

The EPA's Fiscal Year 2024 Top Management Challenges

November 15, 2023 | Report No. 24-N-0008



Abbreviations

C.F.R.	Code of Federal Regulations
EPA	U.S. Environmental Protection Agency
FY	Fiscal Year
GAO	U.S. Government Accountability Office
GHG	Greenhouse Gas
IIJA	Infrastructure Investment and Jobs Act (2021)
IRA	Inflation Reduction Act
OIG	Office of Inspector General
PFAS	Per- and Polyfluoroalkyl Substances
TSCA	Toxic Substances Control Act
U.S.C.	United States Code

Cover Image

A view of mountain tops. (EPA photo)

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At a Glance

The EPA's Fiscal Year 2024 Top Management Challenges

What Are Management Challenges?

The Reports Consolidation Act of 2000 requires each inspector general to prepare an annual statement summarizing what the inspector general considers to be "the most serious management and performance challenges facing the agency" and briefly assessing the agency's progress in addressing those challenges.

To identify these top challenges for fiscal year 2024, the U.S. Environmental Protection Agency Office of Inspector General considered the body of our work, as well as our objective and professional observations, work conducted by the U.S. Government Accountability Office, Congress's interests, and Agency documentation and statements.

Our [report](#), *The EPA's Fiscal Year 2023 Top Management Challenges*, published October 2022, identified eight top management challenges facing the Agency. For fiscal year 2024, we retained five of these challenges, with some modifications, and we substantially revised the others, combining them into two challenges. In total, we identified seven top management challenges.

Address inquiries to our public affairs office at (202) 566-2391 or OIG.PublicAffairs@epa.gov.

[List of OIG reports.](#)

What We Found

We identified seven top management challenges for the EPA for fiscal year 2024:

1. **Mitigating the causes and adapting to the impacts of climate change.** The EPA has prioritized addressing climate change as a core aspect of its mission to protect human health and the environment. To do this, the EPA should understand and address the threats posed by climate change.
2. **Integrating and implementing environmental justice.** Achieving environmental justice, which remains a whole-of-government focus, will require the EPA to harness agencywide coordination and change its culture to make cross-program decisions that weigh cumulative risks and impacts to the communities that the EPA serves.
3. **Safeguarding the use and disposal of chemicals.** The public must be able to depend on the EPA's ability to identify the risks of using chemicals, including pesticides, and to provide safeguards for and verification of proper disposal, management, or remediation of toxic substances.
4. **Promoting ethical conduct and protecting scientific integrity.** The public entrusts the EPA to implement its programs in a fair and impartial manner and to base its decision-making on sound science that is free of inappropriate influence. Failure to adhere to ethical and scientific integrity principles jeopardizes program integrity and could undermine public trust in the EPA.
5. **Managing grants, contracts, and data systems.** The influx of \$100 billion in supplemental appropriations to fund EPA programs under the Infrastructure Investment and Jobs Act and Inflation Reduction Act increases the risk of fraud, waste, abuse, and noncompliance with funding requirements. Effective management of grants, contracts, and related data is critical to reducing these risks.
6. **Maximizing compliance with environmental laws and regulations.** The EPA's enforcement resources have declined 23 percent from fiscal year 2006 through 2023. This, along with variability in permitting, management of delegated state programs, and incorporation of environmental justice concerns, presents challenges to maximizing compliance and enforcement actions.
7. **Overseeing, protecting, and investing in water and wastewater systems.** The EPA has oversight responsibility for strengthening and securing the cyber and physical infrastructure at tens of thousands of public drinking water systems and publicly owned wastewater treatment systems. This critical infrastructure faces various threats from cyberattack, theft, vandalism, and other risks that can affect public health and leave communities vulnerable to the loss of clean water.

We have identified these as the most serious management and performance challenges facing the EPA. They represent vulnerabilities to waste, fraud, abuse, and mismanagement or the most significant challenges to the EPA accomplishing its mission.



OFFICE OF INSPECTOR GENERAL
U.S. ENVIRONMENTAL PROTECTION AGENCY

November 15, 2023

MEMORANDUM

SUBJECT: The EPA's Fiscal Year 2024 Top Management Challenges

FROM: Sean W. O'Donnell, Inspector General *Sean W O'Donnell*

TO: Michael S. Regan, Administrator

This report provides an overview of what the U.S. Environmental Protection Agency Office of Inspector General views as the top management challenges facing the EPA in fiscal year 2024, consistent with the Reports Consolidation Act of 2000. The Act requires that I prepare an annual statement summarizing what we consider to be the "most serious management and performance challenges facing the agency" and briefly assessing the EPA's progress in addressing them. By virtue of the OIG's statutory responsibilities under that Act and the Inspector General Act of 1978, as amended, we have an independent and objective perspective about what challenges could hinder the EPA's accomplishment of its mission to protect human health and the environment. We also have the directive to share our perspective with the EPA. I am therefore pleased to present this FY 2024 top management challenges report.

To identify the Agency's top management challenges for the coming year, we reviewed our body of work, surveyed all EPA headquarters offices, solicited senior EPA leadership input, and held outreach meetings with Agency offices. We also considered the U.S. Government Accountability Office's work and this administration's and Congress's interests, as well as public statements that EPA leaders made to the press and Congress. This report presents our assessment of the issues on which the Agency will need to focus its resources over the next 12 months. It also charts a path for purposeful oversight that will serve as a basis for us to plan audits, evaluations, and investigations aimed at helping the EPA mitigate these challenges and accomplish its mission economically, efficiently, and effectively.

Last year, we identified eight top EPA management challenges. This year we are largely retaining five of those but also bringing additional issues to the forefront, such as promoting ethical conduct; managing grants, contracts, and data systems; and overseeing, protecting, and investing in water and wastewater systems. As a result, we have identified seven top management challenges for FY 2024. While none of these challenges is more significant than the others, some directly address the administration's priorities of climate change and environmental justice. The *overseeing, protecting, and investing in water and wastewater systems* challenge considers the EPA's leading role in protecting the country's water assets, and the *managing grants, contracts, and data systems* challenge underscores a range of issues highlighted by the EPA's influx of approximately \$100 billion in supplemental appropriations.

We hope you find this report helpful and insightful. Thank you for your continued efforts to address these challenges. We look forward to working with you on behalf of the American public to safeguard the air we breathe, the water we drink, and the land we sow.

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Introduction

This U.S. Environmental Protection Agency Office of Inspector General report provides Congress and the EPA with an independent and objective assessment of the top management and performance challenges facing the Agency in fiscal year 2024. The Reports Consolidation Act of 2000 requires each inspector general to prepare an annual statement summarizing what the inspector general considers to be “the most serious management and performance challenges facing the agency” and briefly assessing the agency’s progress in addressing those challenges. To this end, we annually assess the top management and performance challenges affecting the EPA’s programs and operations. As part of the OIG’s annual assessment, we solicit input from senior EPA leadership; review congressional hearings and public statements; analyze the U.S. Government Accountability Office’s oversight work, including its identified high-risk areas; and consider issues raised in media coverage and the civil sector, as well as the interests of the administration and Congress. We also consider our prior year’s oversight work and how the EPA’s programs addressed top management challenges identified in previous fiscal years. This report, in large part, represents the Agency’s risk profile.

The FY 2024 top EPA management challenges are as follows:

1. Mitigating the causes and adapting to the impacts of climate change.
2. Integrating and implementing environmental justice.
3. Safeguarding the use and disposal of chemicals.
4. Promoting ethical conduct and protecting scientific integrity.
5. Managing grants, contracts, and data systems.
6. Maximizing compliance with environmental laws and regulations.
7. Overseeing, protecting, and investing in the water and wastewater systems.

We have numbered these challenges for reference, not as an indication of priority, importance, or magnitude. Each one relates significantly to the EPA’s ability to meet its mission of protecting human health and the environment. For this reason, these challenges are forward-looking to assist the Agency in effectively conducting its operations, as well as to guide the OIG in its oversight planning for the next fiscal year. For instance, Table 1 provides an overview of how the EPA’s FY 2023 top management challenges guided our work last year, resulting in the notification of 31 projects and 72 recommendations that addressed at least one of the year’s top challenges.

Table 1: OIG metrics for the EPA’s FY 2023 top management challenges

Primary FY 2023 top management challenge addressed	Notifications	Recommendations
Mitigating the causes and adapting to the impacts of climate change.	1	6
Integrating and leading environmental justice across the Agency and government.	2	5
Providing for the safe use of chemicals.	1	4
Safeguarding scientific integrity principles.	0	5
Ensuring Agency systems and other critical infrastructure are protected against cyberthreats.	1	7
Managing business operations and resources.	9	21
Enforcing environmental laws and regulations.	3	24
Managing increased investment in infrastructure.	14	0
Total	31	72

Source: OIG summary of metrics. (EPA OIG table)

Summary of FY 2024 Management Challenges

The first challenge we identified for FY 2024 is ***mitigating the causes and adapting to the impacts of climate change***, which relates to the EPA's priority of addressing climate change as a core aspect of its mission. To mitigate significant and long-lasting changes in the climate, the EPA needs to finalize and implement regulations to reduce greenhouse gas, or GHG, emissions from coal-fired power plants. It must also manage the billions of dollars in supplemental funding to reduce GHG emissions. Moreover, natural disasters associated with climate change create potential site and facility vulnerabilities that the EPA must identify and address. To meet its objectives regarding climate change, the Agency needs to modify existing programs to promote and integrate opportunities for adaptation and resiliency while considering the needs of communities vulnerable to the disproportionate impacts of climate change and environmental policy decisions. Achieving its strategic objectives will also require the EPA to closely coordinate its internal and sponsored research efforts to avoid duplication, meet priority research needs, and effectively communicate research results. Finally, as it prioritizes climate change, the EPA will need to work with international partners to address the global causes and impacts of climate change.

Integrating and implementing environmental justice involves the EPA's leadership role in the federal effort to identify and address disproportionately high and adverse human health or environmental impacts on low-income and minority communities. The Agency seeks to strengthen its efforts in this area, consistent with a whole-of-government focus on addressing the disparate effects of environmental policies. Further integrating environmental justice requires agencywide coordination, both within and across programs, to weigh cumulative risks and impacts to the communities that the EPA serves. To meet its goal of protecting communities, the EPA will need to identify, address, and communicate the cumulative impacts of chemical and nonchemical stressors. The EPA will also need to explore the interrelationship between environmental justice and climate change. In addition to scientific considerations, the EPA's implementation of environmental justice may pose legal and operational challenges. For example, the EPA may face legal challenges in integrating environmental justice principles into the EPA's delegated or authorized programs. Finally, the EPA will face challenges managing the significant increase in funding to address environmental justice.



A handmade yard sign welcomes the EPA during Administrator Michael Regan's "Journey to Justice" tour of Mississippi, Louisiana, and Texas in November 2021 to highlight environmental justice concerns. (EPA image)

In the challenge ***safeguarding the use and disposal of chemicals***, we emphasize the EPA's vital mission to protect human health and the environment from harmful chemicals and pesticides. The public must be able to depend on the EPA's ability to identify the risks of using chemicals, including pesticides, and to safeguard and verify their proper disposal, management, or remediation. Agency challenges include assessing and eliminating unreasonable risks to susceptible subpopulations; addressing the EPA's ability to require testing and the submission of new chemical data; expanding and revising the EPA's analytical capabilities to develop New Approach Methods that reduce the use of vertebrate animals in chemical testing; and meeting Toxic Substances Control Act, or TSCA, requirements despite resource limitations. The Agency also faces difficulties in expanding its computational toxicology efforts; providing pesticide risk information to transient agricultural workforces; eliminating lags in the Endocrine Disruptor Screening Program; and assessing risks with emerging contaminants, such as per- and polyfluoroalkyl substances. As the production of electric vehicles increases each year, the Agency faces challenges in addressing the emerging risks for overseeing the recycling, storage, and disposal of lithium-ion batteries.

The next challenge we identified is ***promoting ethical conduct and protecting scientific integrity***. The public entrusts the EPA to implement its programs in a fair and impartial manner. Failure to do so jeopardizes program integrity and could undermine the public's trust in the EPA's actions. Accordingly, all EPA employees should adhere to federal ethics requirements, such as acting impartially and not holding financial interests that conflict with the conscientious performance of their federal duties. Further, given that science affects aspects of the EPA's decision-making, the Agency will need to ground its decisions in sound science, free of inappropriate influence. Scientific integrity also features prominently in the [FY 2022-2026 EPA Strategic Plan](#) as a cross-Agency strategy focused on reinforcing science as foundational to Agency decision-making. To maintain public trust, the EPA should develop an ethical culture and work to ensure that its personnel adhere to ethics requirements. The Agency should also update its *Scientific Integrity Policy* in line with the latest guidance and take steps, to include working with the OIG on related issues, to strengthen the integrity of its science-based actions.

Managing grants, contracts, and data systems centers on the Agency's ability to create and maintain effective business operations for distributing tens of billions of dollars in grants and contracts to states, tribes, and nongovernmental organizations. Congress annually provides the Agency with billions of dollars for its mission. About half of the EPA's annual budget is distributed through grants to states, local governments, federally recognized tribes, nonprofit organizations, educational institutions, and other eligible entities. The influx of \$100 billion in supplemental appropriations under the Infrastructure Investment and Jobs Act, or IIJA, and Inflation Reduction Act, or IRA, to fund EPA programs increases the risk of fraud, waste, abuse, and noncompliance with funding requirements. The EPA will need to work to improve the management of its grant and contract data systems so that it can effectively analyze and track program performance.

Maximizing compliance with environmental laws and regulations concerns the robust enforcement program vital to deterring regulated entities from unlawful actions and protecting human health and the environment. The EPA's enforcement resources declined 23 percent from FY 2006 through 2023, which has contributed to the overall downward trend in enforcement. The EPA faces challenges in overseeing and managing permits because of variability in how states incorporate federal permit requirements among delegated or authorized state permitting programs. It faces further complications arising from the need to work cooperatively with states because of the structure of the nation's environmental laws, under which delegated or authorized states conduct most compliance and enforcement activities. The Agency should work to sustain its initial progress in incorporating environmental justice considerations into its enforcement and compliance efforts.

Finally, ***overseeing, protecting, and investing in water and wastewater systems*** relates to the EPA's efforts to strengthen the security and resilience of our nation's water infrastructure. The EPA and its partners rely on physical security and cybersecurity controls to support this critical infrastructure. Recent high-profile incidents have demonstrated the urgency needed to address cybersecurity weaknesses and vulnerabilities to physical attacks. Cyber and physical attacks launched against critical infrastructure facilities have the potential to disrupt water and wastewater treatment activities, particularly in underserved communities that are more vulnerable to risks affecting their water systems. Communities and economies cannot thrive without clean and safe water. Therefore, efforts to strengthen the water and wastewater sectors' physical security and cybersecurity controls are critical to the American people's health, safety, and national security. The EPA will need to work with its community partners to meet assessment and planning requirements and make needed improvements to all water systems to secure them against threats from cyberattack, crime, and other hazards. The EPA will also need to properly monitor, oversee, and accurately report the use of its investments to prevent the mismanagement of resources or the communities' loss of access to resources they need to address water infrastructure issues.



Challenge 1: Mitigating the Causes and Adapting to the Impacts of Climate Change



Introduction and Overview

According to the U.S. Global Change Research Program, the earth's climate is warming and changing faster now than at any other point in the history of modern civilization.¹ A primary driver of the significant changes in measures of climate is the emissions from heat-trapping GHGs.² These emissions lead to increased extreme weather events, such as prolonged heat waves and intensified storms; droughts and rising sea levels; poor human health outcomes, such as heat-related deaths, asthma attacks, and other respiratory and cardiovascular health effects; and contaminated water sources.³

The EPA's focus on addressing climate change has varied over the years but has been a renewed priority since 2021. The *FY 2022-2026 EPA Strategic Plan*, issued March 28, 2022, placed fighting climate change at the center of its agenda, calling for the Agency to "aggressively tackle the climate crisis" by helping the nation reduce GHG emissions and anticipate, prepare for, adapt to, or recover from climate change impacts.⁴

GHGs are gases that trap heat in the Earth's atmosphere. The EPA estimates that carbon dioxide accounted for 80 percent of U.S. GHG emissions in 2019 while methane accounted for 10 percent. The remaining GHG emissions were from nitrous oxide and fluorinated gases.

—EPA "Overview of Greenhouse Gases" [webpage](#)

The Agency's refocused priority on climate change aligns with efforts throughout the executive and legislative branches. President Joseph R. Biden Jr. announced a goal in 2021 of achieving net-zero GHG emissions by 2050 and limiting global warming to 1.5 degrees Celsius. Congress's 2022 passage of the IRA demonstrated a commitment to addressing climate change by appropriating over \$40 billion to the EPA to help reduce GHG emissions and support disadvantaged communities and the clean energy industrial sector.⁵ According to the EPA, investments in climate actions made under this Act are expected to reduce GHG emissions in the United States by about 40 percent by the end of the decade.⁶ While the EPA took important actions in FY 2023 to address climate change, the Agency still faces the below significant challenges across its primary climate change responsibilities.

Mitigating GHG Emissions

EPA data show power plants as the largest industrial sector source of overall GHG emissions (25 percent).⁷ To reduce emissions, the EPA needs to finalize and implement regulations to reduce GHG emissions from electricity-producing power plants to effectively address climate change. The EPA has

¹ *Understand Climate Change*, U.S. Global Change Research Program, <https://www.globalchange.gov/climate-change> (last visited Sept. 21, 2023).

² U.S. Env't Prot. Agency, [Climate Adaptation Action Plan](#) (2021).

³ *Climate Change and Human Health*, U.S. Env't Prot. Agency, <https://www.epa.gov/climateimpacts/climate-change-and-human-health> (last visited Sept. 21, 2023).

⁴ U.S. Env't Prot. Agency, [FY 2022-2026 EPA Strategic Plan](#) (2022).

⁵ Inflation Reduction Act of 2022, [Pub. L. No. 117-169](#).

⁶ U.S. Env't Prot. Agency, [Inflation Reduction Act Overview](#) (2023).

⁷ [News Release](#), U.S. Env't Prot. Agency, EPA Releases 2021 Data Collected under Greenhouse Gas Reporting Program (Oct. 17, 2022).

statutory authority to regulate GHG emissions in certain contexts as “air pollutants” under the Clean Air Act.⁸ But legal challenges and changes in administrations have affected the EPA’s efforts to implement such regulations, particularly for electricity-producing power plants. For example, a Supreme Court ruling held that the EPA lacked authority under the Clean Air Act to use carbon emissions caps to shift power generation from coal-fired plants to cleaner sources, as it had sought to do in the *Clean Power Plan*.⁹ Accordingly, in May 2023, the EPA proposed new regulations for power plants that it said are “based on proven and cost-effective control technologies that can be applied directly to power plants.”¹⁰ For the regulations to have full effect, the Agency will need to finalize and prepare to defend them against legal challenges that may arise.

Promoting Adaptation and Resiliency

The EPA will need to take proactive steps to promote and integrate opportunities for climate adaptation and resiliency to fully achieve its climate-change goals. One way it has proposed doing so is through its 2021 *Climate Adaptation Action Plan*,¹¹ in response to which the EPA’s regional and major program offices issued climate adaptation implementation plans in October 2022.¹² But the need for collaboration across all levels of government and beyond, as well as constraints on the Agency’s authorities and resources, complicates implementation plans and other adaptation and resiliency efforts.

Funding provided through the IIJA gives the EPA an opportunity to make drinking water and wastewater systems more resilient to the impacts of severe weather events, such as flooding, that are made worse by climate change. In November 2021, Executive Order 14052, *Implementation of the Infrastructure Investment and Jobs Act*, set an IIJA implementation priority “to build infrastructure that is resilient and that helps combat the crisis of climate change.”¹³ But this too depends on the Agency’s ability to influence its partners. For example, over five years, the Agency will receive \$43.4 billion to allocate to states for their Drinking Water and Clean Water State Revolving Fund programs,¹⁴ part of what the EPA describes as “the single largest investment in water that the federal government has made.”¹⁵ In a March 2022 memorandum, the EPA “strongly encouraged” states to use this significant increase in funding for infrastructure projects that make water systems more resilient to all threats, including natural disasters and climate change, and to fund projects that support climate adaptation.¹⁶ The long-term sustainability of federal investments made through the IIJA is at risk if states choose to fund projects that do not consider climate change impacts.

While the EPA is seeking to use financial assistance to further encourage its partners’ climate change adaptation measures, limitations on the Agency’s authority affect its ability to do so. For example, the deputy administrator and the associate administrator for Policy issued a February 2023 memorandum to

⁸ *Massachusetts v. EPA*, 549 U.S. 497 (2007).

⁹ *West Virginia v. EPA*, 597 U. S. ___, 142 S. Ct. 2587 (2022).

¹⁰ [News Release](#), U.S. Env’t Prot. Agency, EPA Proposes New Carbon Pollution Standards for Fossil Fuel-Fired Power Plants to Tackle the Climate Crisis and Protect Public Health (Oct. 17, 2022).

¹¹ [Climate Adaptation Action Plan](#), *supra* note 2.

¹² *National Program, Regional Office, and Office of Policy Climate Adaptation Implementation Plans*, U.S. Env’t Prot. Agency, <https://www.epa.gov/climate-adaptation/climate-adaptation-plans> (last visited Sept. 21, 2023).

¹³ Exec. Order No. 14052, [86 Fed. Reg. 64355](#) (Nov. 18, 2021).

¹⁴ Infrastructure Investment Jobs Act, [Pub. L. No 117-58](#) (2022).

¹⁵ 2022 *Bipartisan Infrastructure Law Clean Water and Drinking Water State Revolving Funds (SRFs)*, U.S. Env’t Prot. Agency <https://www.epa.gov/infrastructure/2022-bipartisan-infrastructure-law-clean-water-and-drinking-water-state-revolving> (last visited Sept. 21, 2023).

¹⁶ U.S. Env’t Prot. Agency, [Memorandum: Implementation of the Clean Water and Drinking Water State Revolving Fund Provisions of the Bipartisan Infrastructure Law](#) (2022).

the EPA's programs and regions that laid out steps "to encourage climate-smart investments" by having programs integrate climate adaptation criteria into their funding agreements.¹⁷ However, the federally funded state revolving funds under the Clean Water and Safe Drinking Water Acts afford states broad flexibility in selecting, prioritizing, and designing eligible projects, and climate adaptation and resilience are not mandatory considerations in those processes. Such constraints present a challenge to the EPA's ability to incorporate climate adaptation and resiliency into existing programs.

Considering Disparate and Cumulative Impacts

The EPA will need to continue to consider the needs of disproportionately affected and vulnerable communities while incorporating resiliency and adaptation across programs. The *FY 2024 EPA Budget in Brief* states that the EPA will "actively engage organizations representing overburdened and underserved communities that are more vulnerable to climate impacts to ensure the Agency's adaptation plans reflect the principles of environmental justice and equity."¹⁸ The EPA has said that vulnerable communities and groups include people of color, people with low incomes, and people over the age of 65.¹⁹ Lack of access to clean and safe water may particularly endanger such groups, which have a more limited ability to prepare for and respond to climate-related events affecting their water infrastructure.²⁰

The *FY 2022-2026 EPA Strategic Plan* recognized the need to increasingly measure community climate risk and resiliency to allow the EPA to target limited resources most effectively on communities with environmental justice concerns. However, the *Strategic Plan* states that "data related to local impacts and effective actions to reduce risk are not consistent or widely available," which may limit the Agency's ability to identify and invest with the greatest impact in the most vulnerable communities. The EPA needs to improve data collection and data quality to better understand how to address climate change impacts in communities with environmental justice concerns and invest in communities with the greatest risks and needs.

Prioritizing and Coordinating Climate Change Research

The Agency's research portfolio, outlined on its "Climate Change Research" webpage, includes initiatives and programs focused on air quality, ecosystems, energy production, human health, and wildland fires.²¹ The EPA is also a member of larger cross-agency programs and initiatives, such as the U.S. Global Change Research Program that Congress mandated to coordinate and invest in federal research on climate change. The EPA is also part of the Intergovernmental Panel on Climate Change, the United Nations body for assessing the science related to climate change.

To assist in identifying and prioritizing research needs and coordinating the Agency's air quality and climate change-related research efforts, in October 2022 the EPA's Office of Research and Development issued the *Air, Climate and Energy (ACE) Strategic Research Action Plan Fiscal Years 2023-2026*.²² The *Action Plan* focuses on two overarching topic areas: (1) understanding air pollution and climate change and their impacts on human health and ecosystems and (2) responding to risks and impacts and

¹⁷ U.S. Env't Prot. Agency, Memorandum: Incorporating Climate Change Adaptation Criteria into Applicable Financial Assistance Agreements (2023).

¹⁸ U.S. Env't Prot. Agency, *FY 2024 EPA Budget in Brief* (2023).

¹⁹ U.S. Env't Prot. Agency, *Climate Change, Health and Environmental Justice* (2016).

²⁰ *Climate Adaptation Action Plan*, *supra* note 2.

²¹ *Climate Change Research*, U.S. Env't Prot. Agency, <https://www.epa.gov/climate-research> (last visited Sept. 21, 2022).

²² U.S. Env't Prot. Agency, Air, Climate and Energy (ACE) Strategic Research *Action Plan* Fiscal Years 2023-2026 (2022).

preparing for the future. The EPA now needs to implement this *Action Plan* and continue to engage with stakeholders—including local, state, and tribal partners, and other federal agencies—to identify emerging research needs and communicate results.

Engaging and Developing International Partners

As countries cooperate to reduce the effects of climate change, the EPA represents and advances U.S. interests in international conventions, such as the United Nations Framework Convention on Climate Change, and multilateral and bilateral partnerships, such as the Global Methane Initiative and the ENERGY STAR International Partnerships.²³ However, these international efforts face obstacles, including the Agency’s inability to control how other countries will use its assistance, including tools, information, training, and guidance. Consequently, the Agency will need to ensure its environmental diplomacy efforts are tailored to achieve the best results within those constraints.

Recognizing the importance of these international efforts, the EPA has set a strategic goal of implementing at least 40 engagements by the end of FY 2026 that result in partner commitments or actions that reduce GHG emissions, adapt to climate change, or improve resilience.²⁴ The EPA states that it “will target all engagement and technical assistance toward countries where the EPA expects to have the greatest potential impact and where the EPA can leverage the work of other federal departments or agencies, as appropriate.” Consequently, the challenge of implementing effective climate change policy requires the EPA to participate in diplomacy to arrive at successful climate change solutions.

Addressing Vulnerabilities to Increasing Natural Disasters

The increased incidence of climate change-related disasters creates potential vulnerabilities at facilities and contaminated sites containing substances potentially hazardous to the public and the environment. The Agency will need to identify and address the risks at these sites that the EPA and EPA-authorized state programs regulate.

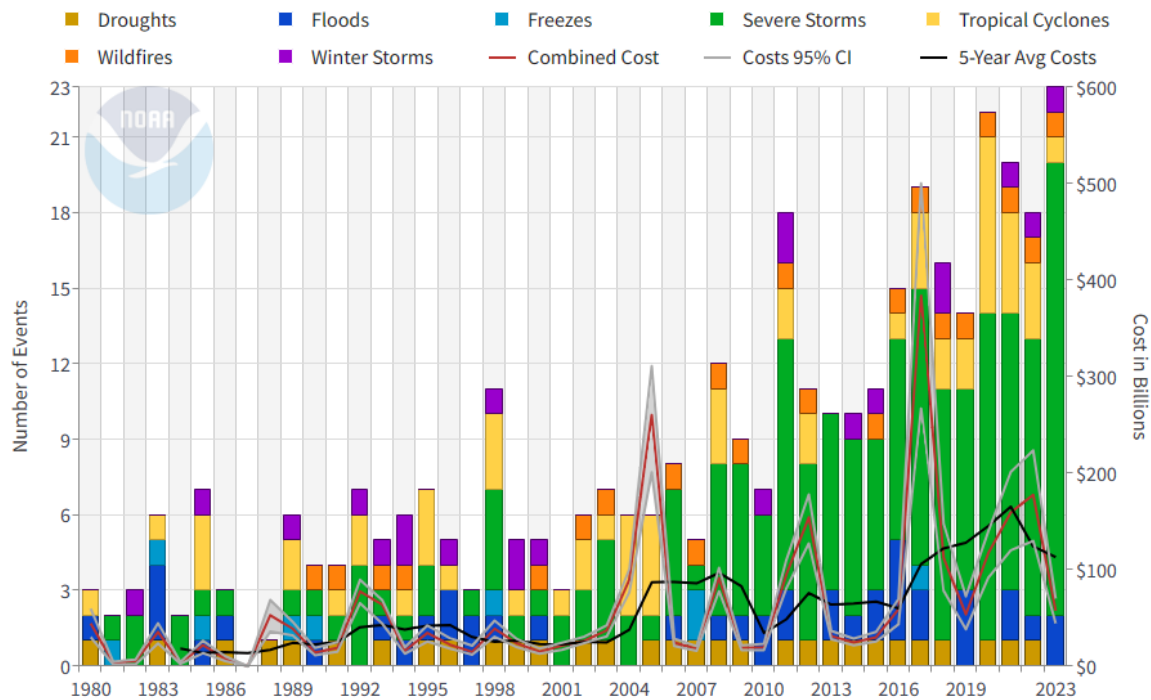
As the data from the National Oceanic and Atmospheric Administration in Figure 1 show, large-scale natural disaster events have increased in the United States since 1980. During 2022, 18 separate billion-dollar weather and climate disaster events occurred, and as of September 11, 2023, at least 23 such events took place, compared to just three in 1980.²⁵ On top of that, according to a National Oceanic and Atmospheric Administration [report](#) published in February 2022, the sea level on the U.S. coastline is projected to rise by 10 to 12 inches on average by 2050, changing as much in three decades as it did over the previous century.

²³ *International Climate Partnerships*, U.S. Env’t Prot. Agency, <https://www.epa.gov/climate-change/international-climate-partnerships-0> (last visited Sept. 21, 2023).

²⁴ *FY 2022-2026 EPA Strategic Plan*, *supra* note 4.

²⁵ *Time Series*, National Oceanic and Atmospheric Admin., <https://www.ncei.noaa.gov/access/billions/time-series> (last visited Oct. 2, 2023).

Figure 1: U.S. billion-dollar disaster event type by year from 1980 through 2023



Source: [Time Series](#), National Oceanic and Atmospheric Administration (last visited Oct. 2, 2023). (National Oceanic and Atmospheric Administration image)

These climate change impacts threaten EPA-regulated sites and facilities. For example, about 31 percent of *Risk Management Plan* facilities that manage hazardous substances, or over 3,200 of the 10,420 facilities total, are in areas affected by such natural hazards as flooding, storm surges, wildfires, and sea-level rises that climate change may make worse, a 2022 GAO report found.²⁶ Additionally, as illustrated in Figure 2, about 60 percent of all nonfederal contaminated sites on the Superfund National Priorities List are in areas impacted by the potential effects of such natural hazards, which climate change may make worse, a 2019 GAO report found.²⁷ In response to that report, the EPA issued a memorandum on June 30, 2021,²⁸ describing approaches for the EPA’s regions to evaluate how vulnerable the cleanup remedies are at nonfederal sites on the National Priorities List. These actions also help evaluate measures to adapt to change and increase the system’s climate resilience.



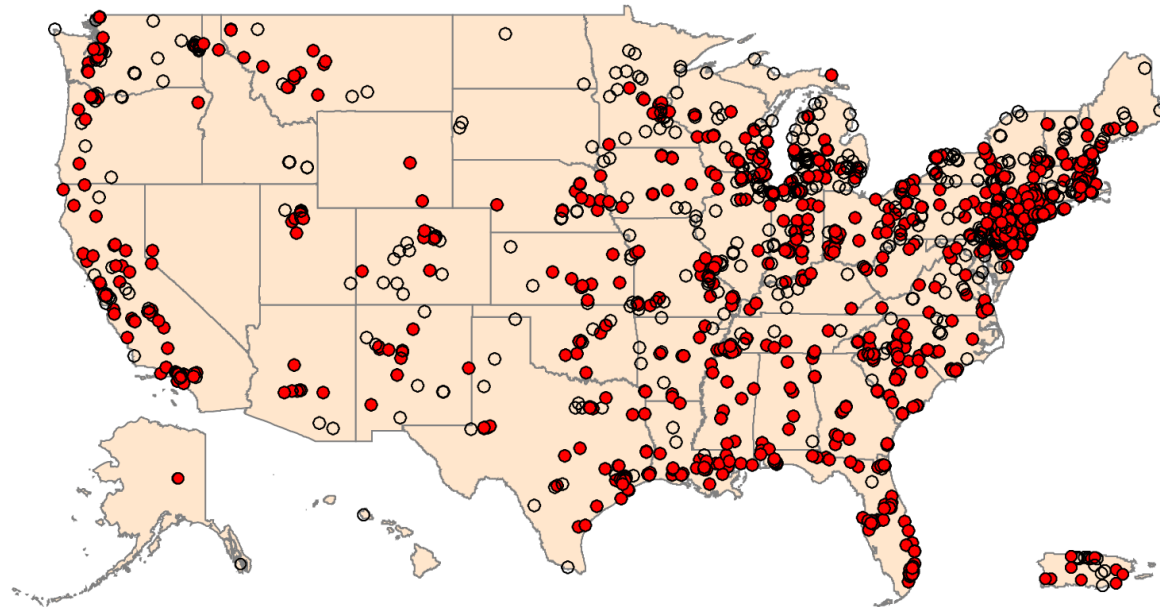
An aerial view from a military aircraft of a wildfire burning in Maui, Hawaii, on August 9, 2023. (U.S. Air Force image by Air Force Master Sgt. Andrew Jackson)

²⁶ U.S. Gov’t Accountability Off., [GAO-22-104494](#), Chemical Accident Prevention: EPA Should Ensure Regulated Facilities Consider Risks from Climate Change (2022).

²⁷ U.S. Gov’t Accountability Off., [GAO-20-73](#), Superfund: EPA Should Take Additional Actions to Manage Risks from Climate Change (2019).

²⁸ U.S. Env’t Prot. Agency, [Memorandum](#): Consideration of Climate Resilience in the Superfund Cleanup Process for Non-Federal National Priorities List Sites (2021).

Figure 2: Nonfederal National Priorities List sites located in areas that may be impacted by flooding, storm surge, wildfires, or sea-level rises as of 2019



Number of National Priorities List (NPL) sites in potentially impacted areas

● Potentially impacted sites (945) ○ No impact identified (626)

Source: GAO Report No. [GAO-20-73](#), *Superfund: EPA Should Take Additional Actions to Manage Risks from Climate Change*, published October 18, 2019. (GAO image)

Failure to identify potential climate change vulnerabilities, evaluate adaptation measures, and increase resilience at EPA-regulated facilities may threaten the effective regulation of these facilities and the prevention of uncontrolled releases of contaminants. This therefore jeopardizes the EPA's ability to meet its core mission to protect human health and the environment.

Conclusion

The EPA has prioritized climate change as an important aspect of its mission to protect human health and the environment. Addressing this challenge requires the EPA to implement a long-term, agencywide approach, ensuring that its programs, policies, rulemaking processes, and enforcement and compliance assurance activities consider the current and future impacts of climate change. To accomplish this task, the EPA will need to fully implement the climate change priority goals that it set in the [FY 2022-2026 EPA Strategic Plan](#) and the 2021 [Climate Adaptation Action Plan](#). It will also need to develop relevant regulations, such as those related to power plants; integrate adaptation and resiliency across programs; continue its international climate change efforts; and prepare for natural disasters made worse by climate change. By its own account, if the EPA does not continually take proactive steps to address climate change, more Americans could live in areas that fail to meet air quality standards, be exposed to poor water quality or contaminant releases after natural disasters, or face health effects from weather events.



Challenge 2: Integrating and Implementing Environmental Justice



Introduction and Overview

The EPA leads the federal effort to ensure environmental justice by identifying and addressing disproportionately high and adverse human health or environmental impacts affecting disadvantaged communities. In keeping with a series of executive orders issued over the past 30 years, the EPA attempts to integrate environmental justice principles into its regulatory activities and civil rights enforcement. It has made strides in recent years to strengthen these efforts. For example, the *FY 2022-2026 EPA Strategic Plan* prioritized environmental justice as a goal for the first time.²⁹ That *Strategic Plan* included an environmental justice-centric FY 2022–2023 Agency Priority Goal of, among other things, establishing at least ten performance indicators to assess the Agency’s efforts in eliminating disparities in environmental and public health conditions.

The EPA continues to face significant and unique obstacles to environmental justice because of the dynamics of the Agency’s structure and underlying legislative framework, as well as the individualized approaches of state and local agencies that bear the bulk of the responsibility for implementing environmental laws and regulations. For example, then-EPA Administrator Andrew Wheeler acknowledged in 2020 that programmatic silos within the Agency had hampered the assessment of cumulative impacts.³⁰ The nation’s decentralized environmental regulatory system allows state and local agencies to assume the responsibility for important functions, such as issuing environmental permits, cleaning up contamination, prioritizing infrastructure investments, and siting facilities. These complications take on greater significance given the unprecedented funding amounts Congress appropriated in the IIJA and the IRA for environmental justice concerns.

Environmental justice is the fair treatment and meaningful involvement of all people regardless of race, color, culture, national origin, income, and educational levels with respect to the development, implementation, and enforcement of protective environmental laws, regulations, and policies.

Three executive orders require agencies to make environmental justice part of their mission:

- Executive Order 12898, *Federal Actions to Address Environmental Justice in Minority Populations and Low-Income Populations*, issued in 1994, required agencies to develop an agencywide environmental justice strategy that addressed disproportionately high and adverse human health or environmental effects.
- Executive Order 13985, *Advancing Racial Equity and Support for Underserved Communities Through the Federal Government*, issued in 2021, mandated federal agencies launch a “whole-of-government approach” to equity.
- Executive Order 14008, *Tackling the Climate Crisis at Home and Abroad*, issued in 2021, announced the Justice40 Initiative, which mandates that at least 40 percent of the benefits of certain federal programs flow to disadvantaged communities.

Cumulative Impacts on Overburdened Communities

The EPA, state environmental regulators, and local zoning officials have for decades made decisions contributing to the disproportionate pollution burden on minority and low-income populations across

²⁹ [FY 2022-2026 EPA Strategic Plan](#), *supra* note 4.

³⁰ U.S. Env’t Prot. Agency, EPA Annual Environmental Justice Progress [Report](#) FY 2020 (2021).

the United States.³¹ For example, siting and permitting decisions have led to concentrations of industrial facilities in these communities, which in turn become overburdened by pollution. These decisions also often raise concerns about cumulative impacts on public health.³² The EPA should understand and address the cumulative impacts affecting these communities, but it faces several obstacles in doing so.

According to the EPA, one of the key factors to addressing cumulative impacts in environmental decision-making is the narrow focus of existing environmental laws and regulations that do not expressly mandate that decisions consider multiple pollutants from multiple sources and media.³³ This is because statutes from which the EPA draws its authority “have historically been implemented by evaluating the risks and effects associated with exposure to a single pollutant in a single exposure medium.”³⁴ The EPA’s September 2022 report titled *Cumulative Impacts Research* provided the Agency with operational definitions for cumulative impacts and guidance for future research, noting that the single-pollutant/single-exposure framework is not suited to the fact that people and communities are exposed to many pollutants from many sources over time. Moreover, chemical stressors may interact with nonchemical stressors, such as extreme weather events, to affect health and well-being.

The EPA has also developed a mapping screening tool called EJScreen to support program decision-making, which it says can catalyze “significant and urgent progress” in the Agency’s work to address disproportionate impacts.³⁵ The Agency plans to enhance EJScreen to assign cumulative impacts index scores to areas facing disproportionate environmental burdens.³⁶ Until this element is fully developed, challenges will persist in the use of EJScreen for communities of concern.

In August 2023, we [recommended](#) that the EPA develop and implement policies and guidance to increase and improve coordination between EPA programs to assess and address cumulative impacts and disproportionate health effects. We also recommended that the EPA develop and implement performance measures to monitor progress. The Agency agreed with our recommendations and plans to complete all corrective actions by June 2024.³⁷



A smokestack adjacent to a neighborhood. (EPA image)

State Implementation Challenges

State implementation is one challenge to achieving environmental justice at the statutory and regulatory levels because permitting and rulemaking processes have not typically considered environmental justice. Thus, the EPA claims, it is often easier to site an eighth facility in a community that already has seven than to site one facility in a community that has none.³⁸ Permitting is primarily implemented by other governmental partners with delegated authority from the EPA. Although statutes and executive orders provide the EPA with the authority to consider environmental justice impacts, the

³¹ U.S. Env’t Prot. Agency, [E.O. 13985 Equity Action Plan](#) (2022).

³² *Id.*

³³ U.S. Env’t Prot. Agency, [Cumulative Impacts Research](#) (2022).

³⁴ *Id.*

³⁵ U.S. Env’t Prot. Agency, [Final National Program Guidance FY 2023-2024](#) (2022).

³⁶ [E.O. 13985 Equity Action Plan](#), *supra* note 31.

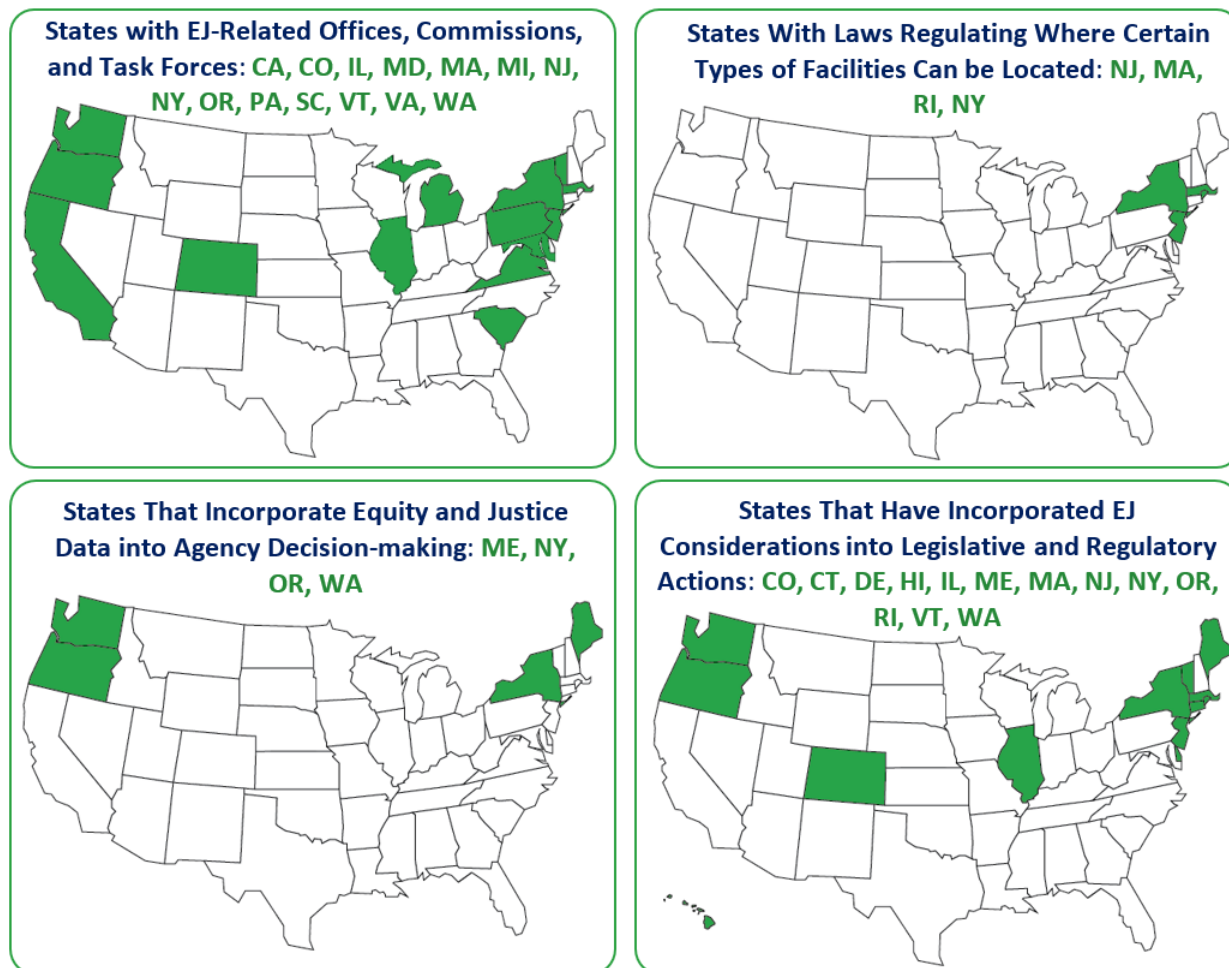
³⁷ U.S. Env’t Prot. Agency Off. of Inspector Gen., [23-P-0029](#), The EPA Needs to Further Refine and Implement Guidance to Address Cumulative Impacts and Disproportionate Health Effects Across Environmental Programs (2023).

³⁸ [FY 2022-2026 EPA Strategic Plan](#), *supra* note 4.

EPA also relies on encouraging and incentivizing states to incorporate environmental justice and civil rights principles into their permitting and other decisions.

Over the years, at least 14 states have established task forces, commissions, or offices to address environmental justice, and many states have developed various environmental justice tools and mechanisms, as shown in Figure 3.³⁹ For example, New Jersey enacted a first-of-its-kind state law in 2023 that requires the New Jersey Department of Environmental Protection to deny a permit if its analysis finds that, absent a compelling public interest, a new facility will have a disproportionately negative impact on the community.⁴⁰ California’s CalEnviroScreen, which celebrated its tenth anniversary in 2023, helps identify communities facing environmental burdens.⁴¹

Figure 3: State efforts to address environmental justice



Source: “National Conference of State Legislatures” [website](https://www.ncsl.org/environment-and-natural-resources/state-and-federal-environmental-justice-efforts), “State and Federal Environmental Justice Efforts” section, last visited September 28, 2023. (EPA OIG image).

The EPA’s efforts to encourage states to incorporate environmental justice considerations into their decision-making include interim guidance issued in August 2022. Titled *Interim Environmental Justice*

³⁹ *State and Federal Environmental Justice Efforts*, National Conference of State Legislatures, <https://www.ncsl.org/environment-and-natural-resources/state-and-federal-environmental-justice-efforts> (last visited Sept. 28, 2023).

⁴⁰ N.J. Admin. Code § 7:1C-9.2.

⁴¹ *CalEnviroScreen*, Cal. Off. of Env’t Health Hazard Assessment, <https://oehha.ca.gov/calenviroscreen> (last visited Sept. 21, 2023).

and *Civil Rights in Permitting Frequently Asked Questions*, this guidance provides substantive circumstances under which permits might be denied on civil rights grounds.⁴² The EPA has also indicated that, like it did at headquarters, it plans to open standalone environmental justice offices within its ten regional offices to work on the National Environmental Policy Act, children’s health, and public engagement. Additionally, the EPA’s Office of Air and Radiation issued guidance in December 2022 outlining eight principles for including cumulative impacts and other environmental justice considerations in Clean Air Act permitting using existing authorities.⁴³ The principles include using EJScreen and other tools to identify communities with potential environmental justice concerns, encouraging meaningful participation with communities early and often, and providing training on how to effectively comment on permits.

In line with these principles, the EPA released online tools for the states and the public that can assist with environmental justice endeavors, such as the Benzene Fenceline Monitoring Dashboard, released in October 2022.⁴⁴ The dashboard provides ready access to benzene emissions fenceline data from petroleum refineries, allowing users to zoom in on individual refineries, view information from EJScreen, and display which monitors have elevated benzene concentrations on the fenceline.⁴⁵ In May 2023, the EPA released the Enforcement and Compliance History Online Clean Air Tracking Tool, which is an interface and repository for Clean Air Act data that can be used to analyze general air quality in areas with environmental justice concerns.⁴⁶

Significant Funding Opportunities and Challenges

Through the IIJA and the IRA, Congress provided additional environmental justice funding of about \$42 billion in combined supplemental appropriations beginning in FY 2022. While this significant funding increase creates opportunities, it also presents difficulties related to oversight and effective use of the \$23.8 billion and \$18.1 billion, respectively, that the IIJA and the IRA provide for environmental justice-related programs, as shown in Table 2. For example, the IRA appropriates funds for low-income and disadvantaged communities, but those terms with respect to the EPA’s appropriations are not defined. For the IIJA state revolving funds, states, rather than the EPA, determine what affordability criteria communities must meet to apply for eligible subsidies.

⁴² U.S. Env’t Prot. Agency, Interim Environmental Justice and Civil Rights in Permitting [Frequently Asked Questions](#) (2022).

⁴³ U.S. Env’t Prot. Agency, [Memorandum](#): Principles for Addressing Environmental Justice Concerns in Air Permitting (2022).

⁴⁴ [News Release](#), U.S. Env’t Prot. Agency, EPA Launches New Online Tools to Provide Communities with Information on Environmental Enforcement and Compliance (Oct. 3, 2022).

⁴⁵ *Fenceline Monitoring Data Collection and Reporting*, U.S. Env’t Prot. Agency, https://awsedap.epa.gov/public/extensions/Fenceline_Monitoring/Fenceline_Monitoring.html?sheet=Monitoring_Dashboard (last visited Sept. 21, 2023).

⁴⁶ [News Release](#), U.S. Env’t Prot. Agency, Environmental Compliance History Database Continues Upgrades Through Introduction of Clean Air Tracking Tool (May 31, 2023); *What’s New, May 2023, Public Release of the ECHO Clean Air Tracking Tool (ECATT)*, U.S. Env’t Prot. Agency, <https://echo.epa.gov/resources/general-info/whats-new> (last visited Sept. 21, 2023).

Table 2: IIJA and IRA funding that addresses environmental justice concerns (FYs 2022–2026)

EPA program	IIJA funding
Clean Water State Revolving Funds	\$5.739 billion
Drinking Water State Revolving Funds	\$5.739 billion
Drinking Water State Revolving Funds for lead service lines	\$7.35 billion
Emerging Contaminants	\$5 billion
IIJA total:	\$23.828 billion
EPA program	IRA funding
Greenhouse Gas Reduction Fund	\$15 billion
Diesel Emissions Reductions	\$0.06 billion
Funding to Address Air Pollution	\$0.003 billion
Funding to Address Air Pollution at Schools	\$0.05 billion
Low Emissions Electricity Program	\$0.017 billion
Environmental and Climate Justice Block Grants	\$3 billion
IRA total:	\$18.13 billion
Combined IIJA and IRA total:	\$41.958 billion

Source: OIG analysis of the IIJA and the IRA. (EPA OIG table)

We have also raised concerns about the influx of funding that the Office of Environmental Justice and External Civil Rights will be responsible for. The office oversees the climate and environmental justice block grant program and ensures that the EPA is meeting or exceeding the president’s Justice40 Initiative goals.⁴⁷ As EPA Inspector General Sean W. O’Donnell said in congressional testimony in March 2023, the programs and offices that formed the new office previously had a combined budget of about \$12 million, but the new office will now manage about \$3 billion in block grants to community-based nonprofit organizations. We remain concerned that, in seeking to reach new recipients, the office will avoid or omit important internal controls and antifraud protections.⁴⁸

As with previous supplemental appropriations legislation, such as the American Recovery and Reinvestment Act, there is a risk that the EPA may mismanage the influx of IIJA and IRA funds, not comply with funding requirements, and fail to meet programmatic goals. While some of these programs are just getting started, the EPA should be considering how it will effectively oversee program partners in ensuring environmental justice outcomes, including state and local governments and community-based organizations.

Conclusion

The EPA is applying environmental justice principles to nearly every program in the EPA. Beyond identifying and assessing environmental justice concerns, the EPA will need to continue efforts to ensure vulnerable communities are not disproportionately affected by adverse human health or environmental impacts. The Agency should continue to encourage and incentivize its state partners to consider vulnerable communities and disparate impacts in their environmental regulations and decisions. Achieving the Agency’s environmental justice goals will also require the Agency to harness program and agencywide coordination. Doing this requires a culture change from an organization in which decisions are made within programs to one in which cross-program decisions weigh cumulative risks and impacts to the communities that the EPA serves, particularly those that are most vulnerable.

⁴⁷ [News Release](#), U.S. Env’t Prot. Agency, EPA Launches New National Office Dedicated to Advancing Environmental Justice and Civil Rights (Sept. 24, 2022).

⁴⁸ Sean W. O’Donnell, Inspector Gen., U.S. Env’t Prot. Agency, [Statement](#) Before the U.S. House of Rep. Comm. on Energy and Commerce, Subcomm. on Oversight and Investigations (Mar. 29, 2023).



Challenge 3: Safeguarding the Use and Disposal of Chemicals



Introduction and Overview

With over 70,000 chemicals in commerce, 789 pesticides due for registration review by October 2026, and 22 percent of the U.S. population living within three miles of a Superfund site, the public must be able to depend on the EPA's ability to identify the risks of using chemicals and pesticides and to verify their proper disposal, management, and remediation. To effectively protect public health and the environment, the EPA should be able to conduct credible and timely assessments of the risks that chemicals pose, including identifying new and emerging threats. Further, the EPA should effectively oversee the management of a variety of chemical wastes through regulated containment and disposal actions. It will also need to respond to and remediate unexpected chemical releases or spills effectively and efficiently.

The [FY 2022-2026 EPA Strategic Plan](#) sets two strategic goals and other related performance goals for safeguarding communities and ensuring chemical safety. But according to the EPA, its efforts to assess and manage chemical risks, as well as to require testing and submission of new chemical data, have stretched its personnel and resources thin. Further, increases in billion-dollar natural disaster events like Hurricane Harvey and other challenges outside the Agency's control have resulted in larger emergency response events and greater resource expenditures, further straining the EPA's ability to respond to chemical spills.⁴⁹

Providing Timely Chemical Assessments

Both TSCA and the Federal Insecticide, Fungicide, and Rodenticide Act require risk assessments of chemicals and pesticides within statutorily mandated deadlines. As summarized below, the Agency faces obstacles to completing timely assessments arising from increased requirements and looming deadlines that strain its personnel and other resources.

Frank R. Lautenberg Chemical Safety for the 21st Century Act

The Frank R. Lautenberg Chemical Safety for the 21st Century Act amended TSCA in 2016 and expanded the EPA's regulatory authority beyond the review of new chemical formulations to include the prioritization, selection, risk assessment, and potential regulation of the over 70,000 existing chemicals already in commerce.⁵⁰ The Lautenberg Act requires the EPA to assess and eliminate unreasonable risks to potentially exposed or susceptible subpopulations, including workers.⁵¹ It also requires the EPA to make affirmative risk determinations on 100 percent of new chemical notices submitted under TSCA

⁴⁹ 2022 U.S. billion-dollar weather and climate disasters in historical context, Nat'l Oceanic and Atmospheric Admin., <https://www.climate.gov/news-features/blogs/beyond-data/2022-us-billion-dollar-weather-and-climate-disasters-historical#:~:text=In%202022%2C%20the%20U.S.%20experienced,the%2020%20events%20in%202021> (last visited Sept. 21, 2023).

⁵⁰ Learn About the Toxic Substances Control Act, U.S. Env't Prot. Agency, <https://www.epa.gov/assessing-and-managing-chemicals-under-tsca/learn-about-toxic-substances-control-act-tsca> (last visited Sept. 21, 2023).

⁵¹ 15 U.S.C. § 2605(b)(4)(A).

section 5, which is about a fivefold increase in the Agency's workload.⁵² However, the Office of Chemical Safety and Pollution Prevention's annual budget has not kept pace with added workload demands.⁵³

In an August 2023 [report](#), we found the EPA's reviews of new chemicals under TSCA were not being made within the statutory time frame because of a lack of staff resources. We recommended that the EPA create a plan to regularly review guidance documents, periodically assess the effectiveness of the official recordkeeping system within TSCA, develop and implement a plan to identify root causes for frequent technical issues, and periodically review the workforce and workload analysis. The EPA agreed to all recommendations and corrective actions are pending.⁵⁴

The EPA has stated, and the OIG has confirmed through reviews, that the EPA cannot fulfill its mission to implement the requirements of chemical safety laws until resources are provided to address documented shortfalls.

Assistant Administrator for Chemical Safety and Pollution Prevention Michal Freedhoff testified before a Senate committee June 22, 2022, that the Agency will be unable to fully conduct existing chemical risk assessments, review new chemicals and pesticides, or develop new risk assessment methods within the statutorily mandated deadlines without additional resources.⁵⁵ The EPA has sought \$131 million for TSCA implementation in its FY 2024 budget request, which its *FY 2024 Budget in Brief* said is needed to achieve TSCA goals and would support 535 full-time equivalent staff, an increase of 75 percent.⁵⁶

Another obstacle the Lautenberg Act amendments present is related to the requirement that the EPA expand and revise its analytical capacities. To meet this requirement, the EPA continues to develop its *New Approach Methods Work Plan* and expand the use of computational toxicology and bioinformatics processes to provide information on chemical hazards and risk assessments while avoiding the use of vertebrate animal testing.⁵⁷ The EPA also seeks to establish scientific confidence in New Approach Methods, overcome information gap challenges, and engage with stakeholders to assure the transparency and accountability of the new methods.⁵⁸

Federal Insecticide, Fungicide, and Rodenticide Act

The EPA is responsible for regulating the distribution, sale, use, and registration of pesticides to prevent "unreasonable adverse effects on the environment."⁵⁹ The Federal Insecticide, Fungicide, and Rodenticide Act requires the Agency to review each registered pesticide every 15 years. The initial review was to be completed by October 1, 2026, in the case of pesticides registered before

⁵² *Statistics for the New Chemicals Review Program under TSCA*, U.S. Env't Prot. Agency, <https://www.epa.gov/reviewing-new-chemicals-under-toxic-substances-control-act-tsca/statistics-new-chemicals-review> (last visited Sept. 21, 2023).

⁵³ Michal Ilana Freedhoff, Assistant Adm'r Off. of Chem. Safety and Pollution Prevention, U.S. Env't. Prot. Agency, [Testimony](#) Before the U.S. Senate. Comm. on Env't and Pub. Works (June 22, 2023).

⁵⁴ U.S. Env't Prot. Agency Off. of Inspector Gen., [23-P-0026](#), *The EPA Lacks Complete Guidance for the New Chemicals Program to Ensure Consistency and Transparency in Decisions* (2023).

⁵⁵ Testimony of Michal Ilana Freedhoff, *supra* note 53.

⁵⁶ *FY 2024 EPA Budget in Brief*, *supra* note 18.

⁵⁷ 15 U.S.C. § 2603(h)(2)(A); U.S. Env't. Prot. Agency, [New Approach Methods Work Plan](#) (2021).

⁵⁸ *EPA New Approach Methods Work Plan: Reducing Use of Vertebrate Animals in Chemical Testing*, U.S. Env't. Prot. Agency, <https://www.epa.gov/chemical-research/epa-new-approach-methods-work-plan-reducing-use-vertebrate-animals-chemical> (last visited Oct. 12, 2023).

⁵⁹ 7 U.S.C. § 136a.

October 1, 2007.⁶⁰ As of April 2023, a total of 789 pesticide cases had that registration review deadline.⁶¹ However, the EPA has been unable to complete all required registration review processes, and the backlog impedes its ability to ensure the safety of older pesticides.

The Federal Insecticide, Fungicide, and Rodenticide Act also provides the EPA with the authority under which it works to prevent pesticide poisoning and injuries among agricultural workers, pesticide handlers, and their families. The Agency continues working to expand these efforts by providing training and information to schools, farmers, other partners, and stakeholders. But to meet its strategic goal of supporting pesticide safety training for 20,000 farmworkers annually by September 30, 2026, the Agency must address the challenge of providing information to transient workers of varying cultural and language backgrounds.⁶²

The EPA must also adapt to the updated and amended Pesticide Registration Improvement Act, which was initially enacted in 2003 to improve pesticide application review times and provide the Agency with the ability to assess registration fees. Congress's reauthorization of the Act in December 2022 updated fees and required the EPA to improve the electronic registration process and to establish a voucher program to incentivize expedited reviews of new insecticides designed to control the spread of vectorborne diseases.⁶³ These changes and new requirements will create challenges to achieving timely registration and reregistration assessments of new and existing pesticide applications, which, if not addressed, may hinder the Agency's ability to effectively protect human health and the environment from pesticide risks.

Addressing Additional Concerns Related to Ensuring the Safety of Chemicals

Outside of TSCA and the Federal Insecticide, Fungicide, and Rodenticide Act, the Agency faces complications to its ability to protect humans, endangered species, and the environment from the risks of chemicals and pesticides. For example, our 2021 [evaluation](#) of the EPA's Endocrine Disruptor Screening Program found that the Agency has not made meaningful progress in complying with the Federal Food, Drug, and Cosmetic Act's statutory requirement to test all pesticides for endocrine-disruptor activity.⁶⁴ Moreover, the Agency has not published a new or updated version of its 2014 *Endocrine Disruptor Screening Program Comprehensive Management Plan*, which provided strategic guidance for program activities through FY 2019.⁶⁵



Green frogs collected for evaluation on potential effects of endocrine disrupting chemicals. (U.S. Geological Survey image)

⁶⁰ *EPA Publishes Updated Registration Review Schedule*, U.S. Env't. Prot. Agency, <https://www.epa.gov/pesticides/epa-publishes-updated-registration-review-schedule> (last updated June 26, 2023).

⁶¹ *Id.*

⁶² *FY 2022-2026 EPA Strategic Plan*, *supra* note 4.

⁶³ *PRIA 5 Implementation Information* U.S. Env't Prot. Agency, (last visited Sept. 21, 2023).

⁶⁴ U.S. Env't Prot. Agency Off. of Inspector Gen., [21-E-0186](#), EPA's Endocrine Disruptor Screening Program Has Made Limited Progress in Assessing Pesticides (2021); 21 U.S.C. § 346a(p)(3)(A).

⁶⁵ *Endocrine Disruptor Screening Program (EDSP) Comprehensive Management Plans*, U.S. Env't Prot. Agency, <https://www.epa.gov/endocrine-disruption/endocrine-disruptor-screening-program-edsp-comprehensive-management-plans> (last visited July 25, 2023); U.S. Env't Prot. Agency, *Endocrine Disruptor Screening Program Comprehensive Management Plan* (2014).

Additionally, when the EPA registers or reevaluates a pesticide, the Endangered Species Act requires it to ensure that the agent does not jeopardize threatened or endangered species or their habitats.⁶⁶ Since 2007, the Office of Pesticide Programs has done limited work to complete these assessments for certain high-priority pesticides. But the Agency still needs to review over 1,000 active ingredients, according to the office's Endangered Species Act work plan, published in April 2022.⁶⁷ Many significant challenges prevent the EPA from meeting its obligations under the Act. For example, the computer resources, subject-matter expertise, and staffing required far exceed the Agency's capabilities for the hundreds of determinations it must make in the coming years.⁶⁸ In light of these challenges, the EPA issued draft guidance in May 2023 to improve the efficiency of its Endangered Species Act analyses for new pesticide active ingredient applications and active ingredients undergoing registration review.⁶⁹

The effects of climate change on expanding or changing the range, distribution, and population of pests and weeds and the potential increased use of pesticides will likely affect the Agency's pesticide registrations.⁷⁰ Emerging risks and hazards will continue to require additional resources, coordination, and cross-Agency strategies to identify the scope of each new problem and to develop the solutions necessary to protect human health and the environment.

Safeguarding Waste Disposal, Restoring Land, and Revitalizing Communities

The Superfund, Hazardous Waste, and Emergency Response

Nearly one-quarter of the U.S. population lives within three miles of a Superfund site. This population is more minority, low-income, linguistically isolated, and less likely to have a high school education than the U.S. population in general, according to the EPA.⁷¹ Federal data suggests that about 60 percent of Superfund sites that the EPA oversees are in areas that may be affected by the types of natural hazards that climate change may exacerbate, such as wildfires and different types of flooding.⁷² Emergency response and deployment are part of the Agency's Superfund mandates, but unexpected environmental emergencies require abrupt shifts of EPA staff and resources away from other priorities and cleanup efforts.

⁶⁶ EPA's Workplan and Progress Toward Better Protections for Endangered Species, U.S. Env't Prot. Agency, <https://www.epa.gov/endangered-species/epas-workplan-and-progress-toward-better-protections-endangered-species> (last visited Sept. 21, 2023).

⁶⁷ U.S. Env't Prot. Agency, [Balancing Wildlife Protection and Responsible Pesticide Use](#) (2022).

⁶⁸ *Id.*

⁶⁹ EPA Announces Accomplishments of the Pesticide Registration Improvement Act for the First-Half of 2023, U.S. Env't Prot. Agency, <https://www.epa.gov/pesticides/epa-announces-accomplishments-pesticide-registration-improvement-act-first-half-2023> (last visited July 24, 2023).

⁷⁰ *Climate Change Impacts on Agriculture and Food Supply*, U.S. Env't Prot. Agency, <https://www.epa.gov/climateimpacts/climate-change-impacts-agriculture-and-food-supply> (last visited Sept. 21, 2023).

⁷¹ *Superfund, Brownfields and RCRA Corrective Action Sites Near 63 Percent of the U.S. Population*, U.S. Env't Prot. Agency, <https://www.epa.gov/cleanups/superfund-brownfields-and-rcra-corrective-action-sites-near-63-percent-us-population> (last visited Oct. 12, 2023).

⁷² U.S. Gov't Accountability Off., [GAO-21-555T](#), *Superfund: EPA Should Take Additional Actions to Manage Risks from Climate Change Effects* (2021).

According to the EPA, climate change and rising sea levels present challenges, as they threaten about 460 hazardous waste treatment, storage, and disposal facilities located in coastal counties, which manage 17 million tons of waste.⁷³ The Agency already faces difficulties managing hazardous waste disposal at such facilities under the Resource Conservation and Recovery Act. We have found that the Agency struggles to meet statutory and policy inspection requirements, such as in our 2016 [report](#), which found inspection rates were high, but the statutory inspection requirement was not met.⁷⁴ At facilities where the hazardous waste units were closed with hazardous waste in place, our 2021 [report](#) found that the EPA did not consistently verify the continued protection of human health and the environment.⁷⁵ Our 2022 [report](#) found that the EPA failed to meet statutory inspection rates because of a lack of Agency prioritization.⁷⁶ And our 2023 [report](#) found that only three of 27 laboratories were inspected to verify compliance with the Act.⁷⁷



Photo of a scientist performing work in an EPA lab. (EPA image)

Broader efforts related to combating the threat of climate change will also create challenges for the EPA, such as the rise in popularity of electric vehicles, which creates potential difficulties for managing batteries as a growing waste stream. The EPA proposed federal emissions standards in April 2023 aiming to ensure that 67 percent of new light-duty vehicles are electric by 2032.⁷⁸ The anticipated rapid increase in the volume of lithium-ion batteries powering these electric vehicles will likely cause an enormous rise in the end-of-life disposal volume of these batteries once the vehicles are retired. Lithium-ion batteries are regulated as hazardous waste, and the EPA has said that the batteries can be managed under streamlined waste-management standards for universal waste until they reach a destination facility for recycling or disposal.⁷⁹ The EPA is also encouraging recycling of these batteries, which may expand the management options for this waste stream but may also require more resources for oversight to see that recycling is done safely, effectively, and in compliance with all applicable laws and regulations.

⁷³ *Effects of Coastal Sea Level Rise On US Hazardous Waste*, U.S. Env't Prot. Agency, <https://rcrapublic.epa.gov/rcra-public-web/action/posts/5> (last visited Sept. 21, 2023).

⁷⁴ U.S. Env't Prot. Agency Off. of Inspector Gen., [16-P-0104](#), EPA Has Not Met Statutory Requirements for Hazardous Waste Treatment, Storage and Disposal Facility Inspections, but Inspection Rates Are High (2016).

⁷⁵ U.S. Env't Prot. Agency Off. of Inspector Gen., [21-P-0114](#), EPA Does Not Consistently Monitor Hazardous Waste Units Closed with Waste in Place or Track and Report on Facilities That Fall Under the Two Responsible Programs (2021).

⁷⁶ U.S. Env't Prot. Agency Off. of Inspector Gen., [22-E-0047](#), The EPA Continues to Fail to Meet Inspection Requirements for Hazardous Waste Treatment, Storage, and Disposal Facilities (2022).

⁷⁷ U.S. Env't Prot. Agency Off. of Inspector Gen., [23-E-0027](#), The EPA Has Not Verified that Its Laboratories Comply with Hazardous Waste Requirements (2023).

⁷⁸ Multi-Pollutant Emissions Standards for Model Years 2027 and Later Light-Duty and Medium-Duty Vehicles, [88 Fed. Reg. 29184](#) (proposed May 5, 2023).

⁷⁹ U.S. Env't Prot. Agency, [Memorandum](#): Lithium Battery Recycling Regulatory Status and Frequently Asked Questions (2023).

Per- and Polyfluoroalkyl Substances

Per- and polyfluoroalkyl substances, or PFAS, number in the thousands and are difficult to detect. The EPA is facing a challenge to study and assess the potential human health and environmental risks associated with these substances that are also known as *forever chemicals* because they are long lasting and break down very slowly over time and are potentially dangerous to humans and the environment.⁸⁰ The EPA sees PFAS contamination as an urgent public health and environmental threat facing communities across the United States. Because their use is widespread and they persist in the environment, many are found in the blood of people and animals around the world and at low levels in a variety of food products. But, according to a 2022 GAO [report](#), available technologies were only able to detect and quantify about 50 of the thousands of such substances in existence.

The EPA has taken several steps to address the threat, including the development of *PFAS Strategic Roadmap: EPA's Commitments to Action 2021–2024*, which defines its commitment to action.⁸¹ It proposed national primary drinking water regulations for six PFAS on March 29, 2023, and expects to finalize the rule, establishing enforceable primary standards and treatment techniques, by the end of 2023.⁸² The Agency has also sought public input regarding potential Superfund hazardous substance designations for PFAS,⁸³ and it has added 180 PFAS to the list of chemicals reported annually in the *Toxics Release Inventory* for 2022 and nine for 2023.⁸⁴ The continuing challenges for PFAS treatment technologies are the cost and the lack of methods and guidance, as well as full-scale disposal techniques that are fully effective.⁸⁵

Conclusion

The EPA should be able to effectively protect public health from the risks of using and disposing of chemicals, including pesticides. To do so, it will need to be able to conduct credible and timely chemical risk assessments, effectively oversee and safeguard the management of a variety of chemical wastes through regulated containment and disposal actions, and efficiently respond to and remediate any unexpected chemical releases or spills. The EPA's efforts to fulfill this mission in an effective and timely manner are challenged by a lack of resources and stringent statutory deadlines. Unpredictable events, such as chemicals spills resulting from infrastructure degradation or stronger storms and flooding because of climate change, also directly impact the Agency's ability to provide for all necessary cleanup and remediation efforts.

⁸⁰ *PFAS Explained*, U.S. Env't Prot. Agency, <https://www.epa.gov/pfas/pfas-explained> (last visited Sept. 21, 2023).

⁸¹ *PFAS Strategic Roadmap, Commitments to Action 2021-2024*, U.S. Env't Prot. Agency, <https://www.epa.gov/pfas/pfas-strategic-roadmap-epas-commitments-action-2021-2024> (last visited Aug. 10, 2023).

⁸² PFAS National Primary Drinking Water Regulation Rulemaking, [88 Fed. Reg. 18638](#) (proposed Mar. 29, 2023).

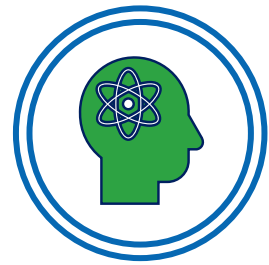
⁸³ Addressing PFAS in the Environment, [88 Fed. Reg. 22399](#) (proposed Apr. 13, 2023).

⁸⁴ Implementing Statutory Addition of Certain Per- and Polyfluoroalkyl Substances (PFAS) to the Toxics Release Inventory Beginning With Reporting Year 2023, [88 Fed. Reg. 41035](#) (Jun. 23, 2023).

⁸⁵ [News Release](#), U.S. Geological Survey, Tap Water Study Detects PFAS 'Forever Chemicals' Across the US (July 5, 2023).



Challenge 4: Promoting Ethical Conduct and Protecting Scientific Integrity



Introduction and Overview

Ethical conduct and scientific integrity are the bedrock for all that the EPA does, and strengthening this foundation is key to effective Agency management. The public entrusts the EPA to implement its programs in a fair and impartial manner. Federal ethics laws and regulations govern the conduct of EPA employees.⁸⁶ Political appointees must, in the words of President Biden, pledge to adhere to additional ethics requirements “to restore and maintain public trust in government.”⁸⁷ Failure to maintain an ethical work culture and to adhere to ethics requirements jeopardizes program integrity and could undermine public trust in the EPA.⁸⁸

Similarly, a failure to ground federal policy on sound science and protect evidence-based decisions from inappropriate influence or other distortions can lead to an erosion of public trust in the federal government’s regulatory activities.⁸⁹ Scientific integrity, as defined in the National Science and Technology Council’s *Framework for Federal Scientific Integrity Policy and Practice*, is the adherence to professional practices, ethical behavior, and principles of honesty and objectivity when conducting, managing, using the results of, and communicating about science and scientific activities.⁹⁰

The EPA has acknowledged that its ability to protect human health and the environment depends upon scientific integrity.⁹¹ The EPA’s science not only informs aspects of the Agency’s decision-making but also influences the decision-making of other domestic and international organizations. However, our oversight work indicates that the Agency should continue strengthening the mutually reinforcing values and practices of ethical conduct and scientific integrity.

Promoting Ethical Conduct

The EPA develops and enforces regulations that often have wide-ranging impacts on communities and businesses. To maintain the public’s trust, it is vital that the EPA uphold an ethical culture in which EPA employees adhere to federal ethics requirements and avoid actual or perceived conflicts of interests or loss of impartiality when performing their official duties.⁹² Senior-level employees, who often exercise significant policy-making authority, must be particularly mindful to ensure that their actions are free from improper influence and comply with general ethics principles.⁹³

⁸⁶ For example, [5 C.F.R. part 2635](#) (“Standards of Ethical Conduct for Employees of the Executive Branch”); [5 C.F.R. part 6401](#) (“Supplemental Standards of Ethical Conduct for Employees of the Environmental Protection Agency”); and [18 U.S.C. §§ 201–209](#).

⁸⁷ Exec. Order No. 14052, [86 Fed. Reg. 7029](#) (Jan. 25, 2021).

⁸⁸ U.S. Off. of Gov’t Ethics, [Memorandum to Agency Heads](#) (2018).

⁸⁹ U.S. Nat. Science and Tech. Council, [Protecting the Integrity of Government Science](#) (2022); Presidential Memorandum on Restoring Trust, [86 Fed. Reg. 8845](#) (Feb. 10, 2021).

⁹⁰ U.S. Nat. Science and Tech. Council, [A Framework for Federal Scientific Integrity Policy and Practice](#) (2023).

⁹¹ U.S. Env’t Prot. Agency, [Scientific Integrity Policy for Transparent and Objective Science](#) (2012).

⁹² U.S. Off. of Gov’t Ethics, [Memorandum: Role of the Agency Head in the Designation of the Designated Agency Ethics Official and the Alternate Designated Agency Ethics Official](#) (2019); U.S. Env’t Prot. Agency, Order 1000.28A, Duties of EPA Ethics Officials (2008).

⁹³ See 5 C.F.R. § 2635.101(b).

Over the last several years, however, we have investigated allegations of senior EPA employees misusing their official positions, improperly accepting gifts, and negotiating for employment with private entities that do business with the EPA. For example, as [reported](#) in March 2021, an OIG investigation found that two senior officials in the Office of the Administrator made material misrepresentations so that the EPA would continue to pay the salary of two former EPA employees after their employment was terminated. The same investigation found that one of the senior officials submitted fraudulent timesheets to receive pay for hours when he was not present at his official duty station.⁹⁴

Maintaining an ethical culture is particularly important given the Agency plans to hire to oversee billions in additional funding under the IIJA and the IRA. In a June 1, 2023 message to staff, EPA Administrator Michael Regan acknowledged this when he emphasized the Agency's commitment to ethics and reminded staff to adhere to any recusal requirements, file timely financial disclosure reports, and complete required ethics training.⁹⁵ With the planned increase to personnel and program funding pursuant to the IIJA and the IRA, the EPA will need to ensure that it has a robust ethics program to educate employees on their ethics obligations, identify and monitor potential ethics issues, and promptly report potential violations to the OIG Hotline. This includes having sufficient program structure and ethics staff to carry out these tasks. The EPA should also hold employees accountable when it finds violations of ethics rules.

Strengthening the EPA's *Scientific Integrity Policy*

President Biden emphasized the need to safeguard the integrity of government science and science-based actions in a 2021 memorandum that stated his administration's policy "to make evidence-based decisions guided by the best available science and data."⁹⁶ In light of this emphasis, the Agency needs to ensure that it has the policies and procedures in place to reinforce a culture of scientific integrity that embodies the key traits of inclusivity, transparency, and protection from inappropriate influences.

The EPA administrator marked the tenth anniversary of the EPA's *Scientific Integrity Policy* in an email to all EPA staff in March 2022 that outlined several initiatives to enhance the EPA's culture of scientific integrity. These efforts included incorporating scientific integrity into performance evaluations for EPA leaders, identifying ways to prevent inappropriate interference, increasing the transparency of the EPA's decision-making, documenting decisions, and including differing scientific opinions. The administrator highlighted that all employees are responsible for scientific integrity. Nonetheless, we found instances in which the Agency did not complete required internal peer reviews of scientific documents and did not follow standard operating procedures and requirements for scientific assessments.⁹⁷

The Agency has sought to improve its process for reviewing both the scientific and technical bases of its proposed decisions.⁹⁸ On February 28, 2022, senior Agency officials issued a [memorandum](#) outlining an improved process for engaging the EPA's Science Advisory Board for reviewing the science behind the

⁹⁴ U.S. Env't Prot. Agency Off. of Inspector Gen., [Report of Investigation](#): Mr. Ryan Jackson, Senior Executive Service and Mr. Charles Munoz, GS-15 (2021).

⁹⁵ Email From Michael S. Regan, Adm'r, U.S. Env't Prot. Agency to EPA Employees (June 1, 2023, 2:01 PM EST).

⁹⁶ [Presidential Memorandum](#), *supra* note 89.

⁹⁷ U.S. Env't Prot. Agency Off. of Inspector Gen., [22-E0053](#), The EPA Needs to Improve the Transparency of Its Cancer-Assessment Process for Pesticides (2022); U.S. Env't Prot. Agency Off. of Inspector Gen., [21-E-0146](#), EPA Deviated from Typical Procedures in Its 2018 Dicamba Pesticide Registration Decision (2021).

⁹⁸ [News Release](#), U.S. Env't Prot. Agency, EPA Announces New Science Advisory Board Process to Strengthen Science Supporting EPA Decisions (Feb. 28, 2022).

EPA's decisions and providing independent scientific and technical peer review and advice. The new process was intended to build on the principle that early engagement of the board best enables the EPA to benefit from its expert advice.

Scientific integrity also features prominently in the [FY 2022-2026 EPA Strategic Plan](#) as a cross-Agency strategy focused on reinforcing science as foundational to Agency decision-making. That strategy calls for adherence to the scientific and ethical standards in the EPA's *Scientific Integrity Policy*, as well as support for robust discussion of different scientific points of view. It also seeks to renew and refocus efforts to develop the necessary science and quality data to tackle climate change, advance environmental justice, and protect children's environmental health. Additionally, the strategy recognizes that public trust depends on the Agency's ability to use and communicate science with honesty, integrity, and transparency, as well as to make information accessible to the public, including overburdened and underserved communities.

The Agency is also in the process of updating its *Scientific Integrity Policy* in line with the National Science and Technology Council's *Framework for Federal Scientific Integrity Policy and Practice*, released in January 2023, which provides agencies with a policy model and a roadmap for assessing and improving their policies and practices.⁹⁹ The EPA's scientific integrity official estimates the updated policy's final release will occur in early 2024.

Adhering to the EPA's *Scientific Integrity Policy*

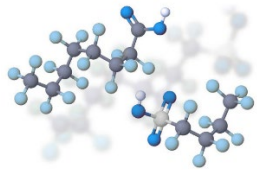


Our independence and the statutory mandate that empowers us to receive and investigate complaints and allegations without fear of improper influence give us a critical oversight role in the Agency's adherence to scientific integrity. But the EPA's lack of clear procedures, inaction on our recommendations, and other issues may hamper both our efforts and the Agency's own reforms. As shown in Table 3, since May 2020, we have issued three reports with a total of nine scientific integrity-related recommendations for which the Agency's corrective actions are incomplete or its agreement to act remains outstanding. Three recommendations with agreed-upon corrective actions have planned completion dates that are more than four years after the report's issuance. We generally encourage the responsible offices to complete corrective actions in one year or less. Six recommendations remain unresolved, meaning that the EPA disagrees with our recommendation; has not provided us with a formal, complete, written response; or has proposed corrective actions upon which the Agency and the OIG have not reached an agreement. Four of the six unresolved recommendations have human health and environmental benefits.

In FY 2023, our Office of Investigations continued investigating suspected laboratory fraud, in which alleged false or fraudulent scientific data were reported to the EPA or a delegated state in furtherance of EPA programs. In laboratory fraud cases, the EPA or a delegated state may inadvertently rely on suspected false scientific data to make programmatic decisions. The Office of Investigations completed one investigation in FY 2023 that determined that a certified laboratory in West Virginia caused false information to be reported to the State of West Virginia. The laboratory purportedly tested public drinking water samples pursuant to the Safe Drinking Water Act; however, it failed to test the samples because of inoperable laboratory equipment and submitted falsified analyses instead.¹⁰⁰

⁹⁹ [A Framework for Federal Scientific Integrity Policy and Practice](#), *supra* note 90.

¹⁰⁰ [Press Release](#), U.S. Attorney's Off. N. Dist. of W. Va., Reliance Laboratories Manager Admits to Lying About Testing Public Water (Jan. 30, 2023).

Table 3: Open and unresolved recommendations related to protecting scientific integrity.

Report No.	Report title	Action office	Number of open and unresolved (U) recommendations
23-E-0013 	<i>The EPA's January 2021 PFBS Toxicity Assessment Did Not Uphold the Agency's Commitments to Scientific Integrity and Information Quality</i>	Office of Research and Development Office of Mission Support Office of the Administrator	3 (U) 1 (U) 1 (U)
22-E-0053 	<i>The EPA Needs to Improve the Transparency of Its Cancer-Assessment Process for Pesticides</i>	Office of Chemical Safety and Pollution Prevention	1 (U)
20-P-0173 	<i>Further Efforts Needed to Uphold Scientific Integrity Policy at EPA</i>	Office of Research and Development	3*

Note: PFBS = perfluorobutane sulfonic acid

Source: EPA OIG Report No. [23-N-0025](#), *Compendium of Open and Unresolved Recommendations: Data as of May 31, 2023* (July 27, 2023). (EPA images. EPA OIG table)

* The Agency's planned completion date for these three recommendations is June 30, 2024.

Timely reporting of violations of the EPA's scientific integrity policy remains a concern for the OIG. The *Coordination Procedures between the Scientific Integrity Official and the Office of Inspector General regarding Research Misconduct Allegations*, published March 30, 2015, requires the EPA's scientific integrity official, within seven days of learning about possible research misconduct involving a risk to public health or safety, to report the allegation to the OIG.¹⁰¹ In March 2023, we found that two Agency employees expressed concerns to scientific integrity program staff related to a perfluorobutane sulfonic acid toxicity assessment, but those concerns were not relayed to the OIG before the first assessment was published on January 19, 2021.¹⁰² The Agency and the OIG are working to revise coordination procedures related to information-sharing on scientific integrity. We believe the revised procedures are essential to clarify our access rights and to ensure that scientific integrity concerns are routed to the proper office and addressed in the most efficient and effective manner.

¹⁰¹ U.S. Env't Prot. Agency, [Coordination Procedures](#) between the Scientific Integrity Official and the Office of Inspector General regarding Research Misconduct Allegations (2015).

¹⁰² Sean W. O'Donnell, Inspector Gen., U.S. Env't Prot. Agency, [Statement](#) Before the U.S. House of Rep. Comm. on Science, Space, and Tech. (Apr. 19, 2023).

Exploring Differences in Scientific Opinion

Many scientific integrity concerns stem from differing opinions. In October 2020, the EPA's scientific integrity program issued *Approaches for Expressing and Resolving Differing Scientific Opinions* to help implement the EPA's *Scientific Integrity Policy*.

This policy encourages the expression of differing scientific opinions and suggests approaches for employees and managers to express and resolve differing scientific opinions. Examples include how to apply guidance documents in particular situations, what assumptions to make, or how to select scientific approaches in the absence of explicit standard operating procedures.¹⁰³

Differing Scientific Opinions

Scientific products and decisions are strengthened by considering all pertinent evidence and exploring various plausible explanations of that evidence. Vigorous internal discussion of different points of view helps to anticipate counter arguments and alternative positions that could arise during public comment, peer review, and litigation. This process of challenging and improving ideas helps to guard against inadequate science and flawed analyses. It also creates a stimulating work environment where employees can develop professionally. Accordingly, EPA expects and encourages all employees to offer and welcome differing scientific opinions as a legitimate and necessary part of the scientific process.

—Preamble to [Approaches for Expressing and Resolving Differing Scientific Opinions](#), EPA Scientific Integrity Program, October 8, 2020

We have identified many cases in which scientific integrity concerns derive from differing scientific opinions. In these cases, a clear mechanism for addressing disagreements may have avoided broader allegations of misconduct. We are aware that some offices, such as the Office of Chemical Safety and Pollution Prevention, are developing these mechanisms. We will monitor how the EPA develops and implements these mechanisms. We believe that they can reduce the number of scientific integrity concerns and maintain an environment of vigorous internal discussion to help the EPA embrace the iterative nature of science-based decision-making.

Conclusion

The EPA should maintain a workplace in which EPA employees adhere to federal ethics requirements and avoid actual or perceived conflicts of interests or the appearance of a lack of impartiality in their official duties. This is especially important with the influx of personnel and funds expected under the IIJA and the IRA. Therefore, promoting ethical behavior is a top management challenge for the EPA. The EPA administrator has emphasized the Agency's commitment to scientific integrity and science-based decision-making, which several initiatives and a cross-Agency strategy established for FY 2022 through 2026 both reflect and reinforce. We expect this commitment to be a guiding principle for goals and objectives across all the EPA's programs. We will closely monitor how the EPA implements these initiatives and strategic actions.

¹⁰³ U.S. Env't Prot. Agency, [Approaches](#) for Expressing and Resolving Differing Scientific Opinions (2020).



Challenge 5: Managing Grants, Contracts, and Data Systems



Introduction and Overview

The EPA's ability to carry out its mission depends on effective management of grants, contracts, and data systems. Communities might not realize key environmental benefits without adequate Agency management of funds and oversight of delegated program authorities to promote adherence to statutory, regulatory, and EPA requirements. The Agency will need to emphasize high-quality, timely data, which its programs and stakeholders will rely on for monitoring program results and assessing progress. The influx of about \$100 billion in combined IIJA and IRA supplemental appropriations from FY 2022 through 2026 to fund EPA programs brings increased risks of fraud, waste, abuse, and noncompliance with funding requirements, making the effective management of funds and data even more critical.

Grant and Contract Management

In FY 2023 we issued four reports that highlight the lack of sufficient controls for the EPA to manage grants effectively.¹⁰⁴ To accomplish its mission of protecting human health and the environment, the EPA distributes funds through grants, contracts, and cooperative agreements to state, local, and tribal governments, as well as other eligible partners. In fact, about half the EPA's annual budget is distributed through grants. When the EPA delegates authority for federal environmental programs to its partners, it retains oversight responsibilities. It should, therefore, have effective internal controls over grants and contracts to safeguard taxpayer dollars and achieve its mission.

Human capital is critical for proper grant administration and oversight to prevent the awarding of funds to improper recipients or for unintended purposes.¹⁰⁵ In August 2023, the EPA launched a recruiting campaign with the goal of hiring more than 1,800 new employees to implement the IIJA and the IRA.¹⁰⁶ The Agency will therefore need to recruit, train, and retain an adequate number of qualified staff to meet this goal and provide sufficient controls for its growing staff to oversee grant funds included in each supplemental appropriation.

Ensuring Data Quality

The EPA faces several challenges that limit the usefulness of its grant data, namely, its high volume of disparate grant-management systems and unstructured grant data formats, as well as its limited collection of grant subrecipient data. Federal decision-makers need good data to assess whether programs achieve their intended results. A lack of sufficient quality data will leave the EPA unable to

¹⁰⁴ U.S. Env't Prot. Agency Off. of Inspector Gen., Infrastructure Investment and Jobs Act [Oversight Plan](#)—Year 2 (2023); U.S. Env't Prot. Agency Off. of Inspector Gen., [23-N-0014](#), Findings for Consideration in the Management of Congressional Earmarks (2023); U.S. Env't Prot. Agency Off. of Inspector Gen., [Management Implication Report](#): Disclosure of Foreign Support for EPA Research Grants (2023); U.S. Env't Prot. Agency Off. of Inspector Gen., Infrastructure Investment and Jobs Act [Progress Report](#)—Year One (2023).

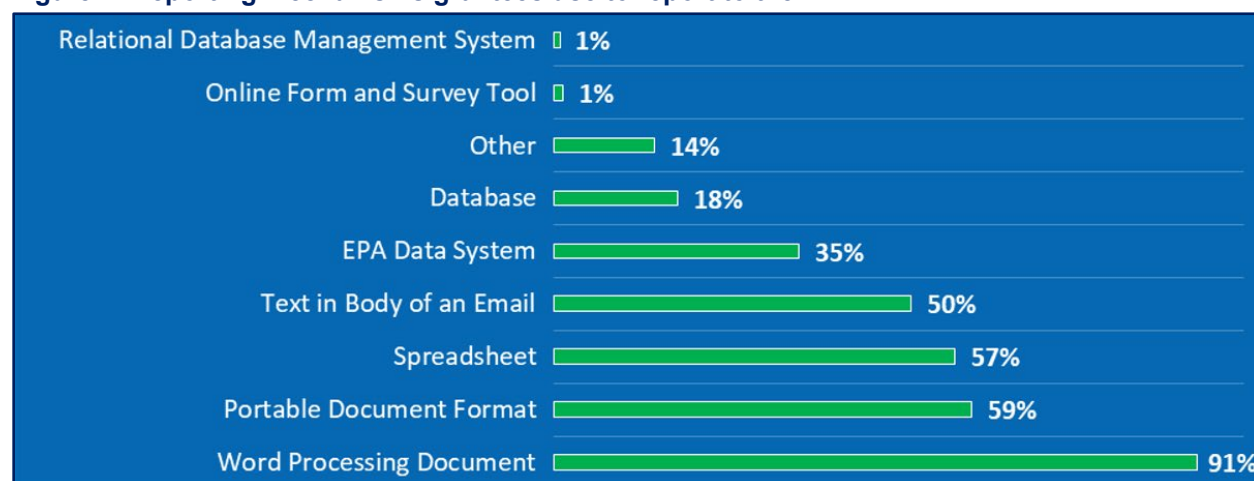
¹⁰⁵ Council of Inspectors Gen. on Integrity and Efficiency, [Top Management and Performance Challenges Facing Multiple Federal Agencies](#) (2021).

¹⁰⁶ Email From Janet McCabe, Deputy Adm'r, U.S. Env't Prot. Agency to EPA Employees (July 25, 2023, 10:04 AM EST).

adequately assess grant performance. Moreover, various federal laws, such as the Federal Funding Accountability and Transparency Act of 2006 and the Digital Accountability and Transparency Act of 2014, require agencies to make different types of data open and transparent through public websites. To be useful, federal data must be accessible, accurate, and timely.

The EPA's reliance on many systems, databases, and file repositories to manage grants and contracts limits the data's usefulness. EPA staff use over 50 disparate systems to manage about 100 grant programs, respondents to a 2021 [survey](#) reported.¹⁰⁷ This complicates retrieving, standardizing, and reporting data across programs and performing quality control across databases. Moreover, the Agency's vast use of unstructured formats to collect text-based data from grantees creates difficulties for conducting advanced analytics and automated fraud, risk, and abuse monitoring. Most respondents reported that they receive information from grantees in word-processing documents, PDF, and "text in the body of an email," as shown in Figure 4.

Figure 4: Reporting mechanisms grantees use to report to the EPA



Note: Two additional responses are omitted, "no method" and "survey," as they were provided by less than 1 percent of respondents.

Source: OIG analysis of [Grant Commitments Met: Year 1 Final Report](#), January 24, 2022. (EPA OIG image).

In addition to facing complexities with grantee data collection, the EPA collects only limited, high-level, subrecipient data. Most notably, the EPA does not store and structure detailed subrecipient data from states' Clean Water State Revolving Fund and Drinking Water State Revolving Fund programs. Instead, the detailed subrecipient data, like invoices and payments, are stored at the state level, and the EPA conducts annual on-site audits that analyze a limited number of transactions for administrative and project cash draws meant to discover improper payments. Each state stores its Clean Water State Revolving Fund and Drinking Water State Revolving Fund data differently, some using databases and others using paper documentation. The lack of a centralized EPA database that stores detailed subrecipient data makes it difficult for the Agency to track the performance of grants and loans provided under the Clean Water State Revolving Fund and Drinking Water State Revolving Fund programs. These two programs will receive the vast majority of the EPA's IJJA funding, which will be at risk if the Agency does not take opportunities to improve its collection and storage of such information across its grant portfolio.

Similar data-management issues exist with the EPA's Acquisition System, which is a web-based, centralized system for the Agency's acquisitions. The EPA's Acquisition System enables all key stakeholders in the procurement process to use one automated system throughout the acquisition life

¹⁰⁷ U.S. Env't Prot. Agency, [Grants Commitments Met: Year 1 Final Report](#) (2022).

cycle, from requisitioning to contract closeout. Although the EPA's Acquisition System procurement data are stored in a centralized database, not all the data points are stored in a structured format. Not having all the data points structured and normalized in the centralized database will inhibit the Agency's ability to perform data analytics that could easily identify correlations between independent variables to improve procurement decisions, quickly recognize trends over time to make predictions on future performance, and proactively detect potentially fraudulent activity.

Managing Increased Investment in Environmental Programs from the IIJA and the IRA

The approximately \$100 billion for infrastructure- and climate change-related projects that the IIJA and the IRA provide to the EPA represent a significant increase in funding over the Agency's annual appropriations, which have ranged from about \$8.2 billion to \$10.1 billion over the past ten years. Much of the IIJA funds will flow through existing EPA programs, such as the state revolving fund programs, the EPA's oversight of which has been the subject of several prior OIG recommendations.¹⁰⁸ In contrast, much of the IRA funds will be dedicated to new programs and authorities. The IRA authorized the EPA to implement the new Greenhouse Gas Reduction Fund, for example, which alone is a \$27 billion

"We have seen this before: the equation of an unprepared agency dispensing an unprecedented amount of money times a large number of struggling recipients equals a high risk of fraud, waste, and abuse."

**—Sean O'Donnell, EPA inspector general, March 2023
Subcommittee on Oversight and Investigations
Committee on Energy and Commerce U.S. House of
Representatives.**

investment of the Agency's IRA appropriations.¹⁰⁹

The EPA has encountered difficulties in the past with administering large increases in supplemental funding and new requirements, as we noted in our December 2022 lessons learned [report](#), which drew from past oversight work related to the American Recovery and Reinvestment Act. The EPA will face similar challenges administering even larger amounts of funds, developing new programs, meeting deadlines, and addressing key requirements like the [Justice40](#) Initiative and the Build America, Buy America [Act](#).

The IIJA, for example, established minimum subsidies for disadvantaged communities in the form of grants and forgivable loans for Clean Water and Drinking Water State Revolving Funds. Similarly, the Justice40 Initiative provides for a goal that 40 percent of the benefits of certain federal programs flow to disadvantaged communities. However, some states struggle to provide subsidies to disadvantaged communities. As we found in a July 2023 [report](#), when states either do not or do not timely provide loan subsidies, infrastructure improvements may not occur, negatively affecting disadvantaged communities' ability to provide safe drinking water.¹¹⁰

The Build America, Buy America Act included in the IIJA establishes new domestic preference requirements that affect EPA grant and loan programs that fund infrastructure projects. The EPA's development of guidance on compliance with the Act's provisions, either for its own use or for implementation partners and funding recipients, remains limited.¹¹¹ Similarly, the IRA makes historic investments in climate action, air quality, and environmental justice, providing the EPA with about

¹⁰⁸ U.S. Env't Prot. Agency, [23-P-0022](#), The EPA Could Improve Its Review of Drinking Water State Revolving Fund Programs to Help States Assist Disadvantaged Communities (2023).

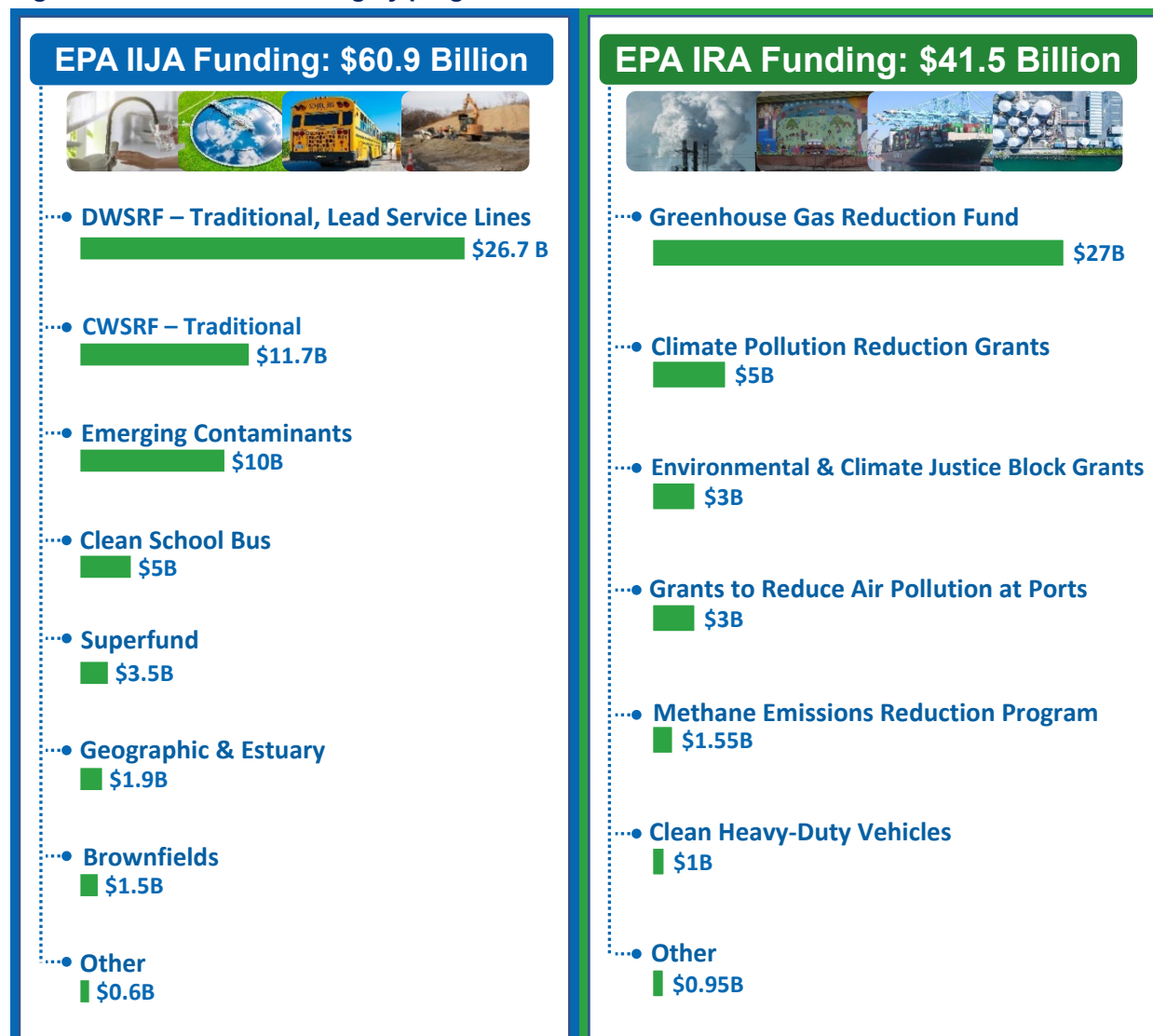
¹⁰⁹ [News Release](#), U.S. Env't Prot. Agency, EPA Marks One Year of Progress Under President Biden's Inflation Reduction Act (Aug. 16, 2023).

¹¹⁰ U.S. Env't Prot. Agency Off. of Inspector Gen., [23-P-0022](#), *supra* note 108.

¹¹¹ U.S. Env't Prot. Agency Off. of Inspector Gen., [OSRE-FY23-0096](#), Notification Of Evaluation: EPA Office of Water's Guidance to State Revolving Fund Programs for Implementing Build America, Buy America Act Requirements (2023).

\$41.5 billion to support 24 new and existing programs, though about 85 percent of these funds are available only through FY 2026. The Act also reinstated a petroleum excise tax that the EPA expects will generate \$11.7 billion in revenue for the Hazardous Substance Superfund over a ten-year period. Figure 5 provides an overview of IIJA and IRA funding, broken down by program.

Figure 5: IIJA and IRA funding by program



Note: B = billion

Sources: EPA OIG analysis of the IIJA and the IRA. (EPA OIG images)

We anticipate that the IRA will result in the EPA awarding contracts and grants to new recipients, many of whom are unfamiliar with federal contract and grant requirements. Moreover, new programs like those created under the IRA are inherently more prone to inefficiencies and errors than existing programs. The pace of spending, when conducted by and for newly created programs, significantly increases the susceptibility to fraud and creates the potential for errors or inefficiencies in execution.¹¹² To oversee these programs, the EPA will need to have more resources, reorganize its existing staff, and conduct outreach meetings with stakeholders. To efficiently allocate the funds, the EPA will need to conduct effective oversight, prevent fraud, promote efficiency, and ensure compliance with the many

¹¹² [Statement](#) of Sean W. O'Donnell, *supra* note 102.

provisions within the IIJA and the IRA. The billions of dollars appropriated to the EPA under those Acts, on top of dedicated earmarks and annual appropriations for state and tribal assistance grants, not only demand comprehensive oversight but also complicate such efforts.

Conclusion

The large influx of funds from the IIJA and the IRA may magnify existing grant-management and data-quality issues. As with previous supplemental appropriations legislation—such as the American Recovery and Reinvestment Act—there is a risk that the EPA may mismanage the influx of supplemental appropriations, not comply with funding requirements, and fail to meet programmatic goals. The EPA will need to effectively manage grants, contracts, and data systems to implement its programs and achieve its goals. When management is ineffective, risks to programs can be amplified.



Challenge 6: Maximizing Compliance with Environmental Laws and Regulations



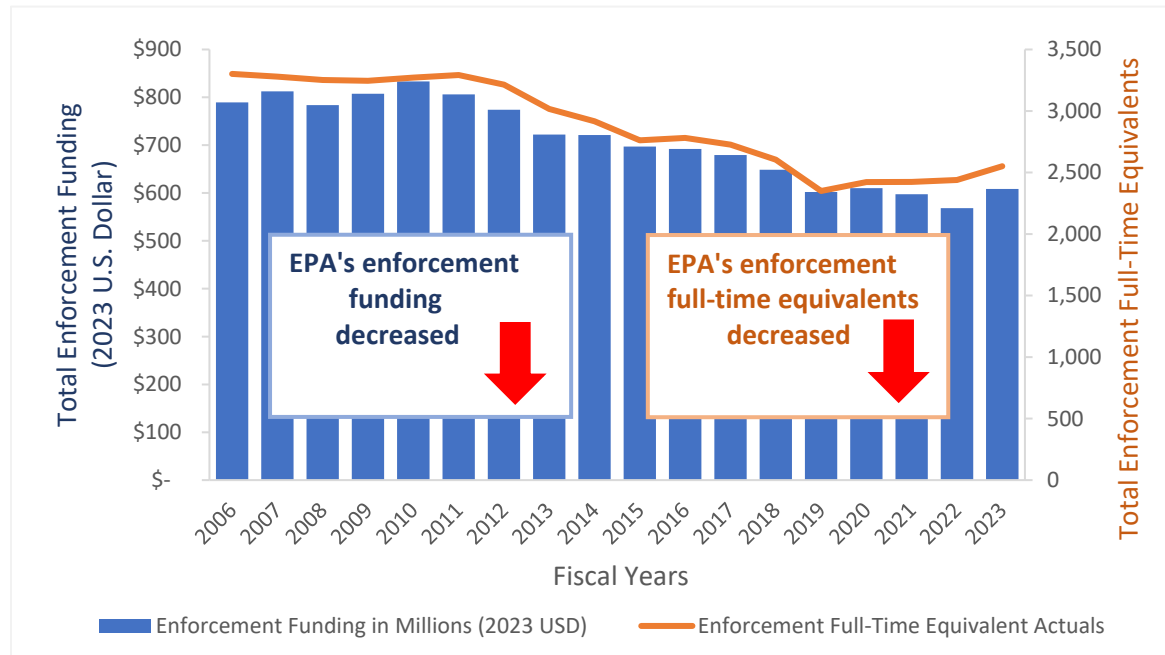
Introduction and Overview

Monitoring and enforcing compliance with environmental laws and regulations are essential EPA operations. The [FY 2022-2026 EPA Strategic Plan](#) states that a robust compliance and enforcement program is necessary to ensure that communities get the environmental and human health benefits intended by environmental statutes and regulations.¹¹³ However, the Agency's compliance monitoring and other enforcement activities declined from FY 2011 through 2020, largely because of reduced funding. The EPA's enforcement outputs, such as case initiations and enforcement actions, rebounded slightly in FYs 2021 and 2022 but were still 16 percent below ten-year averages. Declining resources, variability in permitting, collaboration with and oversight of states, and environmental justice concerns present challenges to the EPA's efforts to maximize compliance with environmental laws and regulations.

Declining Investment in Enforcement Activities to Continue in FYs 2023 and 2024

The drop in enforcement resources was a primary driver behind the observed enforcement trend declines.¹¹⁴ As shown in Figure 6, budget dollars and full-time equivalent staffing for the EPA's enforcement program have fallen 23 percent from FY 2006 through 2023.

Figure 6: Total enforcement resources, FY 2006–2023



Note: The OIG used the April 2023 Consumer Price Index to calculate the average FY 2023 value in U.S. dollars.

¹¹³ [FY 2022-2026 EPA Strategic Plan](#), *supra* note 4.

¹¹⁴ U.S. Env't Prot. Agency Off. of Inspector Gen., [21-P-0132](#), Resource Constraints, Leadership Decisions, and Workforce Culture Led to a Decline in Federal Enforcement (2021).

Source: OIG analysis of the EPA's financial and human resources data. (EPA OIG image)

While the number of full-time equivalent enforcement personnel has increased in recent years—up 9 percent in FY 2023 from FY 2019—it remains 330 full-time equivalent employees below the average for the period of FY 2006 through 2023.

Effective Enforcement Starts with Effective Permitting

A permit establishes the criteria against which the EPA or a state determines the performance and compliance of a regulated entity. It is a key instrument for reducing human impacts on the environment, protecting human health, and facilitating a regulated entity's compliance with environmental requirements. The EPA's state partners primarily implement permitting, but the EPA retains oversight responsibilities over its partners' permitting programs.

The variability in permitting requirements presents a challenge for the EPA's oversight and management, which is further complicated by the delegation of permitting responsibility to state programs and the large numbers of regulated sources. Permits are typically issued in isolation for individual entities. This makes it difficult to address, through enforcement mechanisms, the cumulative impacts that several regulated entities may have on a given nearby community. Distributed permitting responsibility also leads to variability in permit quality, resulting in different performance expectations from state to state that can influence how effectively environmental laws and regulations are enforced. Variations may also cause permit application backlogs that can slow progress in establishing enforceable conditions with which regulated facilities must comply.

The EPA and the states have made progress toward reducing permitted facilities' noncompliance in some programs. The Agency reported that it reached its goal of reducing significant noncompliance at facilities permitted under the Clean Water Act by half from FY 2018 through 2022, for example, including a 64-percent reduction in the noncompliance rate at federal facilities.¹¹⁵ Despite this progress, thousands of permitted facilities remain in significant noncompliance with their permit conditions. Additionally, the EPA's database had insufficient permit information and compliance tracking data at the end of FY 2022 to allow the Agency to evaluate the permittees' compliance status for about 2,000, or roughly 4 percent, of National Pollutant Discharge Elimination System permits.¹¹⁶ The Agency will need to continue to make progress toward its goal of addressing permit compliance to fulfill its mission of protecting human health and the environment.

Improving Oversight of and Collaboration with States to Ensure Compliance with Environmental Laws and Regulations

Maximizing compliance with environmental laws and regulations depends on the EPA's collaboration with the states, as most of the day-to-day monitoring and enforcement responsibilities fall on delegated or authorized state partners. The EPA and the states work cooperatively as coregulators to achieve

¹¹⁵ *Enforcement and Compliance Annual Results for Fiscal Year 2022*, U.S. Env't Prot. Agency, <https://www.epa.gov/enforcement/enforcement-and-compliance-annual-results-fiscal-year-2022> (last visited Sept. 22, 2023).

¹¹⁶ *National Enforcement and Compliance Initiative: Reducing Significant Non-Compliance with National Pollution Discharge Elimination System (NPDES) Permits*, U.S. Env't Prot. Agency, <https://www.epa.gov/enforcement/national-enforcement-and-compliance-initiative-reducing-significant-non-compliance> (last visited Sept. 22, 2023).

compliance, but the Agency is ultimately responsible and accountable to Congress and the public for ensuring appropriate implementation of federal laws and regulations.¹¹⁷

The delegation of authorities under federal environmental laws requires the EPA to serve in an oversight role and to fill gaps in state programs, making collaboration with local, state, and tribal entities critical. Through our oversight work, we identified instances in which the EPA needed to improve its oversight practices and enhance collaboration with states to achieve better compliance with environmental regulations and to better protect public health and the environment.

We have previously noted the challenges the EPA faces in its external communications and coordination with the states and the public. In one 2023 [report](#), for example, we found that the EPA was not effectively communicating with states to prevent the registration, use, and resale of tampered vehicles in noncompliance with the Clean Air Act.¹¹⁸ In another 2023 [report](#), we noted that minimizing potential contamination and communicating risks to the public from the planned decontamination efforts at the U.S. military's Red Hill Facility in Hawaii would require significant coordination between EPA Region 9, the Hawaii Department of Health, and the U.S. Navy.¹¹⁹ Further, in reports about the Agency's management of hazardous waste disposal under the Resource Conservation and Recovery Act, we noted that the EPA did not include state partners as recipients of two memorandums it sent to all EPA programs highlighting the importance of compliance with the Act's statutory requirements at EPA laboratories.¹²⁰

We have also found that difficulties arise in coregulation when state programs depend on the EPA's implementation of the federal components of a regulatory program, such as the residential wood heater program, which we evaluated in February 2023.¹²¹ The EPA's program distributed about \$82 million in grants for states' residential wood heater changeout programs from FY 2015 through 2021, but we found that the EPA does not provide reasonable assurance that wood heaters are properly tested and certified before reaching consumers. This puts millions of federal, state, and local dollars at risk of being wasted if the replacement models do not meet emission standards because of the flawed EPA testing and certification



A vehicle with defeated emissions controls releases hazardous smoke, also known as “rolling coal,” into the air. (EPA image)



Red Hill lower access tunnel where the water contamination incident occurred. (U.S. Navy image)



Residential wood heater in home. (EPA OIG image)

¹¹⁷ U.S. Env't Prot. Agency, [Memorandum: Principles and Best Practices for Oversight of State Implementation and Enforcement of Federal Environmental Laws](#) (2023).

¹¹⁸ U.S. Env't Prot. Agency Off. of Inspector Gen., [23-E-0006](#), The EPA Is Not On Track to Reach Its National Compliance Initiative Goals to Stop Aftermarket Defeat Devices and Tampered Vehicles (2023).

¹¹⁹ U.S. Env't Prot. Agency Off. of Inspector Gen., [23-E-0015](#), EPA Region 9 Must Continue Oversight Throughout the Decontamination and Closure of the Red Hill Facility (2023).

¹²⁰ U.S. Env't Prot. Agency Off. of Inspector Gen., [16-P-0104](#), *supra* note 74; U.S. Env't Prot. Agency Off. of Inspector Gen., [21-P-0114](#), *supra* note 75; U.S. Env't Prot. Agency Off. of Inspector Gen., [22-E-0047](#), *supra* note 76.

¹²¹ U.S. Env't Prot. Agency Off. of Inspector Gen., [23-E-0012](#), The EPA's Residential Wood Heater Program Does Not Provide Reasonable Assurance that Heaters Are Properly Tested and Certified Before Reaching Consumers (F2023).

program. In June 2023, ten states and a local regulatory agency announced their intent to sue the EPA for an alleged failure to review and revise the federal wood heater regulations.¹²²

Resource constraints within the EPA's state and local partner agencies also affect compliance, since state and local agencies conduct almost all environmental compliance monitoring and enforcement work in certain contexts. The EPA only conducted about 1 percent of the 15,621 national air-related full compliance evaluations and 5 percent of the 12,086 national compliance-monitoring activities related to hazardous waste in FY 2022.¹²³ However, during our evaluation of EPA enforcement trends, many current and former EPA enforcement personnel expressed skepticism that states have the technical and operational capacity, along with the political will, to enforce environmental laws consistently and equitably across the country.¹²⁴ In fact, the EPA's compliance efforts have been hampered by a lack of accurate and consistent national data that are needed for oversight because of the differences in state methods and the unreliability of state data. The EPA develops national data systems, such as the Safe Drinking Water Information System and the Integrated Compliance Information System, for tracking compliance and violation information. However, we found in 2019 that the Agency did not have complete and nationally consistent information about water systems' compliance with public notice requirements because states with primary enforcement responsibilities did not use consistent methods to identify problems with public notices or record violations.¹²⁵ In 2011, the GAO reported that unreliable state data limited the EPA's ability to target enforcement priorities.¹²⁶ As of March 2023, the EPA indicated to the GAO that it was continuing to work on modernizing the Safe Drinking Water Information System and expected to start transitioning states to the new system by the end of 2024. However, according to the GAO, the EPA had not yet implemented a GAO recommendation that the Agency resume data-verification audits, and data accuracy concerns remained unresolved.¹²⁷

We are continuing oversight of the EPA's collaboration and coregulation with the states in our ongoing projects related to the EPA's readiness to implement immediate public notification for lead action-level exceedances that take effect in 2024 and its oversight of state and local actions to address the drinking water contamination in Jackson, Mississippi.

Improving Compliance and Enforcement for Advancing Environmental Justice

The federal government has sought for nearly three decades to address the disproportionately high levels of environmental pollution and other adverse societal and economic conditions overburdening low-income and minority communities across the country.¹²⁸ Executive Order 14096, *Revitalizing our Nation's Commitment to Environmental Justice for All*, calls for advancing a whole-of-government approach by implementing and enforcing the nation's environmental and civil rights laws, preventing

¹²² [Press Release](#), State of Alaska Dep't of Law, The State to Sue EPA for Failure to Comply with Wood Stove Standards (June 29, 2023).

¹²³ *Analyze Trends: EPA/State Air Dashboard*, U.S. Env't Prot. Agency, <https://echo.epa.gov/trends/comparative-maps-dashboards/state-air-dashboard/> (last visited Sept. 28, 2023).

¹²⁴ U.S. Env't Prot. Agency Off. of Inspector Gen., [21-P-0132](#), Resource Constraints, Leadership Decisions, and Workforce Culture Led to a Decline in Federal Enforcement (2021).

¹²⁵ U.S. Env't Prot. Agency Off. of Inspector Gen., [19-P-0318](#), EPA Must Improve Oversight of Notice to the Public on Drinking Water Risks to Better Protect Human Health (2019).

¹²⁶ U.S. Gov't Accountability Off., [GAO-11-381](#), Drinking Water: Unreliable State Data Limit EPA's Ability to Target Enforcement Priorities and Communicate Water Systems' Performance (2011).

¹²⁷ U.S. Gov't Accountability Off., [GAO-23-106460](#), Priority Open Recommendations: Environmental Protection Agency (2023).

¹²⁸ Exec. Order No. 12898, [59 Fed. Reg. 7629](#) (Feb. 16, 1994); U.S. Env't Prot. Agency, [Office of Environmental Justice in Action](#) (2017).

pollution, addressing climate change and its effects, and working to clean up legacy pollution that is harming human health and the environment.¹²⁹

In its December 2022 *Updated Policy for EPA's Enforcement and Compliance Initiatives*, the EPA's acting assistant administrator for Enforcement and Compliance Assurance identified environmental justice as a core element of all enforcement and compliance work.¹³⁰ The Agency's Enforcement and Compliance Annual Results for FY 2022 show that over 56 percent of on-site inspections in FY 2022 were conducted at facilities affecting communities with potential environmental justice concerns, exceeding the Agency's goal of 45 percent.¹³¹ While the EPA has taken substantive steps toward its FY 2022 through 2026 strategic initiative to increase compliance by facilities located in low-income and minority communities and will begin implementing Executive Order 14096, sustaining this initial progress and achieving positive results for protecting human health and the environment remain a challenge.

Conclusion

Declining resources have had a direct impact on the amount of compliance monitoring and enforcement that the EPA can complete, forcing the Agency to prioritize its enforcement work. Moreover, permitting and improving oversight of and collaboration with states represent challenges to maximizing compliance with environmental laws and regulations. Although the EPA has taken steps to incorporate environmental justice considerations into its enforcement programs, it remains to be seen whether these steps will result in improved compliance for communities facing environmental justice concerns.

Considering its resources, the EPA needs to assess how it will detect harmful noncompliance and develop enforcement cases that improve permit compliance and deter facilities from violating permit conditions. The assessment will need to take into consideration the EPA's new work and efforts to incorporate environmental justice for low-income, minority, tribal, and indigenous communities into its enforcement program and existing oversight responsibilities.

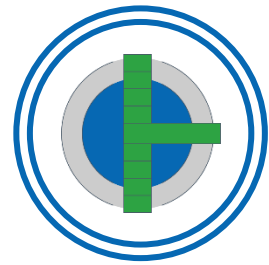
¹²⁹ Exec. Order No. 14096, [88 Fed. Reg. 25252](#) (Apr. 26, 2023).

¹³⁰ U.S. Env't Prot. Agency, [Memorandum](#): Updated Policy for EPA's Enforcement and Compliance Initiatives (2022).

¹³¹ *Enforcement and Compliance Annual Results for FY 2022: Data and Trends*, U.S. Env't Prot. Agency, <https://www.epa.gov/enforcement/enforcement-and-compliance-annual-results-fy-2022-data-and-trends> (last visited Sept. 22, 2023).



Challenge 7: Overseeing, Protecting, and Investing in Water and Wastewater Systems



Introduction and Overview

The EPA has oversight responsibility for protecting water and wastewater infrastructure and improving the sector's security posture for approximately 153,000 public drinking water systems and 16,000 publicly owned wastewater treatment systems.¹³² These systems face various cyber and physical threats, creating challenges for the Agency in both securing the water and wastewater systems and protecting its investments in the sector. While water and wastewater utilities have implemented a range of security and resilience measures, they could take further protective actions to address security gaps.¹³³ Based on about 740 assessments that Cybersecurity and Infrastructure Security Agency protective security advisors conducted between January 2011 and December 2022, an August 2023 report specifically identified recommended actions, such as creating, improving, and maintaining physical security and cybersecurity plans; training personnel on security, emergency operations, continuity, and cybersecurity plans; conducting exercises to validate existing plans; and increasing collaboration between physical security and cybersecurity functions.

Cybersecurity in particular remains a high risk governmentwide, given the increased threat from sophisticated cyberattacks targeting critical infrastructure, leading the GAO to list *ensuring the cybersecurity of the nation* in its 2023 *High-Risk List*.¹³⁴ Importantly for the EPA and its partners, the Bioterrorism [Act](#) of 2002 requires drinking water utilities serving more than 3,300 people to conduct vulnerability assessments and to develop emergency response plans to secure or strengthen their community water systems.¹³⁵ The EPA and its partners have developed tools and a system of methods to help utilities meet the Act's requirements. The EPA led a steering committee of water industry experts to develop the capability to evaluate and test cybersecurity equipment for the protection of water system infrastructure. The EPA Water Security Test Bed near Idaho Falls, Idaho, conducts research to improve the water utilities' cybersecurity and evaluates infrastructure decontamination technologies previously tested by the EPA's Homeland Security Research Program to determine those best suited for use by the utilities.¹³⁶

For FY 2024, the EPA has requested about \$4 billion in appropriations to provide funding for water and wastewater infrastructure improvements, including about \$45 million to protect the critical infrastructure from terrorist threats and other hazards, such as cyberattacks.¹³⁷ The Agency's efforts to strengthen the resilience of water and wastewater sector's systems against cyber and physical security threats and to improve oversight of its investments are therefore of paramount importance.

¹³² The White House, [Presidential Policy Directive](#) – Critical Infrastructure Security and Resilience (2013).

¹³³ Cybersecurity and Infrastructure Sec. Agency, Security and Resilience Enhancement Opportunities for the Water and Wastewater Sector (2023).

¹³⁴ U.S. Gov't Accountability Off., [GAO-23-106203](#), High-Risk Series: Efforts Made to Achieve Progress Need to Be Maintained and Expanded to Fully Address All Areas (2023).

¹³⁵ 42 U.S.C. § 300i–2.

¹³⁶ *Water Infrastructure Resilience*, U.S. Env't Prot. Agency, <https://www.epa.gov/emergency-response-research/water-infrastructure-resilience> (last visited Sept. 25, 2023).

¹³⁷ [FY 2024 EPA Budget in Brief](#), *supra* note 18.

Improving Oversight and Security of the Water and Wastewater Sectors

The EPA needs to improve its overall oversight and protection of water systems, including complying with water sector requirements and implementing effective cyber and physical security controls. Recent high-profile incidents, such as cyberattacks launched against crypto firms, airports, and the Colonial Pipeline, demonstrate the urgent need to address security weaknesses. Physical security incidents at water and wastewater systems also highlight the need for a layered defense to mitigate threats. In its [FY 2022-2026 EPA Strategic Plan](#), the EPA noted that several water and wastewater systems were unable to maintain compliance with federal requirements because of a lack of technical, managerial, and financial capacity; an aging infrastructure; and workforce shortages.¹³⁸

The EPA should work with its community partners to meet assessment and planning requirements and make needed improvements to secure all water systems against threats. For example, in a 2023 [report](#), we found that the Agency did not provide adequate oversight to ensure that water systems complied with the America's Water Infrastructure Act requirements, such as publishing guidance regarding enforcement actions against noncompliant water systems and providing sufficient assistance to support small water system compliance.¹³⁹ The Act requires the EPA to provide cybersecurity baseline information to water systems and collect certifications of compliance. The EPA developed cybersecurity baseline information to assess the threats to water systems, but 19 percent of water systems, which serve 40 million people primarily in small and disadvantaged communities, did not meet the Act's requirements. The EPA increased two cybersecurity-related threat categories to 100-percent likelihood in 2021, signaling to all water systems that they need to prepare for a cyberattack. Left uncorrected, these risks leave noncompliant water systems more vulnerable to physical security and cyberattacks that could disrupt service or harm drinking water safety. As cited in a 2022 [report](#), many water facilities had not yet integrated cybersecurity into their daily operations and maintenance and thus had not created a cybersecurity culture, officials from the EPA's Office of Groundwater and Drinking Water told the GAO.¹⁴⁰ This is evident in the cybercrimes and security incidents that are affecting water facilities across the nation and that we noted in a November 2022 [report](#), such as a ransomware attack disrupting access at an Atlanta water facility and a former employee attempting to disrupt water-cleaning processes at a Kansas water facility using credentials that had not been revoked.¹⁴¹ More recently, a former employee of a California water treatment facility servicing 15,000 residents was indicted in July 2023 on charges that, weeks after he had resigned, he remotely logged into the facility's network and uninstalled software that protected the entire water treatment system, including water pressure, filtration, and chemical levels to disrupt the flow of untreated sewage.¹⁴² Other crimes and destructive incidents at water and wastewater facilities also raise concerns about physical security in the sector. For example, perpetrators broke into an Indiana water facility and damaged equipment to disrupt water sources,¹⁴³ and in North Carolina thieves stole more than \$50,000 in copper wiring from a wastewater facility.¹⁴⁴

¹³⁸ [FY 2022-2026 EPA Strategic Plan](#), *supra* note 4.

¹³⁹ U.S. Env't Prot. Agency Off. of Inspector Gen., [23-P-0003](#), The EPA Met 2018 Water Security Requirements but Needs to Improve Oversight to Support Water System Compliance (2022).

¹⁴⁰ U.S. Gov't Accountability Off., [GAO-22-105103](#), Critical Infrastructure Protection: Agencies Need to Assess Adoption of Cybersecurity Guidance (2022).

¹⁴¹ U.S. Env't Prot. Agency Off. of Inspector Gen. Report [23-P-0003](#), *supra* note 139.

¹⁴² [Press Release](#), U.S. Attorney's Off. N. Dist. of Cal., Tracy Resident Charged With Computer Attack on Discovery Bay Water Treatment Facility (July 7, 2023).

¹⁴³ WaterISAC – Quarterly Water Sector Incident Summary QTR 4 2022.

¹⁴⁴ Ciara Lankford, [Thieves On The Run After Stealing Thousands of Dollars of Copper Wiring from Lincoln County Wastewater Treatment Plant](#), Queen City News, May 5, 2023.

Water and wastewater systems are also vulnerable to other hazards and risks that can affect public safety and water sources, such as contamination unrelated to malign acts, which the Agency also needs to address. In one case, 400,000 gallons of water were contaminated by radioactive material leaking from a faulty pipe at a nuclear plant in Minnesota in November 2022. The nuclear plant attempted to repair the leak, but radioactive material continued to leak into water sources, leading to a shutdown of the facility to repair the pipe.¹⁴⁵ In Washington in August 2022, biological contaminants were discovered in Lake Roosevelt following reported illnesses, including flulike symptoms in children, that affected people who swam in the lake.¹⁴⁶

The EPA reports that it has initiated actions to address the risks to the security of the water and wastewater sector infrastructure nationwide. The EPA is working with states, tribes, and territories to improve the cybersecurity of their water systems by providing technical assistance, publishing guidance, and working with the U.S. Department of Homeland Security to develop sector-specific infrastructure cybersecurity goals.¹⁴⁷

Earlier this year, the EPA issued a memorandum requiring states to evaluate cybersecurity when conducting sanitary surveys or through other state programs, then address significant cybersecurity deficiencies.¹⁴⁸ In response, several water associations said that the state authorities responsible for administering the sanitary survey program lack the appropriate staffing, training, and expertise to evaluate cybersecurity programs. The associations also said that the Agency did not have open stakeholder engagement to develop the memorandum.¹⁴⁹ In April 2023, several states sued the EPA to halt implementation of the memorandum, and in July 2023, the U.S. Court of Appeals for the Eighth Circuit stayed the memorandum pending resolution of the case.¹⁵⁰

The EPA is requesting \$44.6 million in its FY 2024 budget for a grant program to help water systems establish the necessary cybersecurity infrastructure and implement regulatory action to mitigate the risk of cyberattacks.¹⁵¹



People boating and swimming in Lake Roosevelt, Washington. (U.S. National Park Service image)

Protecting Water and Wastewater Sector Infrastructure Investments

Many communities need upgrades in both drinking water and wastewater infrastructure, which will require the EPA to work effectively and efficiently with its partners to support water infrastructure programs. The EPA provides technical and financial support to communities to help protect their water

¹⁴⁵ Trisha Ahmed, [Company That Leaked Radioactive Material Will Build Barrier To Keep It Away From Mississippi River](#), Associated Press, Aug. 18, 2023.

¹⁴⁶ [‘Mildly’ Elevated Levels of Biological Contaminants Found In Part of Lake Roosevelt](#), KHQ.com News, Aug. 5, 2022.

¹⁴⁷ U.S. Env’t Prot. Agency, [Agency Response](#) to Office of Inspector General FY 2023 Top Management Challenges Report(2022).

¹⁴⁸ U.S. Env’t Prot. Agency, [Memorandum](#) Addressing PWS Cybersecurity in Sanitary Surveys or an Alternate Process (2023).

¹⁴⁹ [Letter](#) from American Water Works Assoc. to U.S. Env’t Prot. Agency (Jan. 25, 2023).

¹⁵⁰ *Missouri v. EPA*, No. 23-1387 (8th Cir. filed Apr. 17, 2023); *see also id.* (July 12, 2023 order granting motion for stay of proceedings).

¹⁵¹ U.S. Env’t Prot. Agency, [Fiscal Year 2024 Justification of Appropriation Estimates for the Committee on Appropriations](#) (2023); [FY 2024 EPA Budget in Brief](#), *supra* note 18.

systems and improve their cybersecurity posture.¹⁵² Congress has appropriated over \$200 billion to the EPA for loans to support water and wastewater infrastructure improvements over the life of these programs, and the EPA has requested about \$4 billion in FY 2024 appropriations to fund the sector's infrastructure improvements. To protect its investments, the EPA should improve the oversight of its partners' use of these funds, while also ensuring that the publicly funded projects are protected from cyberattacks and other threats. In particular, the EPA should properly monitor, effectively oversee, and accurately report the use of its investments to prevent the mismanagement of resources or the communities' loss of access to the resources that they need to address water infrastructure issues.

The EPA also needs to prioritize assessing security risks as part of its funding agreements. The GAO [reported](#) in March 2023 that the Agency faces challenges with funding for its state revolving fund programs, including management of fraud risk, adherence to cost controls, and assurance of programs having the right policies and expertise in place.¹⁵³ The credit ratings agency Fitch Ratings has warned that cybersecurity deficiencies could negatively affect water and wastewater facilities' credit ratings if an incident results in weakened financial metrics or supply disruption.¹⁵⁴ Our oversight work continues to target challenges related to the protection of the water and wastewater sector investments, including an ongoing audit of the EPA's oversight of the Clean Water State Revolving Fund.

The EPA reports that it has begun implementing additional actions to mitigate the risks associated with the protection of its water and wastewater sector investments. The EPA states that it will continue improving its oversight by implementing additional controls within the Agency's financial systems to track infrastructure investments by appropriations and programs, requiring state revolving fund programs to update their standard operating procedures to communicate with loan recipients to verify account change requests, and requiring stakeholders to hold quarterly fraud training for Agency personnel.¹⁵⁵

Conclusion

The EPA has an ongoing requirement to reinforce the security and resiliency of its critical water and wastewater infrastructure to mitigate threats that could severely impact the EPA's operations and affect national security. The EPA will need to strengthen its oversight and protection of water and wastewater systems, including bolstering security in the cyber and physical environments, addressing risks identified across the enterprise, and improving oversight and tracking of its funding investments for water infrastructure improvements.

¹⁵²U.S. Dep't of Homeland Sec. and U.S. Env't Prot. Agency, [Water and Wastewater Systems Sector-Specific Plan](#) (2015).

¹⁵³ U.S. Gov't Accountability Off., [GAO-23-106726](#), Oversight of Agency Spending: Implementing GAO Recommendations Could Help Address Previously Identified Challenges at Commerce, DOE, and EPA (2023).

¹⁵⁴ [EPA Memo Ramps Up Cyber Regulations for Water Utilities](#), Fitch Ratings, May 11, 2023.

¹⁵⁵ U.S. Env't Prot. Agency, [Agency Response](#), *supra* note 147.



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