutes)			215					
1/9/2023	Volume (MG)			10.88					
	Duration (minutes)			115					
1/10/2023	Volume (MG)			3.60					
	Duration (minutes)			35					
1/12/2023	Volume (MG)	0.40	0.08	0.02	0.32	0.23		3.76	
	Duration (minutes)	180	135	55	145	145		965	
1/13/2023	Volume (MG)							0.02	
	Duration (minutes)							135	
1/16/2023	Volume (MG)	0.35	0.008		0.03	0.01		0.47	
	Duration (minutes)	285	25		20	20		300	
1/17/2023	Volume (MG)			1.24					
	Duration (minutes)			35					
1/18/2023	Volume (MG)	0.06	0.01		0.05	0.02		0.74	
	Duration (minutes)	55	75		50	50		105	
1/19/2023	Volume (MG)		0.01		0.02	0.0001		1.17	

Table 4.1: Combined Sewer Overflows

Date		Lafayette	15 th Ave	14 th Ave	Verity PKWY	9th Ave	2 nd Ave	Bulls Run	Lakeside
	Duration (minutes)		35		30	10		550	
1/25/2023	Volume (MG)				0.01			5.02	
	Duration (minutes)				20			1070	
1/26/2023	Volume (MG)							0.14	
	Duration (minutes)							270	
2/8/2023	Volume (MG)							0.16	
	Duration (minutes)							140	
2/9/2023	Volume (MG)							0.03	
	Duration (minutes)							55	
2/16/2023	Volume (MG)	0.71	0.10	0.05	0.75	0.44		6.29	
	Duration (minutes)	210	160	85	165	160		720	
2/22/2023	Volume (MG)							0.08	
	Duration (minutes)							105	
2/23/2023	Volume (MG)							0.0004	
	Duration (minutes)							15	
2/27/2023	Volume (MG)							0.57	
	Duration (minutes)							300	
3/1/2023	Volume (MG)		0.003		0.07	0.01		0.57	
	Duration (minutes)		15		30	20		180	
3/3/2023	Volume (MG)	57.65	10.96	14.11	17.54	16.22	0.90	66.52	
	Duration (minutes)	885	910	680	910	900	210	945	
3/4/2023	Volume (MG)	160.62	0.01		30.71	5.547		18.25	
	Duration (minutes)	1440	15		1440	220		1440	
3/5/2023	Volume (MG)	131.76			30.16	0.55		17.52	
	Duration (minutes)	1405			1125	235		1440	
3/6/2023	Volume (MG)	93.44						5.91	
	Duration (minutes)	1440						1065	
3/7/2023	Volume (MG)	17.85						0.05	
	Duration (minutes)	615						15	
3/10/2023	Volume (MG)							0.09	

Table 4.1: Combined Sewer Overflows

Date		Lafayette	15 th Ave	14 th Ave	Verity PKWY	9th Ave	2 nd Ave	Bulls Run	Lakeside
	Duration (minutes)							85	
3/13/2023	Volume (MG)	0.01							
	Duration (minutes)	20							
3/17/2023	Volume (MG)							0.12	
	Duration (minutes)							115	
3/23/2023	Volume (MG)	0.51	0.46	0.12	0.56	0.32		2.43	
	Duration (minutes)	185	90	55	70	75		120	
3/24/2023	Volume (MG)	23.19	0.67	0.191	2.02	1.41	0.02	30.92	
	Duration (minutes)	1105	430	235	540	450	10	1410	
3/25/2023	Volume (MG)	37.30	13.95	26.83	54.97	25.11	1.31	68.25	
	Duration (minutes)	580	610	515	1440	945	225	1440	
3/26/2023	Volume (MG)				9.79			7.86	
	Duration (minutes)				900			1440	
3/27/2023	Volume (MG)		0.40					3.32	
	Duration (minutes)		280					855	
3/31/2023	Volume (MG)		0.008		0.04	0.001		0.69	
	Duration (minutes)		45		30	10		330	
4/1/2023	Volume (MG)	0.05	0.29	0.004	0.10	0.02		1.14	
	Duration (minutes)	55	110	15	55	30		765	
4/4/2023	Volume (MG)		0.002						
	Duration (minutes)		15						
4/5/2023	Volume (MG)	1.22			3.25	3.29	0.18	16.20	
	Duration (minutes)	360			570	565	60	525	
4/6/2023	Volume (MG)							13.64	
	Duration (minutes)							885	
4/21/2023	Volume (MG)				0.02			0.50	
	Duration (minutes)				20			180	
4/22/2023	Volume (MG)				0.06			2.06	
	Duration (minutes)				45			1440	
4/23/2023	Volume (MG)							0.47	

Table 4.1: Combined Sewer Overflows

Date		Lafayette	15 th Ave	14 th Ave	Verity PKWY	9th Ave	2 nd Ave	Bulls Run	Lakeside
	Duration (minutes)							990	
4/28/2023	Volume (MG)	0.06			0.05	0.002			
	Duration (minutes)	65			55	15			
4/30/2023	Volume (MG)				0.01			0.38	
	Duration (minutes)				10			240	
5/1/2023	Volume (MG)							0.23	
	Duration (minutes)							390	
5/2/2023	Volume (MG)							0.01	
	Duration (minutes)							30	
5/7/2023	Volume (MG)				5.32	2.17	0.11		
	Duration (minutes)				235	170	25		
6/11/2023	Volume (MG)				0.01				
	Duration (minutes)				30				
6/13/2023	Volume (MG)				0.04	0.002			
	Duration (minutes)				20	10			
6/19/2023	Volume (MG)				0.12	0.04			
	Duration (minutes)				35	25			

4.3 Unauthorized Releases

During the reporting period, from July 1, 2022 to June 30, 2023, there were no known Unauthorized Releases.

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5. PLANNED ACTIVITIES FOR 2023-2024

Middletown will be continuing the overall program outlined in the CD in FY 2024. The following sub-sections provide specifics on this work.

5.1 Condition Assessment

In accordance with Section IV of CD, Middletown is working towards the Performance Criteria outlined in Paragraph 17 and has completed a Condition Assessment Plan as well as began work on the condition assessment.

The City has identified pipes with PACP defect scores with 4's or 5's and is working towards completing the rehabilitation of approximately 8,500 LF of pipe during the next reporting period.

Additional CCTV data will continue to be reviewed with the goal of completing a rehabilitation and replacement schedule for the combined and separate sewer systems.

5.2 Downtown CSO Storage Basin

In accordance with Appendix C of the CD, Middletown will continue to progress design of the Downtown CSO Storage Basin in 2023 and move into construction. Currently, the design-build team is working on guaranteed maximum price (GMP) amendment and that is due to the City on July 31, 2023. Once the GMP is reviewed and agreed upon, the City will issue the contract amendment for construction. We anticipate construction will begin in September or October of 2023.

Currently substantial completion is expected to occur by March 30, 2026. This is approximately 3 months beyond the deadline indicated in the CD. Every effort will be made to complete construction in a timely manner.

5.3 Secondary Settling and Sludge Pumping

As noted in Section 3, construction is ongoing and is anticipated to be completed at the end of 2023.

5.3 Secondary Aeration

As noted in Section 3, once the alternatives analysis is completed, the City will advance the project into detailed design. We anticipate issuing an RFP for design in early 2024.