CAPITAL REGION WATER

Public Notification Plan
2023 Semi-Annual Report
Supplemental Information

May 2024

Background

As documented in the Modification to the Partial Consent Decree[1] between the United States and PADEP v. Capital Region Water and the City of Harrisburg, specifically Paragraph V.B.10(f)i[2] regarding Public Notification, and the associated Nine Minimum Controls (NMC) Plan required under the Combined Sewer Overflow (CSO) Control Policy, Capital Region Water is committed to developing and implementing a Public Notification Plan (Plan) for CSO activity. This Plan, as submitted on September 22, 2023, serves to describe and specify how Capital Region Water will ensure that the public receives timely information regarding the occurrence of CSO events. Furthermore, Capital Region Water has committed to posting information regarding CSO activity for the previous year on or before May 1. This information serves to provide the public information concerning CSO discharge occurrence and the impact on water quality in the receiving waters. Stakeholders are encouraged to review associated documentation at https://capitalregionwater.com/resources/cbh2o-documents/, including the Semi-Annual Reports on Consent Decree Implementation.

System Capture During Wet & Dry Weather

Capital Region Water (CRW) captured and treated 90 percent of all combined sewage and stormwater in 2023, and on average treats 90 percent annually. The 10 percent that went untreated was primarily due to the result of heavy rains overwhelming Harrisburg's aging and undersize infrastructure.

- Treated Volume (AWTF in 2023) = 6,657 MG for both dry and wet weather periods
- Systemwide Capture, Wet and Dry Weather (2023) = 90%
    - For comparison purposes, this was 92% in 2020, 87% in 2021, and 91% in 2022.
- Systemwide Capture, Wet Weather Volume (2023) = approximately 810 MG
- Systemwide Overflow, Wet Weather Volume (2023) = approximately 730 MG
    - Overflow volumes generated by only the four largest of the 89 storms that occurred in 2023 (265 MG) account for 36 percent of the CSO overflow volume for 2023.
- Systemwide Capture, Wet Weather (2023) = 54%
- While there are numerous overflows for each outfall, many of those overflows have relatively small volumes and relatively short durations, thus reducing their potential impact on receiving waters (Susquehanna River and Paxton Creek).

[1] Modification to the Partial Consent Decree between the United States and PADEP v. Capital Region Water and the City of Harrisburg as filed in Federal District Court for the Middle District of Pennsylvania on August 25, 2023.

[2] According to Paragraph V.B.10(f)i, *Within 30 days of the Effective Date, CRW shall submit a Public Notification Plan to Plaintiffs for review and comment. The Public Notification Plan shall describe and specify how CRW will notify the public about CSO events, including the design, location, and planned installation date of any signs, placards, monitors, or other public notification system that CRW must install pursuant to the Paragraph.*

Comparison to Previous Years

- During the first half of 2023 (2023 H1), monthly precipitation volumes were comparable to the Typical Year precipitation volumes and were generally within +/- 1 standard deviation of the historic median precipitation, except April 2023 was somewhat higher and May 2023 was somewhat lower than the Typical Year.
- During the second half of 2023 (2023 H2), monthly precipitation volumes were within +/- 1 standard deviation of the historic median precipitation, except July 2023 was somewhat higher than the Typical Year.
- In total, there was an average of 38.1 inches of precipitation over the CRW service area during 2023, compared to 40.6 inches during Typical Year precipitation.
- Storm event frequency was similar; 95 events during Typical Year, 89 events during 2023.
- During the first half of 2023 (2023 H1), CRW's combined sewer system performed similar to previous H1 periods (59% capture, compared to the prior range of 54% to 62% capture).
- During the second half of 2023 (2023 H2), CRW's combined sewer system performed similar to previous H2 periods (50% capture, compared to the prior range of 33% to 62% capture).
- Recently completed capital projects such as the Front Street Pump Station upgrade, Green Stormwater Infrastructure or GSI projects, and the partially completed modifications to the CSO regulator structures, have resulted in a decrease in overflow volume of approximately 6 to 10 million gallons.

Recurrence Intervals for Top Storms in 2023

- The table below summarizes the various recurrence intervals for the top storms of 2023 (total precipitation >1.5 inches or hourly rainfall intensity >0.9 in/hour):
    - The recurrence interval is based on the probability that the given event will be equaled or exceeded in any given year. For example, for the April 29, 2023 storm, there is a 1 in 3 chance that rainfall of this magnitude and peak intensity will fall in Harrisburg during any given year (in sharp contrast to the generally held public belief that another similar event should not occur for another 3 years). This is said to be a 3-year recurrence interval. More specifically, the peak rainfall intensity for the April 29 event was approximately 0.72 inches/hour while the peak intensity for the most intense event during Typical Year precipitation is about 1.1 inches/hour.
    - The recurrence interval varies depending on the duration of the observed rainfall. For example, the recurrence interval for the April 29, 2023 storm was most notable with respect to the 24-hour duration (all day storm), while other storms may be most notable with respect to shorter durations (i.e. shorter bursts of intensity).

- It is important to recognize there is generally a lot of spatial variability for large summer-month storms. Intense storm cells tend to be much smaller than the CRW service area, so some portions of the combined system are impacted more than others.

Storm	Duration (hour)	Total Depth (inches)	Rainfall Intensity, 60-min (in/hr)	Overflow Volume (Million Gallons)	Recurrence Interval
April 29, 2023	26.6	2.78	0.72	94 MG	3 year (24-hour)
September 23, 2023	34.8	1.81	0.16	29 MG	< 1 year
November 21, 2023	14.6	1.94	0.30	53 MG	< 1 year
December 17, 2023	21.4	2.30	0.40	72 MG	1 year (6-hour)

Recommended Alternative/Long-Term Control Plan

After a comprehensive evaluation, CRW has identified a recommended Long-term Control Plan (LTCP) option or alternative aimed at controlling CSO discharges, reducing collection system backups onto streets and into basements, improving the health of local waterways, protecting public health and safety, and achieving compliance with the Clean Water Act. Affordability constraints are also considered to prevent an excessively high economic burden on low-income households. The recommended alternative would achieve levels of control of approximately 10 overflows per year along the Susquehanna River and 16 overflows per year along Paxton Creek. For comparison, annual CSO frequency ranges from 5 to 95 events. Furthermore, systemwide CSO volume is reduced by 84 percent (from an average of 794 MG to 131 MG) under the recommended plan.