OFFICE OF ENFORCEMENT AND COMPLIANCE ASSURANCE

WASHINGTON, D.C. 20460

June 12, 2024

MEMORANDUM

SUBJECT: Addressing Climate Vulnerabilities in Water Enforcement Remedies

FROM: Joseph G. Theis, Acting Director
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TO: Enforcement and Compliance Assurance Division Directors and Deputies
Regional Counsels and Deputies

As part of the implementation of *EPA's Climate Enforcement and Compliance Strategy*,[1] this memorandum updates the December 2016 *Framework for Protecting Public and Private Investment in Clean Water Act Enforcement Remedies* and expands its scope to include enforcement actions brought under the Safe Drinking Water Act (SDWA), 42 U.S.C. Section 300f et seq. (1974).[2] Ensuring that entities in violation of the Clean Water Act (CWA), 33 U.S.C. Section 1251 et seq. (1972), or SDWA consider climate change in taking the steps needed to return to, and maintain, compliance is crucial. This memorandum outlines a number of actions that the enforcement program can take that will accelerate resilience and help advance the protection of communities. This memorandum applies to all CWA and SDWA (collectively, "the Acts") enforcement actions and sets out specific expectations for newly initiated, ongoing (currently in active settlement discussions), and reopened CWA and SDWA enforcement matters where application of this memorandum is feasible and appropriate. While case teams must consider a number of different case-specific facts and factors in arriving at appropriate settlements that achieve environmental compliance and are consistent with relevant law and applicable EPA guidance, case teams are expected to consider climate vulnerability in all cases with limited exceptions as discussed below, and to include them whenever appropriate in civil judicial and administrative settlements.

[1] *See* https://www.epa.gov/system/files/documents/2024-02/epasclimateenforcmentandcompliancestrategy_1.pdf.
[2] This memorandum does not supersede other applicable guidance and it is to be read in conjunction with other relevant policies.

The EPA's enforcement and compliance assurance program intends to take the following actions in CWA and SDWA cases to incorporate climate resilience to ensure remedies lead to long-term compliance:

- **Identify Climate Change Vulnerabilities:** in every CWA or SDWA enforcement matter,[3] case teams should consider, via a climate vulnerability assessment, the challenges that climate change might pose for long-term compliance.
- **Incorporate Actions to Address Identified Vulnerabilities:** in every CWA or SDWA enforcement matter, case teams should consider how to incorporate effective and appropriate injunctive relief measures that adequately account for identified vulnerabilities that may impact compliance.

Legal Authority

Pursuant to Section 309 of the CWA, the EPA has authority to issue compliance orders and to ask a court for "appropriate relief" to remedy violations of the CWA.[4] Under Section 1414 of the SDWA, the EPA also has authority to issue orders requiring compliance with any "applicable requirement" and to ask a court for "such judgment as the protection of public health may require."[5] Similarly, under Section 1423 of the SDWA, the EPA has authority to issue orders requiring compliance with "an applicable underground injection control program" and courts may enter judgments "as protection of public health may require."[6] In fashioning a remedy in an administrative or judicial enforcement settlement or seeking relief from a court under CWA Section 309 or SDWA Section 1414 or 1423, it is both reasonable and appropriate for the Agency and the courts to consider and address the impact of climate change on water quality and compliance. Part of successful enforcement of the CWA and SDWA means assuring that measures put in place to meet the requirements of these Acts will perform as intended through at least their anticipated useful lives. Just as factors of geography, hydrology, weather, and engineering must be accounted for in selecting and implementing a remedy, so too must the present and anticipated challenges that flow from climate change. For example, appropriate relief in such cases may include requirements to ensure that a permittee constructs, operates, and maintains its facility in compliance with the CWA and its permit, in light of conditions as they exist now and that are likely to exist as a result of climate change.

In addition, under CWA Section 308 and SDWA Section 1445, the EPA has broad authority to request information to carry out the objectives of the CWA and SDWA, respectively, including to determine if

[3] Case teams should require a defendant to perform an assessment as part of its analysis when assessing its system and what is required for the defendant to come into compliance, unless there is a case-specific reason that such an assessment is not appropriate as discussed below.
[4] 33 U.S.C. § 1319.
[5] 42 U.S.C. § 300g-3(a) and (b). SDWA Section 1414(i) broadly defines "applicable requirement" to include, among other things, the Risk and Resilience Assessments (RRAs) and Emergency Response Plans (ERPs) required under SDWA Section 1433, 42 U.S.C. § 300i-2. 42 U.S.C. § 300g-3 (i).
[6] 42 U.S.C. §§ 300h-2(a), (b).

any person is in violation of the Acts.[7] Thus, the EPA has the authority to obtain specific information to allow the Agency to understand the resilience of an entity's infrastructure and any potential vulnerabilities to climate change, as well as to assess how compliance measures and control structures are expected to perform, to ensure defendants remain compliant with the Acts.

Identifying and Addressing Climate Change Vulnerabilities

The design of compliance remedies has traditionally been based on historic climate and hydrologic patterns, but historic weather patterns and data are no longer adequate to accurately characterize current or future conditions in light of a changing climate.[8] In CWA and SDWA enforcement matters, case teams should generally require defendants[9] to: 1) identify climate vulnerabilities by requesting a vulnerability assessment be completed early on in negotiations (including negotiations for a consent decree modification, as appropriate), or by requiring a climate vulnerability assessment as an early deliverable under an order on consent or consent decree, as discussed below; and, 2) implement the findings of a climate vulnerability assessment as part of the injunctive relief in a given case. A climate vulnerability assessment should be performed and implemented by a defendant in all CWA and SDWA cases, unless there is a case-specific reason that such a requirement is not appropriate (*e.g.*, the case only collects a penalty, the case is resolved under an expedited settlement agreement, or the remedial measures are not expected to be impacted by climate change).

When crafting injunctive relief, the EPA should consider the results of any climate vulnerability assessments (discussed further below), the type of regulated entity (e.g., wastewater system, public water system, concentrated animal feeding operation, construction site, or industrial facility), the underlying violation(s) addressed in the enforcement action, and any other relevant information. These injunctive relief measures should be designed to perform as intended through at least the anticipated useful life of the required infrastructure and/or pollution controls and, as appropriate, should be designed to withstand and, to the extent possible, continue working effectively during extreme weather events such as storms, floods, wildfires, and droughts that are now more common due to climate change.

Conducting Climate Vulnerability Assessments

A climate vulnerability assessment is a systematic review of the uncertainties associated with climate change. It generally results in a report prepared by the defendant that helps identify the particular susceptibilities of its facilities or systems to the risks associated with climate change that may impair

[7] 33 U.S.C. § 1318. 42 U.S.C. § 300j-4.

[8] *See generally* Lempert, R., J. Arnold, R. Pulwarty, K. Gordon, K. Greig, C. Hawkins Hoffman, D. Sands, and C. Werrell, 2018: Reducing Risks Through Adaptation Actions. *In Impacts, Risks, and Adaptation in the United States: Fourth National Climate Assessment, Volume II* [Reidmiller, D.R., C.W. Avery, D.R. Easterling, K.E. Kunkel, K.L.M. Lewis, T.K. Maycock, and B.C. Stewart (eds.)]. U.S. Global Change Research Program, Washington, DC, USA, pp. 1309–1345. doi: 10.7930/NCA4.2018.CH28, *available at* https://nca2018.globalchange.gov/chapter/28/.

[9] This memorandum applies to all CWA and SDWA cases, judicial and administrative, so the term "defendant" should be interpreted to mean defendants in judicial cases as well as respondents in administrative cases.

the defendant's ability to comply with the CWA or SDWA.[10] There are many possible approaches to conducting a climate vulnerability assessment. The type and scale of an assessment will likely vary based on applicable circumstances, including the nature of the defendant and resources available to them. A climate vulnerability assessment may be a comprehensive evaluation of all possible climate-related vulnerabilities faced by a facility or system or it may be narrowly targeted at climate vulnerabilities related to the specific compliance issues identified in an enforcement action. Typically, climate vulnerability assessments should consider the size and complexity of the facility at issue and the likelihood and possible magnitude of climate-related impacts at the relevant location. The assessment should account for the most up-to-date historic data available, with a time series long enough to capture the rate and extent of impacts that have been historically occurring, and future projections for considerations such as, but not limited to: sea or lake level change and shoreline erosion; storm surge; precipitation timing, amounts, and intensity;[11] frequency and magnitude of storm events; soil erosion and increased potential for mudslides; potential fluctuations of freshwater stages, such as changes in river channels and flood elevations; frequency and magnitude of droughts and resulting changes in stream flow, water quality, and wildfire regimes; and changes in air and water temperature. The surrounding or impacted community may also be a factor to consider in a climate vulnerability assessment.[12]

Climate vulnerability assessments may be developed using information and tools available from federal, state, tribal, territorial, and local government entities, as well as non-governmental organizations or external consultants. For example, municipal defendants might consider using one of the practical tools under the EPA's Creating Resilient Water Utilities initiative,[13] such as the Resilient Strategies Guide for Water Utilities or the Climate Resilience Evaluation and Awareness Tool (CREAT), which are free tools that the EPA designed to assist water and wastewater utility owners and operators in assessing climate change-related risks to utility assets and operations and identifying adaptation options. Industrial entities may consider using the U.S. Climate Resilience Toolkit to assess their vulnerabilities.[14] The EPA's Adaptation Resource Center (ARC-X) also provides useful information to

[10] SDWA requires many community water systems to prepare a risk and resilience assessment and emergency response plan, which may inform a climate vulnerability assessment prepared in response to an enforcement action. Refer to Section 1433, 42 U.S.C. § 300i-2, for requirements related to community water systems serving more than 3,300 people and related guidance for community water systems serving less than 3,300 people (which guidance also addresses non-community water systems). *See* https://www.epa.gov/waterresilience/resources-promote-rras-and-erps-cws-serve-less-3301-non-cws-and-wastewater-systems.

[11] In combined sewer overflow (CSO) cases, numeric performance standards for required CSO controls are based on average design and precipitation conditions, or the typical year. In sanitary sewer overflow (SSO) cases, relevant and applicable design storms may be used to evaluate overflow potential using a model that considers storm intensity, frequency, and duration. The data gathered and generated through climate vulnerability assessments may be used to inform the analysis of the appropriate typical year in CSO cases or the design storm in SSO cases.

[12] For example, certain communities and individuals are particularly vulnerable to the impacts of climate change, including low-income communities and communities of color, children, the elderly, tribes, and indigenous people. *U.S. Environmental Protection Agency Policy Statement on Climate Change Adaptation* (May 26, 2021), *available at* https://www.epa.gov/climate-adaptation/climate-adaptation-policy-statement.

[13] *See* https://www.epa.gov/crwu.

[14] *See* https://toolkit.climate.gov.

help decision makers develop and implement adaptation strategies.[15] Furthermore, the EPA's Superfund program has compiled a list of resources and websites that are helpful in developing vulnerability assessments that are useful beyond the Superfund context.[16] These resources provide examples and case studies of climate adaptation actions that other communities and entities have undertaken and therefore may be useful to defendants.

Every regulated entity has a unique set of circumstances and resources. Therefore, each entity will likely have different climate resiliency and adaptation strategies. For this reason, it is important for each regulated entity to assess its own vulnerabilities and consider a range of options that address its particular obligations.

Application in CWA and SDWA Settlements

Settlements resolving CWA and SDWA enforcement actions should incorporate the remedial measures necessary to address vulnerabilities to climate change that will ensure long-term compliance with the applicable law unless there is a case-specific reason that such a requirement is not appropriate. In administrative settlements, case teams should include a requirement to develop and submit to the EPA a climate vulnerability assessment focused on the respondent's ability to come back into and maintain compliance with the specific violations identified in the enforcement action. In judicial settlements, comprehensive climate vulnerability assessments should ensure compliance with the Acts more broadly.

In SDWA enforcement actions, including where a risk and resilience assessment (RRA) and emergency response plan (ERP) have been completed under Section 1433,[17] the EPA should require the system owner or operator to determine whether measures necessary to identify and address vulnerabilities to climate change have been taken and, if not, incorporate remedial measures as appropriate in the settlement to identify and address such vulnerabilities.

Other examples of specific resilience and adaptation measures for CWA or SDWA cases may include, where applicable and effective, but are not limited to:

- Incorporating green infrastructure;[18]
- Incorporating infiltration measures and enhanced design standards into stormwater best management practices to effectively manage stormwater runoff caused by more frequent and intense storms;

[15] *See* https://www.epa.gov/arc-x. While the target audience for ARC-X is local government officials, the website provides many tools that are useful for anyone interested in learning about climate risks and solutions for adaptation.
[16] *See* https://www.epa.gov/superfund/superfund-climate-resilience-vulnerability-assessment.
[17] As with all sensitive matters and documents, case teams should follow all appropriate confidentiality and privilege protocols when handling RRAs and ERPs.
[18] CWA Section 519 requires the EPA to promote the use of green infrastructure in both permitting and enforcement to reduce water pollution, protect water resources, comply with regulatory requirements, and achieve other environmental, public health, and community goals. 33 U.S.C. § 1377a. For more information about green infrastructure and climate resiliency, see https://www.epa.gov/green-infrastructure/green-infrastructure-climate-resiliency.

- Upgrading existing stormwater infrastructure, such as enhanced sediment controls, to withstand and effectively manage higher volumes;
- Upgrading oil and grease containment;
- Ensuring that industrial and municipal stormwater and wastewater treatment systems can be adapted to meet changing waste load allocations that may occur as flow characteristics in receiving waters are modified by changing weather patterns such as increased drought;
- Prioritizing restoration and preservation of wetlands that provide carbon sequestration and flood control and groundwater recharge functions, as well as wetlands that are critical to protecting areas that are vulnerable to storm surge and sea level rise;
- Ensuring that containment areas at facilities subject to Facility Response Plan and Spill Prevention, Control, and Countermeasure requirements under the Oil Pollution Act, 33 U.S.C. Section 2701 et seq. (1990), and lagoons at concentrated animal feeding operations have sufficient capacity and freeboard to contain excess rainfall in areas where precipitation rates are expected to increase;
- Implementing proper watershed restoration and management practices to protect storage capacity in reservoirs, reducing sedimentation in drinking water sources, and anticipating future source water conditions;
- Ensuring protection from saltwater intrusion and coastline erosion;
- Prioritizing source water protection (e.g., protection from algal blooms, wildfire ash, temperature induced turnover of large water bodies);
- Protecting electrical equipment and pumps from storm surges, flooding, etc.; and,
- Reducing infiltration and inflow and expanding the storage and transmission capacity of collection systems and/or increasing treatment capacity/effectiveness at wastewater treatment plants as rainfall patterns change and the impacts inhibit the ability of the existing system to meet permit requirements.

Defendants and the EPA should determine the most appropriate, effective, and resilient remedies to achieve and maintain compliance with the CWA and SDWA, while incorporating approaches that are flexible enough to deal with uncertainty in future climate projections and enable the incorporation of new information and tools as they become available.[19] The EPA intends to work with defendants to

[19] Flexibilities in enforcement remedies may allow for the adjustment of remedial measures or schedules in light of evolving information, while maintaining equal or better environmental protection and avoiding implementation delays. Such flexibilities do not remove obligations to comply with the Acts, nor do they lower existing regulatory or permitting standards. Any flexibilities require the consideration of factors including, but not limited to appropriate forecasts of climate effects; public participation; judicial review when there is material modification of a settlement; and maintaining progress towards compliance and meeting performance criteria.

consider the risks associated with climate change, measures that may have already been implemented,[20] and the costs of additional resilience and adaptation measures.[21]

Conclusion

The EPA recognizes there is uncertainty inherent in projections of the range of impacts from a changing climate and in the remedial measures that may be necessary to address such impacts. However, regulated entities are accustomed to making decisions and investments in the face of uncertainty, such as population changes, market forecasts, aging infrastructure, and budget challenges. The increased frequency and severity of weather events is just one additional facet of uncertainty that companies and municipalities face. As with other challenges, inaction now could prove extremely costly in the future; taking preventive action today can help reduce future costs that might otherwise be necessary to deal with the impacts of climate change.

Ensuring that entities in violation of the CWA or SDWA consider climate change in taking steps to return to compliance helps keep pollution out of the Nation's waters, protect human health and water quality, and improve compliance with the applicable law. The EPA's enforcement program has a long history of promoting sound, long-term, and sustainable water infrastructure and pollution control investments. The EPA is committed to continuing this approach by addressing the risks associated with climate change, promoting resilience, and supporting communities and industry in building adaptive capacity that allows for protection of water quality and human health and long-term compliance.

This guidance document is a statement of Agency policies and principles. It does not establish or affect legal rights or obligations. This guidance document does not establish a binding norm and is not finally determinative of the issues addressed. Agency decisions in any particular case will be made by applying the law to the specific facts of the case. The Agency may take action at variance with this guidance.

[20] For example, wastewater treatment and water systems, as well as other industrial manufacturers, may be required under the CAA 112r Risk Management Program (RMP) (chemical accident release prevention program) to develop a risk management plan. The RMP requires facilities to conduct a hazard review of the substances, processes and procedures on site and develop a plan to prevent and mitigate risk of releases. The hazard evaluation portion of the plan must consider external events such as natural hazards that include those caused by climate change that could lead to an accidental release.

[21] The EPA's Water Finance Clearinghouse (https://clearinghouse.epa.gov/wfc) can be used to pinpoint federal, state, and non-governmental sources of funding and financing that may help communities access capital to meet their water infrastructure needs.