Climate Change Impact on Sewer Overflow Litigation

A Spark for Sustainability and Justice

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Climate change–induced weather patterns are increasingly causing flooding and water pollution in communities across the country as sewer systems become overwhelmed during heavy rainfalls. Many municipalities, especially in the Midwest and Northeast, have sewer systems that carry both sanitary wastewater from buildings and pollutant-laden stormwater runoff from the streets. When it rains heavily, these combined sewer systems (CSS) cannot handle the volume and directly send or leak untreated wastewater into local waterways. In addition, stormwater runoff that would normally flow into sewer drains contributes to flooding and waterway pollution. Thus, these combined sewer overflow (CSO) discharges result in flooding and water pollution.

Fortunately, new technologies—along with the motivation of financial and environmental costs of not addressing these impacts—are creating opportunities for cost-effective solutions. Existing Clean Water Act (CWA) requirements offer immediate authority for the Environmental Protection Agency (EPA) and members of the public to advance solutions to the serious problem of sewer system overflows and urban flooding. With the Biden administration in place, EPA has the opportunity to set new priorities for clean water and use the agency's enforcement authority to help communities effectively manage their stormwater. This "wet" future provides a backdrop for the Biden EPA to tackle climate-induced threats with a better understanding of community-based solutions, financial considerations for urban economies, and data-driven distributed technologies, and, when necessary, through litigation, to compel wastewater utilities to engage with local communities.

There are approximately 10 times as many domestic separate systems as CSS. Separate systems also have CWA discharge permits, including plans to control separate stormwater flow. Some communities, like Chicago and Philadelphia, have both separate and CSS permits. While separate systems are less affected by excessive rainwater, they can discharge untreated wastewater when groundwater infiltration overwhelms defective collection infrastructure. Nonetheless, CSO remains the larger unresolved environmental challenge. EPA has developed unique requirements for CSS that serve about 40 million people nationwide, mostly in the Northeast and the Great Lakes region. As of September 2015, EPA had issued 859 CSO discharge permits in 30 states, with 162 permits located in the Great Lakes Basin watershed. EPA, *2016 Report to Congress: Combined Sewer Overflows into the Great Lakes Basin*, EPA-833-R-16-006 (Apr. 2016). In 2014 there were 1,480 untreated CSO discharges in the Great Lakes Basin. *See* EPA-HQ-OW-2016-0376-0043.

EPA has long sought to eliminate CSO. In 1994 EPA issued the still-relevant national CSO control policy as a cost-effective approach for wet weather. *Combined Sewer Overflow Control Policy*, 59 Fed. Reg. 18,688 (Apr. 19,1994). EPA requires all CSO permittees to have specific technology (nine minimum control categories) and a long-term plan to meet CWA requirements, including monitoring to ensure compliance with water quality standards. Permit authorities (EPA or state) are required to issue/reissue or modify permits to meet these objectives, including compliance with the technology requirement within two years of permit issuance or modification.

Early EPA administrations took an extremely flexible litigation enforcement posture. In deference to state and local authorities, EPA negotiated long-term compliance plans for overflows—premised on the past understanding that sewer utilities were unable to quickly make adequate and expensive system upgrades. EPA's flexible enforcement posture considered the utility's financial capability to pay for a CSO long-term plan. EPA, *Combined Sewer Overflow's Guidance for Financial Capability Assessment and Schedule Development*, EPA

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832-B-97-004 (Feb. 1997). Even with historical "normal" rainfall, this approach failed to reach the expected January 1, 1997, compliance deadline. As a check on future developments, EPA developed technical guidance to monitor CSO discharges and their impact on water quality standards. EPA, *Combined Sewer Overflows: Guidance for Monitoring and Modeling* (Jan. 1999).

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With many wastewater permittees inadequately controlling CSO, Congress amended the CWA by adding section 402(q) to require that each CWA permit and decree conform to the 1994 CSO policy. Wet Weather Water Quality Act of 2000, Pub. L. No. 106-554, 114 Stat. 2763A-224. EPA issued guidance describing a continuous process to assess whether permittees are meeting required controls and water quality standards and requiring additional controls as financial conditions change or as new control technologies emerge. EPA, *Combined Sewer Overflows: Post Construction Compliance Monitoring Guidance* at 5 (May 25, 2012). The CSO policy required all CWA permits to contain a clause authorizing EPA to modify the permit upon a determination that CSO controls failed to meet water quality standards.

CSO Management Evolves

Between approximately 2008 and 2014, the EPA increasingly included community-based green infrastructure into CSO long-term plans, especially if it resulted in other economic and community benefits. These strategies included pilot projects, studies, and cost-effective alternative green infrastructure solutions. During this timeframe, outside research substantiated the effectiveness of green infrastructure as part of a wastewater utility strategy. Studies showed that reducing community stormwater flow could effectively mitigate overflows and prevent damage to wastewater treatment plants. Likewise, combining community-based green infrastructure features with utility-built (grey) infrastructure had a mutually beneficial effect in enhancing urban drainage systems.

With this growing evidence, Congress amended the CWA to encourage *voluntary* integrated community planning and require that EPA promote integrated planning and green infrastructure. Water Infrastructure Improvement Act (WIIA), Pub. L. No. 115-436, 132 Stata. 5558 (2019). Congress at least endorsed the opportunity for wastewater utilities to engage with state and municipal partners to utilize integrated plans and green infrastructure in future CWA permit and enforcement actions. Unfortunately, during the Trump administration, EPA increased the insertion of more flexible terms in CSO consent decrees. Christopher Flavelle, *EPA Is Letting Cities Dump More Raw Sewage into Rivers for Years to Come*, N.Y. Times, Jan. 28, 2020.

EPA recognizes that new technologies can monitor and reduce wet weather overflows by maximizing existing collection/treatment capacity and reducing community stormwater. These technologies relate to the existing nine minimum CSO controls and include distributed sensors, remote controls, and wireless communications. Office of Wastewater Mgmt., EPA, *Smart Data Infrastructure for Wet Weather Control and Decision Support* (Aug. 2018). New data-driven distributed technologies have the potential to expand and accelerate EPA's trend for requiring large-scale greener infrastructure to reduce overflows. They can reconnect waterways with millions of gallons of storage available in existing lakes, ponds, and underground detention water systems to mimic the historic natural watersheds that minimize flooding and help slow/reduce community flows to wastewater collection pipes.

Several cities, including Chicago, have inventoried natural areas potentially useful for strategically locating future green infrastructure to enhance water absorption. Other cities have gone beyond inventorying natural areas by integrating technologies and weather forecasting to convert these somewhat passive assets into smarter resilient systems by making automated and predictive control decisions to actively manage stormwater flooding and CSO. The Philadelphia Water Department installed continuous monitoring and adaptive controls on existing passive retention ponds to reduce CSO. After six months, this upgrade kept 98% of the total water runoff out of the sewer system. J. Wright & D. Marchese, *Briefing: Continuous Monitoring and Adaptive Control: The "Smart" Stormwater Management Solution*, Proc. of the Inst. of Civ. Eng'rs—Smart Infrastructure and Construction (2018). A recent study confirmed that network modeling, accurate flow/level information, and weather forecasting can mitigate flooding and sewer overflows. Global Water Intel. & Global Water Leaders Grp., *Accelerating the Digital Water Utility* (2019).

New Drivers Creating a Tipping Point for Urban Resiliency

In spite of progress in mitigative processes such as green infrastructure, CSO and urban floods are increasing. Climate change is causing increased rainfall in much of the United States. The largest increase in heavy precipitation occurs in the Midwest and Northeast, and such events are projected to increase in those areas by 40 percent by 2100. Nat'l Acad. of Sci., *Framing the Challenge of Urban Flooding in the United States* (Mar. 2019). In Cook County, including Chicago, May 2020 was the wettest month in the past hundred years for the third year in a row. The area experienced untreated sewage flowing into public waterways on 20 separate occasions despite a deep tunnel built to capture stormwater. More stormwater is increasing CSO

in other locations. Utilizing climate change modeling for the period 2071 to 2100 in Oslo, Norway, scientists linked urban drainage models for an area served by a CSS and concluded a likely 33% increase in annual CSO discharges, as well as an 83% increase in annual CSO discharges when comparing years of maximum annual precipitation. V. Nilsen et al., *Analysing Urban Floods and Combined Sewer Overflows in a Changing Climate*, 2 J. Water & Climate Change 260 (2011).

Because overflow sites are often in downstream urban locations, there is an environmental justice concern. In New York City and Philadelphia, neighborhoods within a half-mile radius of CSO sites tend to have higher percentages of poor residents. In these two cities, 71.88% and 80.18% of such residents are in environmental justice zones, respectively. Rebekah Breitzer, *Institutional Roadblocks to Achieving Environmental Justice Through Public Participation: The Case of CSO Control in US Cities*, Metropolitics (Jan. 24, 2018). In Cook County, the wastewater utility Metropolitan Water Reclamation District (MWRD) owns 36 CSO outfalls, and 51 satellite communities own an additional 334 CSO outfalls. The affected service area is approximately 350 square miles with 55% of the resident population comprising minorities, 15% of whom live in poverty. *See Metropolitan Water Reclamation District of Greater Chicago Settlement*, EPA.gov (Dec. 14, 2011). Likewise, urban flooding has a disproportionate impact on minorities and low-income residents in areas like Chicago. Thomas Frank, *Flooding Disproportionately Harms Black Neighborhoods*, E&E News Analysis (June 2, 2020).

These urban communities are increasingly exposed to untreated wastewater fecal coliform and various pathogens, including coronaviruses. Anne Bogler et al., *Rethinking Wastewater Risks and Monitoring in Light of the COVID-19 Pandemic*, 3 Nature Sustainability 981 (2020). Wastewater utility CSO and associated flooding is becoming a larger percentage of total water pollution released in urban communities. The Biden EPA intends to reverse this trend. On April 7, 2021, new EPA Administrator Regan called on all EPA offices to strengthen permit decisions and enforcement of violations of cornerstone environmental statutes, such as the CWA, in communities overburdened by pollution. *See* Press Release, EPA, EPA Administrator Announces Agency Actions to Advance Environmental Justice (Apr. 7, 2021).

Potential climate change damage is changing access to capital. Because wastewater utilities primarily rely on debt funding, largely through municipal bonds, lenders are scrutinizing asset risk, performance outcomes, and community creditworthiness to support future utility revenue. Well-planned large-scale projects that enhance property values, reduce flood insurance premiums, and enhance urban sustainability provide factors that flip the past perspective of CSO projects from "too expensive" to "urban economic opportunity." Arthur Smith, *Surging Interest in Protecting Infrastructure Investments from Climate Change*, 51 ABA Trends, no. 6, July/Aug. 2020.

Community-wide support for resiliency activity that reduces flooding and improves water quality opens the door for other private, federal, state, and local funding for community co-benefits, such as economic development, recreational opportunities, environmental improvements, environmental justice, pre-disaster relief, and reduced flood insurance rates. Philadelphia, New York City, Portland, Kansas City, and Milwaukee used cost-saving alternative community-based green infrastructure and demonstrated other co-benefits, including increased property values. The Biden administration's whole-of-government approach can engage multiple federal departments to fund complementary infrastructure related to water management, especially roadways and other transportation infrastructure.

The cost-effectiveness of large-scale watershed projects improves with community and private party involvement. Frequently, wastewater utilities have state statutory authority to enter community agreements. In addition, states, local governments, and wastewater utilities have various authorities to contract with each other and private entities to perform project objectives, including providing upfront capital and transferring performance risk. Prince George's County in Maryland used its authority to enter into public/private agreements for a multicommunity stormwater reduction project with specific water metrics, economic development, and local jobs. *See* Prince George's County/Corvias Clean Water Partnership.

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EPA is open to changing how the agency considers financial burdens for implementing utility CSO plans and schedules. EPA intends to allow communities to submit information, including financial models or studies, that may provide a more accurate picture of the capability of entire communities to fund CWA projects and programs. *See* Proposed 2020 Financial Capability Assessment for Clean Water Act Obligations, 85 Fed. Reg. 58,352, 58,352 (Sept. 18, 2020). The proposal broadens previous 1997 and 2014 assessments from immediate residential and utility financial burden to a more holistic assessment of each community's economic health. In considering broader metrics on future urban sustainability, the EPA can avoid the self-fulfilling downward economic spiral of some cities.

The Role of Enforcement

Environmental enforcement can be a significant regulatory driver that accelerates integrating community-based watershed strategies. The environmental compliance atmosphere is different than the often resource-intensive and contentious enforcement during the 1970s and '80s. During that period, some recalcitrant industries resisted integrating new environmental obligations into their business. Today most companies and utilities have an appreciation for environmental compliance. Nonetheless, some legacy wastewater utilities narrowly focus on their collection infrastructure and further downstream storage to reduce CSO. Increased community flooding and EPA's nudging can push wastewater utilities to take advantage of new technology and engage with communities for mutual benefit.

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All CWA enforcement begins with EPA understanding the circumstances associated with potential violations. In the Great Lakes Basin, EPA requires CSS utilities to provide notice of CSO discharges and disclosure of the utility's plan to prevent future overflows. *See* Public Notification Requirements for a Combined Sewer Overflows to the Great Lakes Basin, 83 Fed. Reg. 712 (Jan. 8, 2018). Required public signage and other discharge notifications are designed to minimize public pathogen exposure. These notices and corrective plans allow for meaningful community input into the public's ongoing investment in reducing overflows as well as the impact on local flooding. The EPA continues to have its existing administrative authority (such as CWA section 308) inspect and require additional details on overflow circumstances, including the utility's actions to comply with permit terms for maintaining assets and planning.

After the initial investigation, EPA can take a number of administrative actions to better understand the situation under section 309 of the CWA. EPA can issue a notice of violation to encourage dialogue about the violation before issuing an administrative order or initiating litigation. An EPA investigation alone sometimes prompts a utility to reassess its compliance efforts. The most common wastewater CWA enforcement action involves permit violations resulting from the utility's failure to properly maintain and operate its system, including monitoring. Wastewater utilities with separate or combined sewer systems must adequately operate and maintain collection systems to prevent excessive water infiltration and maintain system capacity to prevent untreated wastewater discharges to surface or groundwater. With increasing CSO, the EPA is more likely to review whether the utility is using new technologies to maximize collection system integrity and capacity, and potentially the treatment plant capacity.

Wastewater CSS utilities must use cost-effective technologies from the 1994 nine minimum CSO categories. New cost-effective technologies that can be installed relatively quickly for pollution prevention, monitoring, and detaining surface water flows make the technology requirement more relevant and immediate. EPA guidance specifically includes steps to retard water inflows and "localized upstream detention for short-term storage." EPA, *Combined Sewer Overflows: Guidance for Nine Minimum Controls*, EPA 832-B-95-003, at 3-2 (May 1995). EPA can assess whether a utility is using available technologies and require it to include such technology through an appropriate enforcement mechanism, such as an administrative order, or through litigation.

Without modern wireless and remote systems, EPA has historically focused on the additional CSO long-term compliance requirement. EPA can still consider longer-term plans to allow the utility time to use its legal and financial authorities to work with relevant watershed communities or offer it as an alternative solution to system upgrades. The DC Circuit recently reviewed EPA's authority to regulate "best controls" outside power plant fence lines and ruled that EPA has broad legal authority to resolve congressionally mandated environmental missions. *Am. Lung Ass'n v. EPA*, 985 F.3d 914 (D.C. Cir. 2021). The court's reasoning is analogous to wastewater utilities, as the CWA provides broad authorities to protect water quality. While wastewater utilities do not control communities, utilities generally have substantial legal authorities and financial persuasion to work with communities. EPA can investigate steps utilities are taking to engage with communities on using distributed technologies in the watershed to reduce surface and groundwater flows contributing to sewer overflows.

Additionally, EPA can modify existing permits based on new information, especially when the permit does not prevent unacceptable environmental results. 40 C.F.R. § 122.62. If the nine minimum requirements are inadequate to prevent CSO, the permit must contain a long-term compliance plan. EPA has the ability to update long-term compliance plans without waiting on business-as-usual permit renewal cycles.

Beside environmental compliance, the EPA can seek equitable relief to address past environmental harms related to permit violations. *See, e.g.*, *United States v. Oakland Cannabis Buyers' Co-op.*, 532 US 483, 496 (2001). The agency has guidance for enforcement teams on seeking mitigation in civil settlements, including cases raising environmental justice concerns. EPA, *Securing Mitigation as Injunctive Relief in Certain Civil Enforcement Settlements* (Nov. 14, 2012). The Department of Justice (DOJ) also announced its support for broader EPA enforcement discretion for settlement terms to remedy past and future environment damage, especially in disadvantaged communities. *See* Jean E. Williams, DOJ Memorandum: *Withdrawal of*

Memoranda and Policy Documents (Feb. 4, 2021). This DOJ action provides the Biden EPA more traditional opportunities to advance justice in settlements by including mitigation and supplemental projects. Sara A. Colangelo, *Environmental Enforcement 2021: The Likely Resurgence of Tools Targeting Environmental Justice*, 54 ABA Trends, no. 4, Mar./Apr. 2021.

Many CSS wastewater utilities are already subject to existing consent decrees to prevent future overflow discharges. Nonetheless, when the decree is inadequate to prevent new violations, EPA can take additional enforcement action. EPA always includes standard settlement terms in decrees to provide that the decree only resolves claims alleged in the complaint through the date the settlement document is sent to the court. *See, e.g.*, *United States v. Metro. Water Reclamation Dist. of Greater Chi.*, Consent Decree, sec. XVII (N.D. Ill. Jan. 6, 2014). In addition, changed circumstances, such as climate change–induced weather patterns, may make decree requirements inadequate to prevent additional violations. Courts recognize that decrees are only required to be reasonable at the time of settlement. *United States v. Metro. Water Reclamation Dist. of Greater Chi.*, 792 F.3d 821 (7th Cir. 2015).

When EPA fails to enforce CWA violations, the public can initiate enforcement. To exercise this authority, citizens must provide notice to the state and EPA of their intent to sue, and a consent decree cannot go into effect until the public parties notify the state and EPA before the settlement is submitted to the court. 33 U.S.C. § 1365(b)(c). Besides prodding state or federal governments to initiate enforcement, it has been argued that members of the public have broader ability to seek settlement terms to address the needs of communities impacted by the violations. Louise Dyble, *The Future of SEPs in Citizen Suits*, 35 ABA Nat. Res. & Env't, no. 3, Winter 2021.

Citizen petitions and EPA enforcement action prompted the New Jersey Department of Environmental Protection (NJDEP) to modify the general permits of nine wastewater utilities in densely populated northern New Jersey to more aggressively pursue mandatory technologies and long-term plans to address CSO. Daniel J. Van Abs, *Water Infrastructure in New Jersey's CSO Cities: Elevating the Importance of Upgrading New Jersey's Urban Water Systems*, N.J. Future (June 2014). The NJDEP subsequently issued guidance for strategically locating green infrastructure and integrating such with grey sewer infrastructure in densely populated areas. N.J. Dep't of Env't Prot., *Evaluating Green Infrastructure: A Combined Sewer Overflow Control Alternative for Long Term Control Plans* (Jan. 2018).

Citizen suits have been effective in improving sewer collection performance and furthering CWA's goals in California. While California overflows were from separate sewer systems, the analysis is relevant to CSO. Neil Nylen et al., *Citizen Enforcement and Sanitary Sewer Overflows in California*, Ctr. for Law, Energy & the Env't, UC Berkeley Sch. of Law (Apr. 2016). Individuals may be more motivated to pursue citizen suits in states where CSS utilities also have flood reduction obligations, such as Illinois, which provides the MWRD with stormwater supervision authority. Illinois Public Act 093-1049, 55 Ill. Comp. Stat. 5/5-1062. Increasing public experience with flooding and wastewater exposure could be another catalyst for EPA, other agencies, and wastewater utilities to effectively advance urban resiliency solutions.

Most CSS wastewater utilities are familiar with the potential cost-effectiveness of community-based technologies to reduce urban flooding and overflows. This understanding includes the possibility that tax revenues may decline if urban areas become unsustainable, and the importance of rectifying conditions that have resulted in environmental injustice. Nonetheless, many utilities retain a legacy tradition of operating within their own property and infrastructure. Moreover, there may be complacency with their existing permit and consent decree terms. The potential for environmental enforcement may provide the necessary spark for utilities to use their legal and financial authorities to accelerate coordinating activities within the communities they serve to reduce local flooding, prevent polluting local waterways, and protect public health.

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