



July 2021

CLEAN WATER ACT

EPA Needs to Better Assess and Disclose Quality of Compliance and Enforcement Data



A Century of Non-Partisan Fact-Based Work

GAO@100 Highlights

Highlights of [GAO-21-290](#), a report to congressional requesters

Why GAO Did This Study

EPA partners with states to oversee compliance with and enforcement of the Clean Water Act. In fiscal year 2020, there were roughly 335,000 facilities with active NPDES permits, which are used to regulate wastewater discharges under the act. In 2015, EPA began requiring states and facilities to electronically report data on their NPDES activities. EPA estimated that in 2018, nearly 11,000 facilities significantly exceeded their permit limits and illegally discharged pollutants into nearby waters, which may pose serious threats to human health and the environment.

GAO was asked to review EPA's enforcement of the Clean Water Act. This report examines (1) changes since 2015 in EPA's national initiatives for ensuring compliance with the act, (2) changes in NPDES compliance and enforcement activities since 2015, and (3) the extent to which EPA is measuring progress toward compliance with the NPDES program. GAO reviewed and analyzed EPA documents and data on NPDES compliance and enforcement activities. GAO also interviewed officials from eight states, selected in part by EPA region, to learn about their NPDES compliance and enforcement activities and data reporting.

What GAO Recommends

GAO is making four recommendations, including that EPA consolidate, complete, and update disclosures of data limitations on its reporting website and develop a plan to assess the overall quality of state reported NPDES data. EPA generally agreed with these recommendations.

View [GAO-21-290](#). For more information, contact J. Alfredo Gómez at (202) 512-3841 or gomezj@gao.gov

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EPA Needs to Better Assess and Disclose Quality of Compliance and Enforcement Data

What GAO Found

Since 2015, the Environmental Protection Agency (EPA) has modified one of its three national initiatives emphasizing compliance with the Clean Water Act and has discontinued two others (see fig.). The goal of the modified initiative is to reduce significant noncompliance with National Pollutant Discharge Elimination System (NPDES) permits by half by the end of fiscal year 2022. Such permits set limits on discharges of wastewater from point sources, such as a pipe from an industrial facility. This goal supports EPA's strategic objective to increase compliance with environmental laws in its strategic plan for fiscal years 2018-2022. EPA discontinued its initiatives focused on animal waste pollution and raw sewage and stormwater runoff, returning these areas to the core enforcement program in 2018 and 2019, respectively. As a result, these areas no longer receive the heightened attention and focused resources of the national initiatives, but the agency still pursues enforcement actions when needed.

Changes in EPA's Clean Water Act National Initiatives

Environmental area	National Enforcement Initiatives, fiscal year (FY) 2014-16	National Enforcement Initiatives, FY2017-19	National Compliance Initiatives, FY2020-23
Clean Water Act	Keeping raw sewage and contaminated stormwater out of the nation's waters	Keeping raw sewage and contaminated stormwater out of the nation's waters	Reducing significant noncompliance with National Pollutant Discharge Elimination System permits
	Preventing animal waste from contaminating surface and ground waters	Preventing animal waste from contaminating surface and ground waters	
	Keeping industrial pollutants out of the nation's waters		
Initiative continued from prior cycle		Initiative was modified from prior cycle	
Initiative not continued into next cycle and returned to the core enforcement program			

Source: GAO review of Environmental Protection Agency (EPA) information. | GAO-21-290

EPA posts data that states report on their NPDES compliance and enforcement activities to its website, but the data are not reliable for identifying changes in the number of activities states conducted since 2015. EPA's most recent assessment of states' data showed that two of 17 states met expectations for the accuracy and completeness of the data recorded in the agency's national database. EPA is working with states to improve their data, and it includes on its website disclosures by some states about problems and limitations with their data. However, the agency has not ensured that all states' disclosures are consolidated, complete, and updated. Until it does so, potential users of the data may not fully understand the data or the data's limitations.

EPA developed a measure to track progress toward its goal for reducing the rate of significant noncompliance by NPDES facilities with individual permits by the end of fiscal year 2022. While the measure tracks changes in the number of facilities in significant noncompliance, the results of the measure are unclear because data EPA needs to track compliance are incomplete and contain inaccuracies. According to EPA, about 70 percent of NPDES facilities have sufficiently complete data in the national database for EPA to track compliance. EPA is working with states to improve data quality, but it does not have a plan to assess the overall accuracy of the data. Until it does so, EPA cannot be certain what its measure is showing and if EPA is making progress toward its goal.

Contents

Letter		1
	Background	6
	OECA Is Focusing on Reducing Significant Noncompliance by NPDES Permittees, and Selected States Have Taken Some Action in Support	13
	EPA's Data Are Unreliable for Identifying Changes in State NPDES Compliance and Enforcement Activities Since 2015, and Data Limitation Disclosures Are Unclear	19
	EPA Tracks Progress on Reducing Significant Noncompliance, but Results Are Uncertain and Do Not Gauge Water Quality Improvements	29
	Conclusions	38
	Recommendations for Executive Action	40
	Agency Comments and Our Evaluation	41
Appendix I	Objectives, Scope, and Methodology	43
Appendix II	Disclosures of Limitations Relating to Quality of Data Reported by States and Displayed on the Environmental Protection Agency's State Water Dashboard	48
Appendix III	Comments from the Environmental Protection Agency	50
Appendix IV	GAO Contact and Staff Acknowledgments	54
Tables		
	Table 1: Disclosures Related to Quality of State-Reported Data Published on EPA's State Water Dashboard, as of March 2021	27
	Table 2: The Office of Enforcement and Compliance Assurance's Measures for its Goal of Reducing the Rate of Significant Noncompliance by Individually Permitted National Pollutant Discharge Elimination System Facilities by Half by the End of Fiscal Year 2022	30

Figures

Figure 1: Number of Active National Pollutant Discharge Elimination System (NPDES) Permits, by Type of Facility, for Fiscal Year 2020	7
Figure 2: EPA's Compliance and Enforcement Process for Environmental Laws	8
Figure 3: Environmental Protection Agency's State Review Framework Process	12
Figure 4: Changes in EPA's National Initiatives Related to the Clean Water Act Since 2015	13
Figure 5: Goal and Objectives of EPA's National Initiative to Reduce Significant Noncompliance with National Pollutant Discharge Elimination System (NPDES) Permits	14
Figure 6: EPA's State Water Dashboard Display of State- and EPA-Reported Data on Clean Water Act Compliance and Enforcement Activities	21
Figure 7: EPA's Annual Targets for Reduction in the Yearly Rate of Significant Noncompliance with National Pollutant Discharge Elimination System Permits, Fiscal Years 2018 through 2022	31

Abbreviations

Act	Clean Water Act
ECHO	Enforcement and Compliance History Online
EPA	Environmental Protection Agency
eRule	Electronic Reporting Rule
ICIS	Integrated Compliance Information System
NPDES	National Pollutant Discharge Elimination System
OECA	Office of Enforcement and Compliance Assurance
OMB	Office of Management and Budget
SRF	State Review Framework

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July 12, 2021

The Honorable Peter DeFazio
Chairman
Committee on Transportation and Infrastructure
House of Representatives

The Honorable Grace Napolitano
Chair
Subcommittee on Water Resources and Environment
Committee on Transportation and Infrastructure
House of Representatives

The Environmental Protection Agency (EPA), in partnership with states, oversees compliance with and enforcement of the Clean Water Act (act), which was enacted almost 50 years ago to restore and maintain the chemical, physical, and biological integrity of the nation's waters.¹ Under the act, it is unlawful to discharge pollutants into waters of the U.S. without a permit. Through its National Pollutant Discharge Elimination System (NPDES) program, EPA issues such permits to set pollutant discharge limits and reporting requirements. EPA can also authorize state, tribal, and territorial governments to implement the NPDES program, enabling them to develop permits and enact other administrative and enforcement aspects of the NPDES program.

EPA estimated that in 2018 nearly 11,000 facilities in the United States illegally discharged significant amounts of pollutants into nearby bodies of water. In 2019, EPA set a priority to reduce the number of facilities, such as industrial facilities or municipal wastewater treatment plants, that are in significant noncompliance with the pollution discharge limits or other requirements of their NPDES permits—one of several of the agency's national initiatives for fiscal years 2020 through 2023. EPA's Office of Enforcement and Compliance Assurance (OECA) periodically selects a set of national initiatives that reinforce its enforcement program and advance the agency's strategic plan.

EPA is focusing on increasing compliance with NPDES permits in part because of the agency's shift in priorities since 2015 from enforcement to

¹Federal Water Pollution Control Act Amendments of 1972, Pub. L. No. 92-500, § 2, 86 Stat. 816 (codified as amended at 33 U.S.C. §§ 1251-1387). We refer to this as the Clean Water Act or "act" throughout this report.

compliance to more closely align with its new strategic plan and objective to increase compliance with environmental laws. This change also reflects the agency's ongoing use of a broader range of compliance—rather than enforcement—activities, including in the NPDES program, to achieve this strategic objective. For example, these activities can range from providing compliance assistance—such as one-on-one training and technical assistance—to inspections and other monitoring activities to help permittees comply with laws and regulations. In contrast, enforcement actions include developing cases for a civil action filed in court and issuing administrative orders that can result in financial penalties or requirements for a permittee to take specific steps to resolve the violation, or both.

In fiscal year 2020, EPA's data show there were approximately 335,000 facilities with active NPDES permits. Of these, about 60,000 facilities were required to monitor the discharges of pollutants listed in their permits and to report their results to their permitting authority. The NPDES permitting authorities, including states, are required to transfer the information from these reports into EPA's national database, the Integrated Compliance Information System-NPDES (ICIS-NPDES). The permitting authorities are also required to report information on their compliance and enforcement programs into the database. In 2015, EPA adopted a rule requiring facilities and states to report their information electronically into ICIS-NPDES. EPA makes data on states' NPDES compliance and enforcement activities publicly available on its Enforcement and Compliance History Online (ECHO) State Water Dashboard. The dashboard is managed by OECA, which is responsible for ensuring compliance with and enforcement of the NPDES program.

Recently, EPA and GAO reported findings that indicate weaknesses in the agency's compliance and enforcement efforts. In March 2020, EPA's Office of Inspector General reported on national trends in EPA-led compliance and enforcement activities and results of enforcement actions from fiscal years 2006 through 2018.² The report found a general decline in EPA's inspections, enforcement actions, and enforcement results over this period. The office issued a follow-on report in May 2021 that

²Environmental Protection Agency, Office of Inspector General, *EPA's Compliance Monitoring Activities, Enforcement Actions, and Enforcement Results Generally Declined from Fiscal Years 2006 Through 2018*, 20-P-0131 (Washington, D.C.: Mar. 31, 2020).

discusses regional and statute-specific trends and key factors in EPA's compliance and enforcement activities.³

GAO has previously reported on EPA's environmental enforcement and compliance strategies relating to the Clean Water Act, Clean Air Act, Safe Drinking Water Act, and Resource Conservation and Recovery Act.⁴ In December 2020, we reported that EPA had not finalized implementation guidance for EPA regional offices and states that communicates how to achieve the national initiatives. As a result, we recommended that EPA communicate final guidance for future national initiative cycles to all states before the effective date of the national initiatives. EPA agreed with this recommendation and plans to communicate its final guidance to states for the next cycle.

Similarly, in January 2020, we found that EPA had incomplete and inconsistent data on informal enforcement and compliance assistance activities, despite its strategic transition to an increased focus on compliance over enforcement.⁵ Specifically, we found that EPA regional offices did not consistently collect or maintain data on informal enforcement actions, or compliance assistance actions, even though EPA elevated the role of such activities in its overall enforcement efforts. As a result, we recommended that EPA provide guidance to regional offices on how to collect data on informal enforcement actions and that EPA issue guidance to regional offices on how to collect data on compliance assistance activities and how to maintain the data. EPA agreed with our recommendations and stated that the agency either had begun, or plans, to implement them.

You asked us to review EPA's compliance and enforcement activities for the NPDES program under the Clean Water Act. This report (1) describes changes in EPA's national initiatives for ensuring compliance with the Clean Water Act since 2015, and actions selected states have taken in response; (2) examines how state NPDES compliance and enforcement

³Environmental Protection Agency, Office of Inspector General, *Resource Constraints, Leadership Decisions, and Workforce Culture Led to a Decline in Federal Enforcement*, 21-P-0132 (Washington, D.C.: May 13, 2021).

⁴GAO, *Environmental Protection: Action Needed to Ensure EPA's Enforcement and Compliance Activities Support Its Strategic Goals*, [GAO-21-82](#) (Washington, D.C.: Dec. 9, 2020).

⁵GAO, *Environmental Protection: Additional Action Needed to Improve EPA Data on Informal Enforcement and Compliance Assistance Activities*, [GAO-20-95](#) (Washington, D.C.: Jan. 31, 2020).

activities have changed since 2015; and (3) evaluates the extent to which EPA is measuring and tracking progress toward increasing compliance with NPDES permits under the Clean Water Act.

To address all three objectives, we examined available data, reviewed relevant documents, and interviewed relevant officials. We selected 10 states for interviews based on a number of considerations, including EPA region, number of NPDES facilities inspected annually, number of formal enforcement actions concluded, and number of NPDES facilities in noncompliance. We were able to obtain interviews with eight of them. These 10 states are California, Iowa, Kentucky, Ohio, Oklahoma, New York, Pennsylvania, Rhode Island, Wyoming, and Washington. We were unable to obtain interviews with Ohio and New York, which declined or preferred not to participate.

To examine the changes in state NPDES compliance and enforcement activities conducted since 2015, we reviewed publicly available summary data from the State Water Dashboard on EPA's ECHO website for fiscal years 2015 through 2020. EPA compiles these summary data from data states report into ICIS-NPDES. To determine the reliability of these data, we collected and analyzed information on known data issues and limitations. Specifically, we reviewed four sets of disclosure information about the quality of data that states reported to EPA. First, we reviewed 17 recent assessments of state NPDES program performance that EPA conducted through its State Review Framework (SRF). The SRF includes an annual process for the states to verify and review the compliance and enforcement data they report to EPA. Second, we collected and analyzed state comments on data for fiscal years 2015 through 2019 that the states reported to EPA as part of the SRF's annual data verification process. Third, we reviewed a list of known data problems and other disclosures on data limitations related to the data posted on the State Water Dashboard. Fourth, we reviewed major caveats and limitations of data that the states reported to EPA. Based on our review of the data, available disclosures on data quality, and interviews with OECA and state agency officials, we determined that the summary data available from the ECHO State Water Dashboard are unreliable for the purpose of reporting changes in state or national NPDES compliance and enforcement activities since 2015, as discussed later in the report.

Among the documents we reviewed are federal and state guidance and memorandums. Specifically, we examined EPA's strategic plans from fiscal year 2014 through 2022. We reviewed OECA national program guidance and documentation on the development and selection of the

national compliance initiatives for fiscal years 2020 through 2023. We also examined technical guidance to learn about the tools being developed and other efforts that OECA took to work with states to improve the quality of the data being used to monitor and track permitted facilities' compliance with their NPDES permits. For the eight selected states for which we interviewed officials, we also examined state agencies' current performance agreements, work plans, progress reports, and other documentation of their NPDES compliance and enforcement activities.⁶ We also followed up with EPA's Office of Inspector General to coordinate on its work reviewing EPA's compliance and enforcement activities.

Finally, we analyzed information collected in our interviews with officials from EPA and state environmental agencies about their NPDES compliance and enforcement activities and data. We interviewed officials in all selected states, except Ohio and New York. We also interviewed representatives from the Association of Clean Water Administrators, Environmental Integrity Project, and Environmental Council of States to obtain their views on EPA's and states' NPDES compliance and enforcement activities. We selected these organizations because they have key roles related to working with states and EPA on their Clean Water Act priorities. See appendix I for a more detailed discussion of our scope and methodology.

We conducted this performance audit from December 2019 to June 2021 in accordance with generally accepted government auditing standards. Those standards require that we plan and perform the audit to obtain sufficient, appropriate evidence to provide a reasonable basis for our findings and conclusions based on our audit objectives. We believe that the evidence obtained provides a reasonable basis for our findings and conclusions based on our audit objectives.

⁶To characterize the views of state agency officials throughout this report, we defined the modifiers "all" to represent eight officials, "most" to represent five to seven officials, and "some" to represent two to four officials.

Background

EPA Roles and Responsibilities for the Clean Water Act and NPDES Program

EPA oversees the implementation of the NPDES program, a program under the Clean Water Act to reduce or eliminate pollutants discharged into waters of the U.S. Through the program, EPA regulates the discharge of pollutants from point sources such as a pipe from an industrial facility or a municipal wastewater treatment plant. Under the act, EPA has authorized 47 states to implement and enforce all or part of the NPDES program.⁷

Before a facility discharges pollutants from a point source into waters of the U.S., it must receive a NPDES permit from either the EPA or an authorized state, territory, or tribal NPDES program. The permit incorporates any relevant pollutant limits from EPA's effluent guidelines or may include more stringent limits if a state deems it necessary. Water quality officials in states authorized to implement the NPDES program, or in EPA regional offices, are to review applications and determine the appropriate limits for the permit.⁸

NPDES-permitted facilities are generally classified depending on the size and nature of their discharges. Major facilities include municipal treatment plants with discharges greater than 1 million gallons per day and industrial facilities with high toxicity; high flow volume; public health impacts; or water quality impacts, among other factors. Nonmajor facilities include municipal treatment plants discharging less than 1 million gallons per day and industrial facilities that do not meet the criteria for designation as a major facility.

There are two types of NPDES permits—individual and general. An individual permit includes discharge limits that are specific to an individual facility. A general permit covers multiple facilities within categories of activities that have similar operations and types of discharges, such as stormwater discharges from construction sites or runoff from surface mining operations.

⁷EPA has also authorized one territory and some tribes to implement their own NPDES programs. For purposes of this report, we use "authorized programs" to refer to the 47 state NPDES programs.

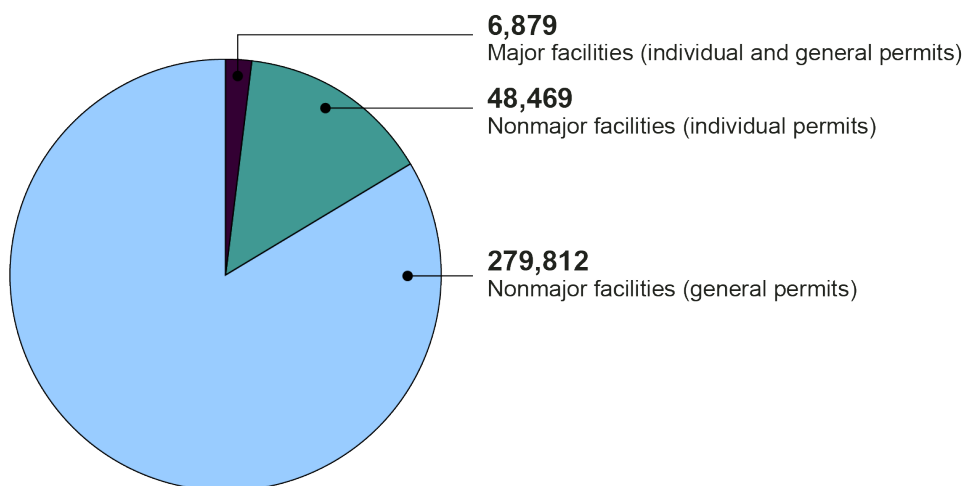
⁸Those limits may be technology-based effluent limits, water-quality-based effluent limits, or a combination of both.

As shown in figure 1, there were about 335,000 major and nonmajor facilities with active NPDES permits in fiscal year 2020. Facilities with individual permits are generally required to monitor their discharges for the pollutants listed in their permits and to provide monitoring reports with their results to their permitting authority. Facilities with general permits are generally not required to do so. The NPDES permitting authorities are required to transfer these discharge monitoring reports into ICIS-NPDES.

Figure 1: Number of Active National Pollutant Discharge Elimination System (NPDES) Permits, by Type of Facility, for Fiscal Year 2020

EPA regulates major and nonmajor facilities, such as municipal wastewater treatment plants and industrial facilities, through individual and general NPDES permits.

Total = 335,160



Source: Environmental Protection Agency (EPA) data. | GAO-21-290

Note: The number of permitted facilities changes frequently, for example as permits expire and new ones are issued or renewed; however, these are EPA's totals as of April 2021.

EPA Roles and Responsibilities for Compliance and Enforcement

OECA staff, and staff in authorized state programs, conduct compliance and enforcement activities to ensure compliance with environmental laws, including taking civil or criminal enforcement action against violators. Compliance activities can include providing technical assistance, conducting inspections, and monitoring discharge data. Noncompliance can take the form of discharging pollutants beyond a permit limit, not maintaining equipment, or not reporting monitoring data. Enforcement actions in response to noncompliance can include sending notices of violation; developing administrative cases and potentially assessing penalties; initiating civil actions; and, in some instances, filing criminal

charges against the polluter. Figure 2 shows EPA’s process for implementing compliance and enforcement actions in pursuit of its goal to protect public health and the environment.

Figure 2: EPA’s Compliance and Enforcement Process for Environmental Laws



Source: Environmental Protection Agency (EPA). | GAO-21-290

OECA’s headquarters office provides overall direction to EPA’s regional offices on enforcement strategies, policies, and processes and can take enforcement actions when necessary. OECA’s core enforcement program includes standard compliance and enforcement responsibilities, such as facility inspections and other compliance monitoring activities, initiation of enforcement actions, and oversight of implementation by authorized state programs. OECA staff in EPA’s 10 regional offices primarily carry out these activities.

OECA also provides guidance to authorized state programs. Generally, these authorized programs monitor NPDES facilities’ compliance by conducting inspections, reviewing discharge reports, and taking

enforcement actions and reporting those activities to OECA. For example, in 2014 guidance, OECA established national goals for the frequency and type of compliance monitoring activities—such as onsite inspections, evaluations, or off-site desk audits (such as review of facility reports and other documentation)—conducted for the different categories of NPDES-permitted facilities.⁹ With some exceptions, the guidance recommends that major facilities should receive a comprehensive onsite inspection once every 2 years, and nonmajor facilities should receive an inspection once every 5 years. Through the regional offices, OECA works with each authorized state, territorial, and tribal NPDES program to develop annual work plans for their compliance monitoring activities and end-of-year progress reports that OECA can use to evaluate their performance.

OECA periodically selects a set of national initiatives that reinforce its core enforcement program and advance EPA's strategic plan. These national initiatives are to receive heightened management attention and focus OECA's resources on the most important environmental problems where federal efforts can be most impactful. When selecting its national initiatives, OECA can choose new initiatives; continue or modify existing initiatives; or discontinue and return initiatives back to the standard core enforcement program carried out by OECA and the regional offices. In addition, OECA has updated its national initiative planning process to switch from a 3-year to a 4-year cycle to better align with the agency's strategic planning time frame, which is every 5 years.

OECA's Data on Clean Water Act Compliance and Enforcement

To oversee the implementation of the NPDES program, OECA collects two groups of data: (1) states' data on their compliance and enforcement activities and (2) information on permitted facilities. Specifically, OECA collects data on

- inspections, which includes the number and type of compliance monitoring activities and when they were conducted;
- violations, which includes three basic types of violations that are generated automatically by ICIS-NPDES: (1) compliance or permit schedule violations, (2) effluent limit exceedances, and (3) nonreceipt of discharge monitoring reports. Violations identified during inspections can also be entered manually.

⁹Environmental Protection Agency, Office of Enforcement and Compliance Assurance, *Clean Water Act National Pollutant Discharge Elimination System Compliance Monitoring Strategy* (Washington, D.C.: 2014).

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- Violations of NPDES permits are generally classified as either Category 1 (more serious) or Category 2 (less serious), depending on factors such as the magnitude, frequency, or duration of the event.
 - Violations classified as “significant noncompliance” refer to a subset of the most serious Category 1 violations for which EPA has established specific criteria.
 - enforcement actions, which includes the dates and outcomes of formal actions taken by a state or EPA to collect monetary penalties or require the facility to take specific actions to return to compliance, or both; and
 - permitted facilities, which includes facility name, location, permit number, industrial classification, permit limits, and their discharge monitoring reports.

In 2015, EPA adopted the NPDES Electronic Reporting Rule (NPDES eRule), which requires permitted facilities and the authorized programs to submit reports and other information electronically into ICIS-NPDES.¹⁰ Among the benefits EPA anticipated from implementing the rule were the use of technology to obtain more accurate, timely, complete, and consistent information and to improve the transparency of data on environmental performance. To help with the transition to electronic reporting, EPA makes reporting tools available to permitted facilities and the states; however, it does not require the use of these tools. Some states have adopted the use of EPA’s electronic reporting tools, and their information is integrated and uploaded directly into ICIS-NPDES. Other states use their own data systems, and their program information and discharge data collected from facilities are transmitted to EPA on a periodic basis.¹¹

OECA uses the data in ICIS-NPDES to monitor and review states’ programs and facilities’ compliance with the discharge limits included in their permits that states are required to enter into the database. OECA uses the discharge data stored in the database to help identify potential violations of NPDES permits by automatically comparing the amount of

¹⁰40 C.F.R. pt. 127.

¹¹According to EPA officials, seven states report data directly into EPA’s national database; 29 states initially compile the data into their state system and then electronically transfer the data to EPA; and 11 states have a “hybrid” combined approach, where the state reports data both through direct entry and electronic data transfer.

pollutants allowed to be discharged in a facility's permit to its reported discharge amounts. It also uses the data in ICIS-NPDES to make summary data, including data on inspections, enforcement, and violations, available to the public via the ECHO website, including the State Water Dashboard.¹²

In addition to displaying EPA and state data on enforcement and compliance activities, the ECHO website includes various disclosures about the quality of the data, including limitations, caveats, and known problems. These disclosures can help data users understand how the data can be used and compared and what conclusions can be drawn from the data.

EPA's State Review Framework

OECA oversees state NPDES program compliance and enforcement activities and data primarily through a review process called the State Review Framework. The SRF, which was established in 2004, is a periodic assessment of state program performance and data reporting.¹³ This framework includes an annual data verification process, where EPA requests that states verify the completeness and accuracy of their state data that they report into ICIS-NPDES. According to EPA officials, state participation in the annual verification process is voluntary, and the agency relies on its regional offices and the states to review and correct data that they reported into ICIS-NPDES. The data are then used as part of the periodic assessment of state performance during the 5-year review. The SRF assessments are conducted on a 5-year cycle, so that each state program is reviewed once every 5 years, using 1 year of performance and reporting information.

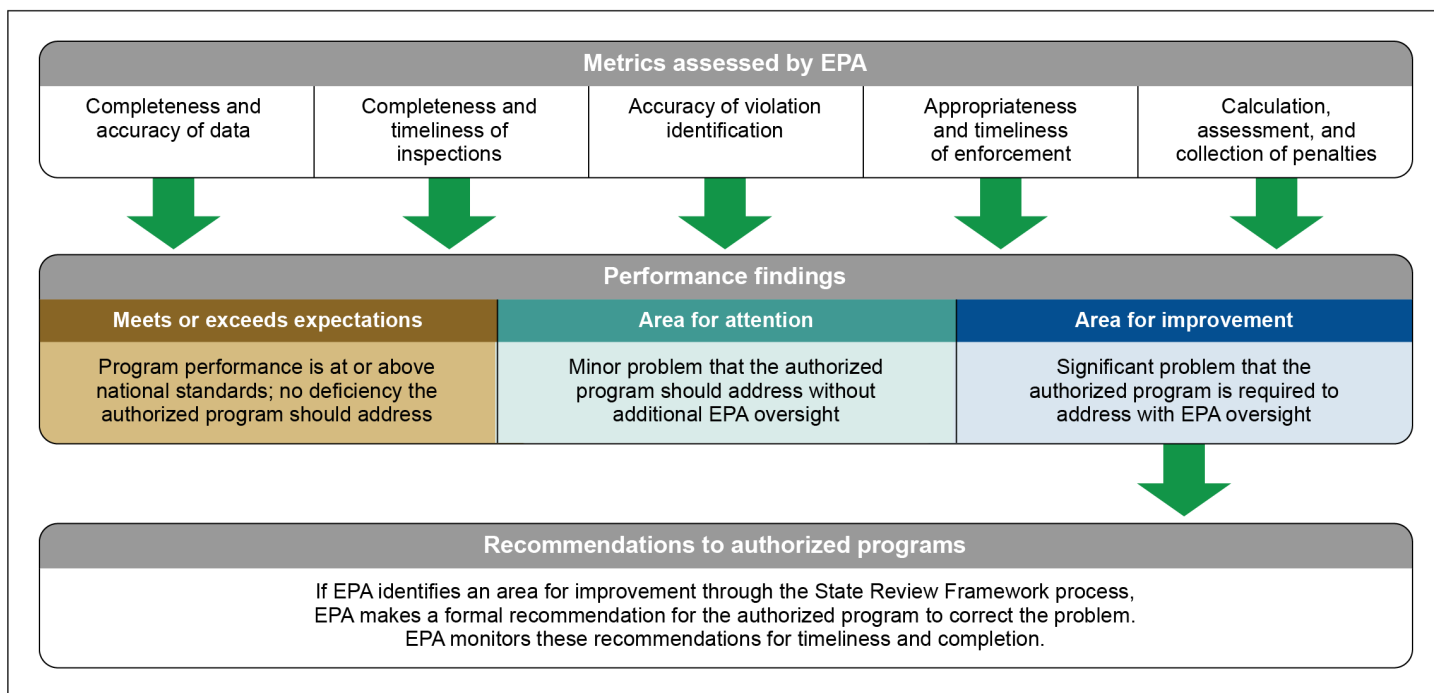
EPA is currently in the fourth year of the latest 5-year review period, which started in fiscal year 2018. This is the first review period to include an assessment of state data reported electronically since adoption of the NPDES eRule. According to agency guidance, EPA is to use a set of standard metrics to assess state program performance in five areas: data,

¹²Environmental Protection Agency, *Analyze Trends: State Water Dashboard* (Washington, D.C.: Nov. 17, 2020), accessed January 15, 2021, <https://echo.epa.gov/trends/comparative-maps-dashboards/state-water-dashboard>.

¹³The key goals of the SRF are to (1) ensure that authorized programs meet minimum performance standards outlined in federal policies and guidance, (2) promote fair and consistent enforcement necessary to protect human health and the environment, (3) promote equitable treatment and level interstate playing field for business, and (4) provide transparency with publicly available data and reports.

inspections, violations, enforcement, and penalties (see fig. 3). As part of the data metrics, the review includes an assessment of the completeness and accuracy of certain data that states are required to report into ICIS-NPDES, such as their inspection and enforcement activities.¹⁴

Figure 3: Environmental Protection Agency’s State Review Framework Process



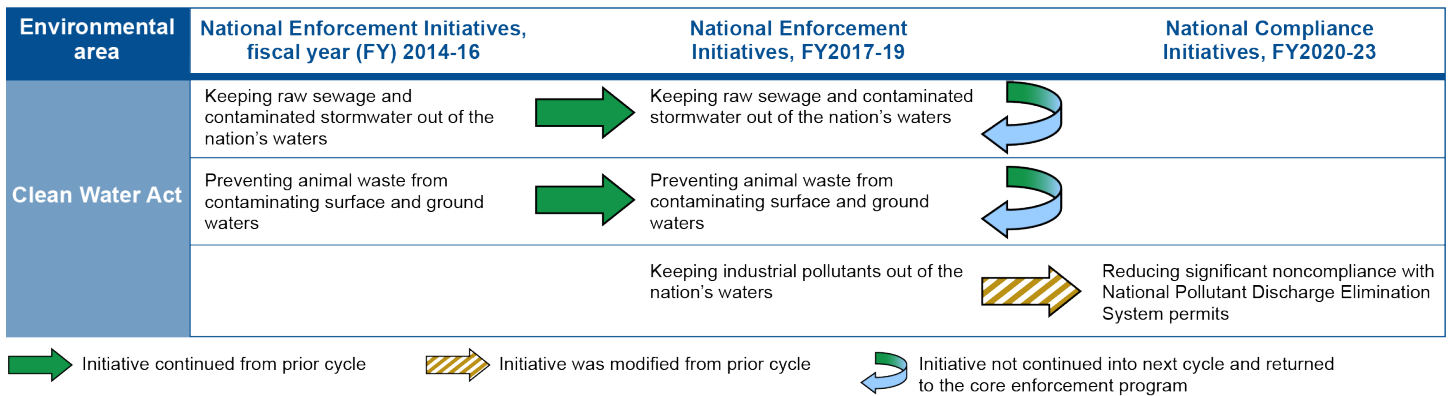
Source: Environmental Protection Agency (EPA). | GAO-21-290

¹⁴Environmental Protection Agency, *National Strategy for Improving Oversight of State Enforcement Performance* (Washington, D.C.: December 2013).

OECA Is Focusing on Reducing Significant Noncompliance by NPDES Permittees, and Selected States Have Taken Some Action in Support

Since 2015, OECA has modified one of its national initiatives related to the Clean Water Act to prioritize compliance by NPDES permit holders and has discontinued the two other national initiatives related to the act. (See fig. 4.) Selected states have taken some actions in support of OECA’s one remaining national initiative. Officials from each of the eight selected state agencies we met with told us they have their own compliance and enforcement priorities but were also taking actions in support of OECA’s initiative.

Figure 4: Changes in EPA’s National Initiatives Related to the Clean Water Act Since 2015



Source: GAO review of Environmental Protection Agency (EPA) information. | GAO-21-290

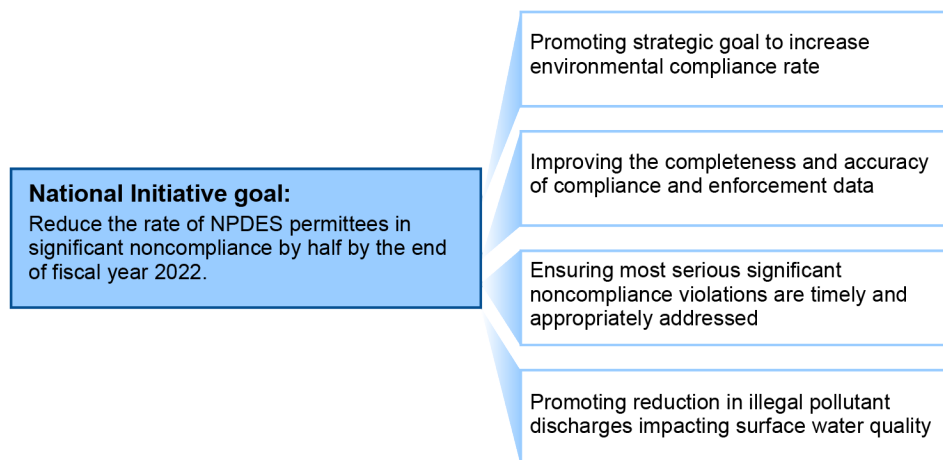
Of Its Three Clean Water Act National Initiatives, OECA Modified One to Focus On All Individual NPDES Permittees and Discontinued Two

In 2019, OECA modified one of its existing Clean Water Act national initiatives to focus on reducing significant noncompliance by NPDES-permitted facilities. Previously, this initiative had been more narrowly focused on keeping pollutants from certain industrial sectors out of the nation’s waters. OECA’s goal for the modified initiative is to reduce the rate of significant noncompliance for all NPDES facilities with individual permits by half by the end of fiscal year 2022, while also assuring that the most serious violators are timely and appropriately addressed (see fig. 5).¹⁵ OECA expects the initiative will also help improve the accuracy of

¹⁵For purposes of the initiative, OECA uses “significant noncompliance” to refer to all Category 1 noncompliance at NPDES major and nonmajor facilities with individual permits. Violations range from failure to submit required reports to significant exceedances of effluent discharge limits that can cause serious harm to human health and the environment.

data reported nationally into ICIS-NPDES and improve water quality by reducing illegal discharges of pollutants.

Figure 5: Goal and Objectives of EPA’s National Initiative to Reduce Significant Noncompliance with National Pollutant Discharge Elimination System (NPDES) Permits



Source: GAO summary of Environmental Protection Agency (EPA) information. | GAO-21-290

The change in this national initiative reflects the agency’s overall increased emphasis on helping facilities comply with relevant laws, according to officials. In an August 2018 memorandum, the Assistant Administrator for OECA announced that the enforcement program would be transitioning from National Enforcement Initiatives to National Compliance Initiatives, which were finalized in June 2019. According to the memorandum, the intention behind the transition was to better reflect the ongoing use of a broad suite of compliance assurance tools, including compliance assistance.¹⁶ This transition in priorities is represented in EPA’s strategic plan for fiscal years 2018-2022, which emphasizes increased compliance with the law; in conjunction with enforcement, this allows the agency to carry out its mission to protect human health and the environment.¹⁷ Further, OECA officials said they were encouraged by senior agency officials to select an ambitious goal related to EPA’s

¹⁶Environmental Protection Agency, Office of Enforcement and Compliance Assurance, *Memorandum: Transition from National Enforcement Initiatives to National Compliance Initiatives* (Washington, D.C.: Aug. 21, 2018); and *Memorandum: FY2020-2023 National Compliance Initiatives* (Washington, D.C.: June 7, 2019).

¹⁷Environmental Protection Agency, *Working Together: EPA FY 2018-2022 U.S. EPA Strategic Plan*, EPA-190-R-18-003 (Washington, D.C.: February 2018).

strategic plan objective of increasing compliance with environmental laws. In looking at compliance and enforcement data available for various EPA programs, they decided that the NPDES program provided the most comprehensive data and that it would serve as a pilot effort that could be expanded to other programs in future cycles.

OECA has been working with the regional offices and authorized states to implement its goal of reducing the rate of significant noncompliance by NPDES individually permitted facilities by half by the end of fiscal year 2022. In a series of memorandums, OECA recognized that it could not accomplish its goal for the initiative without state assistance. In July 2019, it issued a set of memorandums that described expectations, procedures, and best practices in support of its commitment to work more effectively with authorized states, as well as plans for developing and implementing tools and approaches for preventing, deterring, and addressing significant noncompliance.¹⁸ For example, OECA has been coordinating with states to share information about the significant noncompliance initiative and steps that states can take to help achieve OECA's goal. These efforts have included conducting two national symposiums in 2019 and 2020 and holding regular quarterly meetings between states and their regional office staff to focus specifically on identifying and addressing facilities in significant noncompliance.¹⁹

OECA also decided to discontinue two of its previous initiatives related to pollution from animal feeding operations and raw sewage and stormwater runoff. In discontinuing the two initiatives, OECA returned them to the core enforcement program, where they will receive standard levels of compliance and enforcement resources. OECA officials said that their data indicated that enough progress had been made to return these

¹⁸See EPA 2019 "Memorandum on Enhancing Effective Partnerships Between the EPA and the States in Civil Enforcement and Compliance Assurance Work" and EPA 2019 "Memorandum on Regional Role in Reducing the NPDES Rate of Significant Noncompliance."

¹⁹EPA's most recent symposium, organized with the Association of Clean Water Administrators, was in January 2020 at Region 6 offices in Dallas, TX, and was attended by representatives from 32 states. According to EPA officials, a primary goal of the symposiums was to have states share activities and approaches they were using to reduce noncompliance and significant noncompliance. Presentations during the symposiums focused on multiple areas and approaches for reducing significant noncompliance, including research on improving compliance behavior; enforcement approaches; and how to reduce nonreceipt of discharge monitoring reports, among other topics.

initiatives to the core enforcement program.²⁰ According to OECA officials, resources to implement their national initiatives are limited and, by discontinuing certain initiatives, they are able to focus their efforts on other initiatives.

OECA returned the national initiative, “Preventing Animal Waste from Contaminating Surface and Ground Water,” to the core enforcement program at the end of fiscal year 2018, discontinuing its status as a national initiative 1 year ahead of the conclusion of the fiscal year 2017 through 2019 cycle. According to OECA information, this initiative spanned more than 20 years, during which time the office led 2,213 inspections and completed 466 enforcement actions to reduce animal waste pollution from concentrated feeding operations between fiscal years 2007 and 2018.²¹

In discontinuing the initiative, OECA officials said they accomplished as much as they could at a national level under this initiative. They cited court rulings that limited the number of facilities that needed to obtain NPDES permits and, therefore, the opportunity for OECA to take enforcement actions. According to the officials, while they were able to achieve success in a few regions where they worked closely with the states, they were unable to develop an effective national strategy. According to a 2018 OECA memorandum, the regional offices, in collaboration with authorized state programs, will continue to conduct inspections of these operations and initiate enforcement actions to address serious violations in this area.²²

OECA also discontinued and returned the national initiative “Keeping Raw Sewage and Contaminated Stormwater Out of Our Nation’s Waters” to the core enforcement program in fiscal year 2019.²³ Since the start of the

²⁰We reported in [GAO-21-82](#) that EPA officials said that initiatives that are returned to the core program no longer get the heightened management attention and resources of the national initiatives, but they are not removed from EPA’s enforcement program.

²¹See Environmental Protection Agency, *Former National Compliance Initiative: Preventing Animal Waste from Contaminating Surface and Ground Water* (Washington, D.C.: Feb. 11, 2020).

²²See EPA 2018 memorandum on “Transition from National Enforcement Initiatives to National Compliance Initiatives.”

²³According to EPA information, combined sewers and sanitary sewers have the potential to overflow and discharge untreated human and industrial waste, toxic materials, debris, and stormwater into the environment.

initiative in 2000, EPA obtained significant improvement in compliance and pollution reductions through enforcement actions at the largest municipal systems with violations, according to a February 2019 *Federal Register* notice. Specifically, the agency reported that 97 percent of large combined sewer systems and 92 percent of large sanitary sewer systems were either in compliance or on an agreed-upon schedule to come into compliance.²⁴

To achieve these results, EPA negotiated agreements with communities to make improvements to their sewer systems. Because of this progress, the initiative no longer presented an opportunity to achieve nationwide improvements to water quality, according to the *Federal Register* notice. OECA officials said communities will need time to complete the improvements and begin realizing a reduction in the untreated sewer overflows. According to officials, OECA will continue to monitor communities' implementation of the agreements and conduct inspections, investigations, and enforcement actions as warranted.²⁵

All Selected States Set Individual Compliance and Enforcement Priorities and Are Taking Some Actions to Support OECA's Significant Noncompliance National Initiative

Selected states we interviewed established their own priorities for NPDES compliance and enforcement activities, according to state officials we interviewed. State officials told us their priorities included working with EPA and focusing on certain facilities, communities, or watersheds with challenging pollution problems. Officials in most of the states selected for interviews indicated that their priorities had not changed since 2015. For example, an official from one state said that while the universe of permitted facilities has changed over time, their overall compliance and enforcement priorities had not really changed. An official from another state said that while its priorities have not changed, it might shift the focus of its programs, depending on EPA priorities, like the significant noncompliance initiative.

However, officials in all selected states we interviewed said that they are taking action in some way to help OECA implement the national initiative to reduce the rate of significant noncompliance by NPDES-permitted facilities. Officials in most of the states we interviewed mentioned increased efforts to correct errors and improve the accuracy of data they

²⁴EPA also reported that 79 percent of Phase 1 municipal separate stormwater systems were in compliance or had agreed to a schedule to come into compliance. 84 Fed. Reg. 2,848 (Feb. 8, 2019).

²⁵Environmental Protection Agency. *EPA Response to Public Comments Received* (Washington, D.C.: June 11, 2019), available at <https://www.epa.gov/enforcement/epa-response-public-comments-received>.

are reporting into ICIS-NPDES, including working directly with facilities to address their reporting issues. For example, one official said that their state has dedicated more staff to focus on the national initiative, review data, and coordinate with its EPA regional office to monitor the list of facilities shown to be in significant noncompliance. As part of this effort, the official said they have developed a work plan to identify actual violations rather than those due to data issues, along with educating facilities on how to properly submit their data. Officials in some of the states we interviewed also mentioned attending at least one of the two OECA-sponsored national symposiums on significant noncompliance. Officials in most of the states we interviewed noted that they have been using the tools that OECA developed as part of the initiative, such as a dashboard that tracks facilities flagged as being in significant noncompliance, to more readily identify facilities they need to contact to address their compliance status.

In addition to taking action to help OECA implement its initiative and reduce the rate of significant noncompliance in their state, officials in two of the eight selected states we interviewed say their states have adopted reducing significant noncompliance as a goal for their own NPDES enforcement programs. These two states updated information in their agreements or work plans with EPA covering fiscal year 2019 and listed specific activities they would take to reduce significant noncompliance. One state set a goal for reducing the percentage of major and nonmajor NPDES-permitted facilities in significant noncompliance to less than 14.7 percent for the July 1, 2018, to June 30, 2019, performance period. Officials in the second state indicated that, as part of their 2019 activities and measures, they would perform ongoing work with EPA to decrease the percentage of facilities in significant noncompliance, including working on data uploads, and participate in regular meetings to discuss their progress.

Of the remaining six states we interviewed, three states mentioned significant noncompliance in their agreements or work plans with EPA covering fiscal year 2019. For example, one state reported the percentage of major facilities in significant noncompliance in these documents for multiple fiscal years. The documents for the remaining three states did not mention significant noncompliance.

EPA's Data Are Unreliable for Identifying Changes in State NPDES Compliance and Enforcement Activities Since 2015, and Data Limitation Disclosures Are Unclear

It is unclear how state NPDES compliance and enforcement activities have changed nationally since 2015 because of problems with the quality of the data that states report into ICIS-NPDES. Specifically, because of accuracy and completeness issues with the data, as well as limited information on data quality across the states, the data are not reliable for the purpose of reporting changes in state NPDES compliance and enforcement activities conducted annually since 2015. As a result, it is unclear whether nationwide changes shown in the summary data that EPA reports for compliance and enforcement activities resulted from changes in reporting or from actual changes in the number of activities conducted. EPA discloses some limitations about the state data on its ECHO website, and the agency is working with the states to resolve their data problems; however, the disclosures on the website are dispersed among different webpages and are incomplete and outdated.

Nationwide Changes in State Activities Cannot Be Identified Because Data Are Incomplete and Inaccurate, and Reliability Varies by State and over Time

Changes in state NPDES compliance and enforcement activities since 2015 cannot be clearly identified because of problems with the reliability of data that states report to EPA.²⁶ EPA also found similar issues with the accuracy and completeness of data in its State Review Framework assessments of state NPDES programs.

EPA's State Water Dashboard—which is publicly accessible through its ECHO website—displays nationwide summary data on Clean Water Act compliance and enforcement activities conducted by EPA and states for fiscal years 2012 through 2021.²⁷ The data on the dashboard are compiled from data reported by EPA and states into ICIS-NPDES.²⁸ OECA officials stated that one of the intended purposes of the dashboard is to promote transparency by providing information to the public about EPA and state compliance, enforcement, and oversight activities. OECA officials also explained that posting the state-reported data on the

²⁶“State-reported data” refers to compliance and enforcement activity data that the 47 authorized state NPDES programs reported; it does not include data for the three states where EPA directly implements the program.

²⁷The dashboard is accessible at <https://echo.epa.gov/trends/comparative-maps-dashboards/state-water-dashboard>.

²⁸Starting in March 2021, data on the dashboard were linked directly to ICIS-NPDES. Before this date, OECA used “live” data for the current fiscal year and “frozen” data for prior fiscal years as the source for data displayed on the dashboard. The data for the prior fiscal years could not be changed or updated after the end of the respective fiscal year. Now, however, data for all fiscal years displayed on the dashboard are linked to ICIS-NPDES and are updated if states make corrections or upload new information.

dashboard is a valuable way to encourage states to view and correct their data as part of the data verification process. To this end, the dashboard displays summary data on NPDES compliance and enforcement activities by state and nationally, including the numbers of

- permitted facilities (NPDES facilities by type and permitting authority),
- facilities inspected and other compliance monitoring activities,
- facilities with violations and those in significant noncompliance, and
- facilities with formal enforcement actions taken and the number of such actions that included penalties.

The summary data are shown in bar charts and available for download for fiscal years 2012 through 2021, as shown in figure 6. The data can be further filtered by various categories, such as major or nonmajor facilities. In some cases, data can be viewed by subcategories, such as nonmajor facilities with individual permits versus nonmajor facilities with general permits. In addition, there is a dashboard view that illustrates states' performance by comparing annual totals with EPA goals, such as the total number of major facilities inspected compared with EPA's annual goal of inspecting 50 percent of these facilities. A user can also filter the information to view only one state or the whole nation.

Figure 6: EPA's State Water Dashboard Display of State- and EPA-Reported Data on Clean Water Act Compliance and Enforcement Activities



Source: Environmental Protection Agency's (EPA) Enforcement and Compliance History Online (ECHO) State Water Dashboard. | GAO-21-290

However, our review of available state comments and reports on data quality, including those posted to EPA's website and collected in our interviews, found many examples of incomplete and inaccurate state-reported data. For example, compliance and enforcement data on nonmajor facilities are incomplete and not comparable over time. This is partly the result of changes in data reporting requirements over the time period that the dashboard covers. Specifically, prior to adoption of the NPDES eRule in 2015, states were only required to report data on their NPDES compliance and enforcement activities conducted at major facilities.²⁹ However, some states voluntarily collected and reported similar data for nonmajor facilities prior to 2015, which OECA posted to the dashboard. Starting in 2016, the states were required to electronically report data on their NPDES compliance and enforcement activities conducted at both major and nonmajor facilities. As a result of such inconsistencies in the data reported over the years that are displayed on the dashboard, reasons for changes over time in the number of compliance and enforcement activities cannot be clearly identified. Observed differences could be the result of changes in reporting, an actual increase or decrease in activities conducted, or a combination of both.

According to the 2015 NPDES eRule, states are responsible for ensuring the completeness and accuracy of their NPDES compliance and enforcement activities that they report to ICIS-NPDES. In our review of the data, interviews with selected states, and review of state comments and disclosures, we identified many instances of incomplete and inaccurate state-reported data displayed through the dashboard. Some examples of incomplete data include the following:

- Several states noted in their comments on data for fiscal year 2019 that they are not reporting complete compliance and enforcement data for NPDES facilities with general permits. These states include Arizona, Ohio, Oklahoma, Texas, West Virginia, and Wisconsin.
- Multiple states reported incomplete or no data to EPA on the number of NPDES facilities with formal enforcement actions in 2019. These states include Ohio, Oklahoma, Texas, Virginia, West Virginia, and Wisconsin.

²⁹80 Fed. Reg. 64,064 (Oct. 22, 2015).

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- For fiscal years 2015 through 2017, New Jersey did not report data into ICIS-NPDES. The dashboard includes activities data for this state beginning in fiscal year 2018 but not before.
 - For fiscal years 2015 through 2016, Missouri did not successfully transfer data on its NPDES program activities into ICIS-NPDES.

Some examples of inaccurate data include the following:

- In fiscal year 2018, Michigan reported that it experienced problems transferring data from the state database to ICIS-NPDES. State officials also reported to EPA that facility compliance status and discharge monitoring report data displayed on the dashboard may not be accurate.
- For fiscal year 2017, California state officials reported low confidence in the accuracy of their data, as it included the first year that EPA required enforcement and compliance activities to be reported for nonmajor facilities. In 2020, they reported that they have a moderate confidence in the accuracy of these data.

OECA officials said that they are working with states to address reporting problems. In particular, the agency has taken several actions, including the following, to help states resolve problems they face in the transition to electronic reporting. For example:

- **Providing webinars.** Since 2016, OECA has provided information to NPDES permittees and states on requirements of the electronic reporting rule and available tools. OECA also makes training materials available to state agency staff on how to report compliance and enforcement activities, such as inspections, in ICIS-NPDES.
- **Encouraging cooperation.** In 2016, OECA formed an ECHO Governance Team in partnership with state agencies to cooperatively track reporting issues, establish mechanisms to resolve problems, and improve ECHO's performance and data usability. Some of the team's accomplishments included enhanced training opportunities and communication practices.
- **Providing grants.** EPA gave grants to a number of states to help them maintain and update their data systems. For example, in fiscal year 2019, Oklahoma received a \$200,000 Exchange Network Grant to help update the state's electronic reporting systems, including installing a new system to allow for more timely reporting of inspections to ICIS-NPDES.

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- **Forming workgroups.** OECA created a number of technical workgroups that included participation from EPA headquarters and regional offices, as well as states. These workgroups met on a biweekly or monthly schedule and produced a number of technical papers clarifying requirements and recommendations to improve the electronic reporting process.

OECA officials noted that these efforts are intended to supplement states' own efforts to assure data quality. According to these officials, some states have reported improvements or changes to their reporting processes over time, which have increased the accuracy and completeness of state data since 2015. However, despite improvements states are making in their reporting, the examples we found demonstrate that the state-reported data over time, as displayed on the dashboard, are incomplete and contain inaccuracies.

As implementation of the 2015 NPDES eRule continues, EPA is reviewing state data and recommending state-specific actions to improve the data. For instance, it has identified incomplete and inaccurate state data as part of its SRF assessments. As of April 2021, EPA had completed SRF assessments of NPDES program performance for 17 of the 47 authorized states during the current 5-year review period. This period began in fiscal year 2018 and will continue through fiscal year 2022. In these assessments, EPA evaluates the states using a variety of metrics and then categorizes the results for each state. This round of assessments includes a metric focused on evaluating the completeness and accuracy of data that states reported on their NPDES inspection and enforcement activities compared with information in selected facility files. For this metric, the agency's goal is that the activity data reported by state into ICIS-NPDES are 100 percent complete and accurate.

In the 17 SRF assessments EPA has completed of state NPDES programs, it found that data accuracy and completeness measured by this metric was an "area in need of improvement" for 12 of 17 states. In reaching this finding, EPA reviewers found there were significant discrepancies with the data that states reported into ICIS-NPDES compared with the information contained in the nongeneralizable sample of inspection and enforcement files they reviewed for each state. The reviewers found the accuracy and completeness of the data that states reported ranged between zero and 66 percent, based on the files they selected for review, which they attributed to a routine or widespread

performance issue related to quality, process, or policy.³⁰ In these cases, EPA issued each state a recommendation for corrective action, with specific actions and a schedule for completion. According to EPA guidance, the agency will monitor the states' implementation of the recommendations until completion. The reviews also found that data accuracy and completeness was an "area of attention" for three states but that the states were able to address the performance issues without additional EPA oversight. EPA found that the remaining two states met expectations for data accuracy and completeness based on the nongeneralizable sample of files reviewed.

EPA and state actions to improve the quality of state-reported data on their NPDES compliance and enforcement activities are ongoing and, as noted earlier, OECA officials told us that some states have reported improvements. However, these actions do not ensure that the data EPA reports on its website can be used for making comparisons of the number of activities conducted over time, and users may not understand whether the data are usable for this purpose. In particular, the SRF sampling process is not designed to collect samples that allow EPA to estimate the overall accuracy and completeness of the state NPDES activities data. If EPA had this information, it could define the valid and invalid uses of the data and prevent users from drawing incorrect inferences from the changes in compliance and enforcement data. Furthermore, the samples are not designed to allow EPA to determine the most unreliable portions of the data or to allow EPA to develop statistical estimates of overall compliance and enforcement activities. Assessing and reporting the overall accuracy and completeness of the compliance and enforcement activities data would allow EPA to assess its efforts to improve these data and give users information to understand whether the data show changes in activities over time and across states.

According to Office of Management and Budget's (OMB) standards and guidelines for federal agencies, agencies must develop a survey design that includes selecting samples using generally accepted statistical methods, which can provide estimates of sampling error.³¹ Using a probability sample with a statistically valid design for file selection could allow for the assessment of data accuracy and the calculation of an error

³⁰These states are Arizona, Delaware, Georgia, Hawaii, Iowa, Maine, Maryland, Nebraska, Oregon, South Carolina, Utah, and Wyoming.

³¹Office of Management and Budget, *Standards and Guidelines for Statistical Surveys* (Washington, D.C.: September 2006).

rate for the total population of facilities, by state, by region, or by permit groups, depending upon the design of the sampling approach.

EPA's SRF guidance for selecting files for reviewing data includes directions that are intended to result in the selection of a representative sample of facilities. Specifically, this guidance establishes ranges for the minimum number of files that should be selected for review, depending on the number of inspections and enforcement activities reported in the system for the respective state. For example, if fewer than 25 activities are reported, then all the files for those facilities are selected for review. If more than 1,000 activities are reported, the guidance provides that a minimum of 35 to 40 facility files should be selected. The guidance also includes directions to select a minimum number of files from each of eight categories of inspection and enforcement activities, such as facility inspections with or without an enforcement action.³²

However, the sample that EPA selects cannot be used to represent the universe of NPDES-permitted facilities in a respective state because it does not have all the properties of a probability sample designed for this purpose.³³ EPA's SRF guidance does not direct it to use statistically valid probability sampling to select the facility files for its data review. The guidance instructs reviewers to compare information contained in a nongeneralizable sample of selected state files with data the state reported into ICIS-NPDES.³⁴ EPA's approach prevents the agency from being able to generalize its conclusions about the accuracy and completeness of the data that states reported to the national database. Without revising its guidance for how to select files for its SRF assessments of state-reported data using statistically valid probability sampling, EPA is unable to estimate the completeness and accuracy of the universe of state-reported data on NPDES inspection and enforcement activities.

³²The guidance provides additional options to supplement the facilities selected if there are not enough for each category, such as selecting files for activities conducted in the previous year.

³³Probability sampling refers to a sample from a population selected by some random method such that each item in the population has a known, nonzero probability of being selected.

³⁴Environmental Protection Agency, *State Review Framework Reviewer's Guide Round 4 (2018-2022)* (Washington, D.C.: July 31, 2018). The guidance provides that a high-quality review will ensure that the selection of files is sufficient in number and, to the degree possible, representative of the full universe and program activity.

EPA's Disclosures of States' Data Limitations Are Unclear Because They Are Dispersed, Incomplete, and Outdated

EPA's disclosures of limitations relating to the accuracy and completeness of state data are unclear because they are posted on multiple webpages across the ECHO website, resulting in a dispersed set of information that is also incomplete and outdated. A user could visit the various webpages and view at least 1 year's worth of information about data limitations or reporting from different states. However, in order to have a clear and comprehensive understanding of data limitations for a particular state—including limitations on historical data that users may need for assessing changes over time—a user needs to visit all the pages where EPA posts disclosures and review the information on each page. Table 1 summarizes the different locations of the disclosures and the focus of the disclosures as of March 2021.

Table 1: Disclosures Related to Quality of State-Reported Data Published on EPA's State Water Dashboard, as of March 2021

Disclosure	Location of disclosure	Number of states with a disclosure listed	Primary focus of disclosures	Date ranges
General disclaimers on help page	Hyperlinked to the State Water Dashboard (main dashboard) page via help icon	16	Data missing	2011-2012 2015-2018
State comments from annual data verification process	Hyperlinked to main dashboard help page	39 (in at least 1 year from 2015 through 2019)	Varies from general data reliability comments to exact number corrections	2008-2019
Known data problems	Hyperlinked to main dashboard help page	19	Varies from general data reliability comments to permit specific disclosures	2009-2020
Major Caveats and Limitations	Readiness and Data Completeness Dashboard	10	Discharge monitoring report errors	2020

Source: GAO analysis of information from Environmental Protection Agency (EPA) websites. | GAO-21-290

EPA's disclosures of information on data limitations are dispersed across four different webpages that are not directly or clearly linked to each other, and none contain complete or up-to-date information. Our review found four different webpages with disclosures and no consolidated list of the disclosures readily available to a user of the data. Instead, a user must navigate to each webpage to learn about problems with the data. Our review of the four different webpages also indicates that the limitations disclosed are not complete and that there are reporting problems that EPA is aware of that may not be listed anywhere on the EPA website, including the State Water Dashboard. For example, officials from California told us about data accuracy problems they have been working on over the years with EPA to resolve. However, they had not

submitted any comments during the data verification process nor are there any disclosures about their data problems on the other webpages.

Furthermore, several of the disclosures on the webpages appear to be outdated. For example, as of March 2021, the list of known data problems on one webpage included disclosures for 19 states, with reporting dates ranging from July 2009 to November 2020. While some states make periodic updates to their disclosures, it is not clear if the problems listed have been resolved or are continuing. EPA officials acknowledged that some of the known data problems were likely outdated and should be removed from the list. However, officials told us that states were responsible for reviewing and informing EPA when the data problems were resolved. (See app. II for further discussion of why EPA's disclosures of data limitations are unclear.)

OMB's "Policies for Federal Agency Public Websites and Digital Services" requires agencies to be transparent about the quality of the information they disseminate and to take reasonable steps where practicable to inform users about the quality of such information. These steps include clearly identifying the inherent limitations in the information so that users are fully aware of its quality and integrity.³⁵ However, users of EPA's data—including government agencies, and others—are likely not fully aware of the limitations in the data because the general disclosures, verifications of state data, known data problems, and major caveats and limitations are not consolidated in one location and are not complete or up to date. According to EPA officials, they have posted the data disclosures as reported by states or regional EPA offices. But without disclosing consolidated, complete, and updated information on all data limitations, EPA cannot ensure that data users have the information necessary to properly understand the data on NPDES compliance and enforcement that it makes available on its State Water Dashboard.

³⁵OMB, M-17-06, "Policies for Federal Agency Public Websites and Digital Services" (Washington, D.C.: Nov. 8, 2016). See also, GAO, *DATA Act: OMB, Treasury, and Agencies Need to Improve Completeness and Accuracy of Spending Data and Disclose Limitations*, [GAO-18-138](#) (Washington, D.C.: Nov. 8, 2017).

EPA Tracks Progress on Reducing Significant Noncompliance, but Results Are Uncertain and Do Not Gauge Water Quality Improvements

OECA has developed measures to track progress toward its goal of reducing the rate of significant noncompliance by individually permitted NPDES facilities by half by the end of fiscal year 2022. However, because the data on permit limits and facility discharges in ICIS-NPDES that the agency uses to detect significant noncompliance are incomplete and inaccurate, it is uncertain whether the measures show actual progress toward OECA's goal. Furthermore, because of data problems, the measures EPA adopted to track progress toward reducing significant noncompliance do not gauge resulting improvements to water quality—the agency's ultimate goal under the Clean Water Act.

OECA Tracks Progress Toward Reducing the Rate of Significant Noncompliance, but Results Rely on Incomplete and Inaccurate Data

OECA has developed an implementation strategy to help it reduce the rate of significant noncompliance by NPDES permittees and has developed five measures to track progress toward this goal, as shown in table 2.³⁶ Two of its measures are quantifiable and track progress toward OECA's goal of reducing the rate of significant noncompliance by individually permitted NPDES facilities by half by the end of fiscal year 2022. However, incomplete and inaccurate data on NPDES permit limits and facility discharge monitoring reports make the results of these measures uncertain. One of the remaining measures tracks progress toward OECA's goal but is not quantifiable. The two remaining measures focus on increasing the completeness and accuracy of the facility data used to calculate the first two measures, but none of the measures track the overall quality of these data.

³⁶Environmental Protection Agency, *Reducing Significant Non-Compliance with National Pollutant Discharge Elimination System Permits, National Compliance Initiative Implementation Strategy* (Washington, D.C.: Sept. 8, 2020). The strategy also includes measures for EPA's goals of assuring that facilities in significant noncompliance with the most serious violations are timely and appropriately resolved and providing compliance and technical assistance as a tool for reducing the rate of significant noncompliance.

Table 2: The Office of Enforcement and Compliance Assurance’s Measures for its Goal of Reducing the Rate of Significant Noncompliance by Individually Permitted National Pollutant Discharge Elimination System Facilities by Half by the End of Fiscal Year 2022

Measure	Description	Planned Results
1-1	Track reductions in the annual rate of significant noncompliance	Reduce baseline rate of 29.4% by half, to 14.7%
1-2	Track reductions in the quarterly rate of significant noncompliance	Reduce baseline rate of 20.3% by half, to 10.1%
1-3	Track reduction in the number of permittees in significant noncompliance for nonreceipt of discharge monitoring reports	Reduce by 25% (to fewer than 3,010 permittees) by end of fiscal year 2020
1-4	Track the number of permittees with sufficient permit data, such as permit limits, in the national database to evaluate their compliance status	Through fiscal year 2020, increase by 250 nationally each quarter, to a total of 1,000 additional permits, the number of permittees that have sufficient permit information in the national database
1-5	Track reductions in the number of facilities in significant noncompliance by EPA regions with direct implementation responsibilities	By January 31, 2020, each region will prepare a plan for reducing significant noncompliance in each area of direct implementation. By the end of October 2020, each region will submit a brief report describing its progress on implementing its plan.

Source: GAO summary of Environmental Protection Agency (EPA) information. | GAO-21-290

Two Measures Track the Reduction in the Rate of Significant Noncompliance

To track progress toward its goal of reducing the rate of significant noncompliance by individually permitted NPDES facilities by half by the end of fiscal year 2022, OECA has developed two quantifiable measures. OECA’s first measure (1-1) tracks the rate of individually permitted NPDES facilities that have been in significant noncompliance at any point during the most recent 1-year cycle.³⁷ According to OECA, this measure provides an effective means of evaluating long-term trends in the rates of significant noncompliance over time. The measure involves monitoring the compliance status of over 40,000 major and nonmajor NPDES facilities with individual permits that are required to submit regular discharge monitoring reports to the states and EPA.

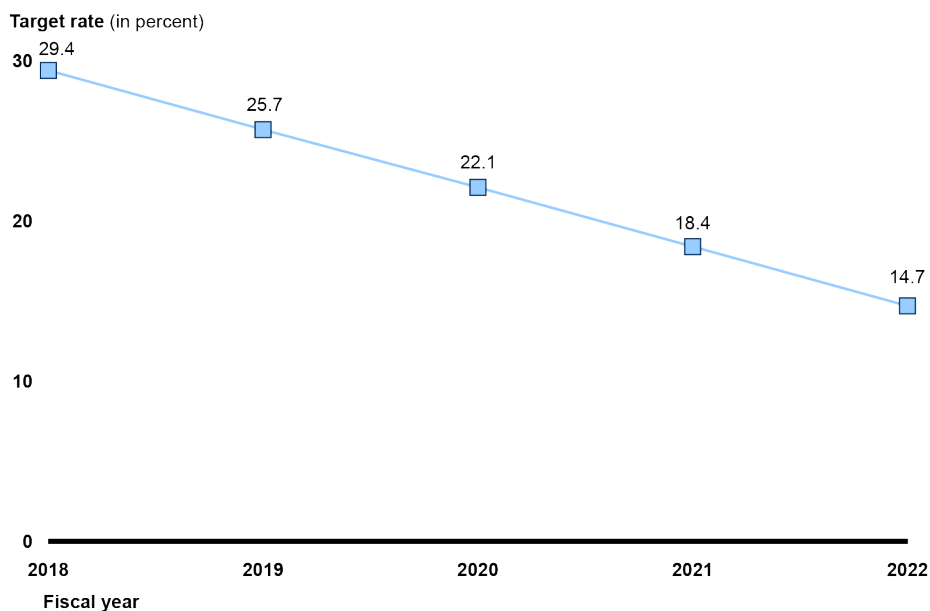
In developing measure 1-1, OECA calculated a baseline level of significant noncompliance of 29.4 percent for fiscal year 2018.³⁸ It then established a series of interim annual targets to gauge progress toward achieving its overall goal of a 14.7 percent rate of significant noncompliance by the end of fiscal year 2022, as shown in figure 7. In its

³⁷EPA refers to this as the “rolling four quarter rate.”

³⁸EPA initially calculated a baseline rate of 24 percent but recalculated the baseline after “identifying and accounting for significant data inaccuracies.”

implementation strategy, OECA noted the number of NPDES-permitted facilities and the rates of significant noncompliance vary significantly across the states. For example, it noted that 26 states had rates of significant noncompliance below 10 percent, while several others were above 30 percent at the start of the initiative.

Figure 7: EPA’s Annual Targets for Reduction in the Yearly Rate of Significant Noncompliance with National Pollutant Discharge Elimination System Permits, Fiscal Years 2018 through 2022



Source: GAO summary of Environmental Protection Agency (EPA) data. | GAO-21-290

The second measure (1-2) tracks the rate of significant noncompliance among individually permitted NPDES facilities on a quarterly basis. OECA and its regional offices use this measure to track rates of significant noncompliance because this measure better reflects changes that occur from quarter to quarter. OECA calculated a baseline quarterly rate of significant noncompliance of 20.3 percent for fiscal year 2018, with the goal of reducing it to 10.1 percent by the end of fiscal year 2022.

Results of OECA’s Measures Are Uncertain Because of Incomplete and Inaccurate Data on Permit Limits and Facility Discharges

The results of the measures in OECA’s implementation strategy to reduce the rate of significant noncompliance by NPDES facilities are uncertain because the underlying data on permit limits and facility discharges are incomplete and inaccurate. Specifically, while EPA has reported making progress toward its targets under measures 1-1 and 1-2, it is uncertain whether the changes in significant noncompliance have resulted from

actual reductions in noncompliance or because of improvement in data reporting. This leads to uncertainty about the extent to which OECA has achieved its interim annual targets and whether the actual rate of significant noncompliance is higher or lower than the reported rate.

In its *Fiscal Year 2019 Annual Performance Report*, EPA reported that it had achieved its interim target goal of reducing the annual rate of significant noncompliance by NPDES permittees to below 25.7 percent by the end of fiscal year 2019.³⁹ OECA has also displayed results on its website for the national initiative, reporting that the quarterly rate of significant noncompliance had been reduced to 16.4 percent at the end of fiscal year 2020.

To determine if facilities are in significant noncompliance, OECA primarily relies on comparing facilities' discharge monitoring data to their NPDES permit limits in ICIS-NPDES using an automated review process. In order for compliance to be tracked in ICIS-NPDES, a facility's NPDES permit limits must be present in the database. If the permit limits are missing from the database, then the system cannot track a facility's compliance with its discharge limits, and they are not included in calculating the rate of significant noncompliance. OECA's national goal is to have at least 95 percent of facilities' discharge monitoring data and permit limits in ICIS-NPDES.

Incomplete and inaccurate data reported into ICIS-NPDES can lead to OECA incorrectly identifying facilities as being in significant noncompliance, or to noncompliance not being detected, which can contribute to uncertainty in interpreting the results of measures 1-1 and 1-2. For example:

- **Incomplete data.** According to OECA's data, as of February 2021, about 71 percent of NPDES permitted facilities with discharge monitoring requirements for discharge reporting were successfully transmitting their discharge data and had their permit limits recorded

³⁹Environmental Protection Agency, *Fiscal Year 2021 Justification of Appropriation Estimates for the Committee on Appropriations, Tab 13: Program and Performance Assessment*, EPA-190-S-20-001 (Washington, D.C.: February 2020).

in ICIS-NPDES.⁴⁰ If data on facility discharges and permit limits are missing from ICIS-NPDES, OECA cannot use the system to monitor compliance for those permits. According to OECA's data, the percentage of facilities with their discharge and permit limit data in ICIS-NPDES varies considerably from state to state. For example, the percentage of permits with discharge monitoring data successfully transmitting in ICIS-NPDES ranges from 5 percent in Wisconsin to 99 percent in Florida. In addition, ICIS-NPDES does not contain permit limits for more than 10 percent of NPDES facilities in four states. For example, permit limits are missing in ICIS-NPDES for 51 percent of NPDES facilities in Minnesota.

- **Inaccurate data.** Data entry errors or data transfer problems can cause a permitted facility to be inaccurately designated as being in significant noncompliance. OECA documentation notes that the failure to submit discharge monitoring reports into ICIS-NPDES is the leading reason for facilities being in significant noncompliance. According to OECA officials, the nonreceipt of discharge monitoring reports can be due to an actual failure of the facility to submit the required information. It also can be due to a state error in transferring the data on the facility's behalf. For example, if a state has received a facility's data but transmits the data into ICIS-NPDES using a code that is not recognized by the system, the system will reject the data, and the facility will be flagged as being in noncompliance for failure to submit the data. However, this would not have been a violation if the state properly transferred the data. In addition, because the facility's discharge data are not in ICIS-NPDES, compliance with its permit limits cannot be tracked for that time period. In either case, OECA cannot be certain about the accuracy of the number of facilities that are shown in ICIS-NPDES as being in significant noncompliance.

OECA officials told us they are taking actions to address data quality problems that affect their ability to reliably measure the outcomes of their efforts under the national initiative. Overall, they said that the agency has prioritized working with states that have the most significant data quality concerns as identified through the SRF reviews or evaluation of data on its various dashboards. Officials also noted that they provide states assistance on an ad hoc basis when they seek it. The officials

⁴⁰For purposes of tracking, EPA sorts NPDES permits into one of four categories: (1) "Discharge Monitoring Report (DMR) Ready:" all facility and permit data and DMR values are in ICIS-NPDES; (2) "Unresolved DMRs:" facility and permit data are in ICIS-NPDES, but one or more DMR values are recorded as missing; (3) "Permit Limits Not in ICIS:" only facility data are in ICIS-NPDES; and (4) "DMR Tracking Off:" the state has turned off DMR compliance tracking for the permit in ICIS-NPDES.

acknowledged that progress in improving data completeness and accuracy issues has varied from state to state. OECA's actions include

- developing a set of tools to help states and regions monitor the compliance status of facilities in their jurisdictions and take more timely action to address instances of significant noncompliance. For example, OECA has developed the NPDES Significant Noncompliance/Category 1 Violations Dashboard that tracks facilities' compliance status on a quarterly basis. The dashboard lists the status of each individually permitted facility, which affords state and regional staff the opportunity to see what facilities have made the list and to identify those that they need to contact that may be incorrectly listed to resolve their compliance status;
- working directly with states that are experiencing difficulties in transitioning NPDES permittees to electronically report their discharge data. For example, EPA has been working with the state of Oregon over the last few years to increase permittees' use of EPA's reporting software. Through these efforts, officials reported making significant progress, raising the percentage of permits with their data in ICIS-NPDES from about 20 percent in 2018 to almost 90 percent in 2020;
- providing technical assistance through its contractor to work directly with states that are experiencing significant problems in the transition to electronic reporting, including the reporting of discharge monitoring reports. For example, EPA's contractor and officials from the state of Washington have been working together to address data flow issues the state has been experiencing since 2017 with transferring facilities' discharge monitoring data from the state database into ICIS-NPDES;
- increasing the reporting of permit and discharge data for facilities in certain industrial sectors whose NPDES permits are managed by a different state agency than the water program. For example, oil and gas extraction facilities in the state of Virginia are managed by a separate department that traditionally has not shared facility data in ICIS-NPDES; and
- commissioning a university study to evaluate the effectiveness of different approaches to predicting noncompliance to help in trying to further reduce the rate of those in significant noncompliance.

In addition, OECA's implementation strategy includes two additional measures—1-3 and 1-4—to help address the extent to which incomplete and inaccurate data contribute to facilities being mistakenly identified as in significant noncompliance when they are not or being unidentified as in significant noncompliance when they are. Measure 1-3 tracks the number

of facilities in significant noncompliance for nonreceipt of discharge monitoring reports. OECA set a target of reducing this number by 25 percent (to fewer than 3,010 facilities) by the end of fiscal year 2020. Reducing the number of facilities that are in significant noncompliance for nonreceipt of discharge monitoring reports, according to OECA officials, would potentially reduce the instances of significant noncompliance that were incorrectly identified due to data transfer problems. OECA officials said they did not meet their target because solving the data transfer problems experienced by several states proved more technically difficult than anticipated. In response, OECA officials indicated that they will be continuing this measure over to fiscal year 2021 and said they believe their goal will be achieved before the end of fiscal year 2021.

Measure 1-4 tracks the completeness of permit information in ICIS-NPDES, such as permit limits, that is needed for the system to determine facilities' compliance with their permits. Specifically, OECA set a target of having sufficient permit information for an additional 1,000 NPDES facilities with individual permits by the end of fiscal year 2020. Increasing the nationwide number of facilities with permit limits and other information in ICIS-NPDES could allow OECA to improve the completeness of the data needed to identify facilities in significant noncompliance.⁴¹ According to OECA officials, they exceeded their target of adding permit information for 1,000 facilities in ICIS-NPDES in fiscal year 2020.

These ongoing actions are intended to address the quality of facility data reported into ICIS-NPDES, which in turn would make the data more accurate and complete to use in measuring progress toward OECA's goal of reducing significant noncompliance. In the meantime, however, OECA has not developed information for use internally or by others, such as academia and the public, on the overall quality—the completeness and accuracy—of discharge monitoring data. The 2015 NPDES eRule states that having more accurate and timely information will help improve environmental decision-making. Similarly, federal standards for internal control state that management should use quality information to achieve

⁴¹As part of this measure, OECA also identified nine states and one territory, one place from each region, with significant data completeness issues to be resolved by the end of fiscal year 2020. The states selected were California, Illinois, Iowa, South Carolina, Texas, Vermont, Washington, West Virginia, and Wyoming, and the territory was the U.S. Virgin Islands. Agency officials explained that they did not complete their work with these states and would continue these efforts in fiscal year 2021.

agency objectives, in which quality information is defined as information that is accurate and complete, among other attributes.⁴²

As described above, to estimate the quality of the permit limit and discharge monitoring data reported into ICIS-NPDES, OECA could review a statistically valid probability sample to estimate the data's completeness and accuracy. Using a probability sample with a statistically valid design for file selection could allow for the assessment of data accuracy and completeness for the total population of facilities, by state, by region, or by permit groups, depending upon the design of the sampling approach. For example, in 2020, we analyzed a generalizable sample of acquisition and cross-servicing agreements that the Department of Defense recorded in its Global Automated Tracking and Reporting System to estimate rates for the accuracy and completeness of the population of orders tracked in the agency's database.⁴³ Because we selected and analyzed a generalizable sample, we were able to estimate population values based on the sample information.

While OECA has a framework for assessing the quality of states' data entered in ICIS-NPDES, it does not have a plan or framework for assessing the quality of facilities' discharge monitoring data. OECA's current SRF process for reviewing the quality of state-reported data does not include a statistical sampling of facilities' discharge monitoring data reported into ICIS-NPDES. The SRF review does include metrics that assess the completeness of permit limit and discharge monitoring data in the system. However, the review only looks at whether the data are in the system; it does not include an assessment of the accuracy of these data. According to OECA officials, they have not developed a plan to estimate the accuracy of discharge monitoring data stored in ICIS-NPDES, focusing instead on working to resolve data transmission issues. Without a plan to select and analyze the accuracy and completeness of a statistically valid probability sample of discharge monitoring data in ICIS-NPDES, OECA does not have information it needs to compare the data and use its measures to assess progress toward increasing facilities' compliance with their NPDES permits.

⁴²GAO, *Standards for Internal Control in the Federal Government*, [GAO-14-704G](#) (Washington, D.C.: September 2014), Principle 13.

⁴³GAO, *Defense Logistics Agreements: DOD Should Improve Oversight and Seek Payment from Foreign Partners for Thousands of Orders It Identifies as Overdue*, [GAO-20-309](#) (Washington, D.C.: Mar. 4, 2020).

EPA's Measures Do Not Gauge Improvements to Water Quality

The measures that OECA uses to gauge the success of its significant noncompliance initiative measure increased rates of compliance, but they do not measure resulting improvements to water quality. In selecting the initiative, OECA said that one of the anticipated outcomes of reducing the rate of significant noncompliance with NPDES permits would be decreasing the amount of illegal discharges of pollutants into waters of the U.S., which would improve water quality.

According to OMB guidance, performance measures are a means of evaluating efficiency, effectiveness, and results.⁴⁴ The guidance also describes different types of these measures, including outcome measures—indicating an agency's progress toward achieving the intended results of its efforts—and output measures—usually expressed quantitatively to describe the level of activities that will be provided over a period of time (for example, the number of meetings held or the number of people trained). Our past work on strategic reporting and performance measures has found that it is helpful to have outcome-based measures.⁴⁵

While measuring the reduction in significant noncompliance by NPDES-permitted facilities is one outcome sought by OECA, it does not have an outcome-based measure that quantifies water quality improvements or tracks the amount of pollutants reduced as a result of the increased compliance with NPDES permits. However, OECA has an existing tool that allows a user to calculate the annual amount and toxicity of pollutants facilities reported discharging in their monitoring reports compared with their permitted levels in ICIS-NPDES. According to OECA officials, this tool produces an estimate of the “load over limit,” or the amount of pollutants a facility discharges that exceeds its permitted levels.

OECA officials explained that they initially used their existing tool to estimate the amount of pollution illegally discharged into waters of the U.S. by facilities in significant noncompliance, an amount that might be used to show the outcome of actions to reduce significant noncompliance. However, after further reviewing the data, OECA officials decided not to use the tool to develop a measure to quantify or track reductions of pollutants; instead, they focused their efforts on improving the underlying data. They identified a small set of facilities that had reported data with

⁴⁴OMB, Circular No. A-11, Part 6: *The Federal Performance Framework for Improving Program and Service Delivery* (Washington, D.C.: July 2020).

⁴⁵GAO, *Environmental Justice: Federal Efforts Need Better Planning, Coordination, and Methods to Assess Progress*, [GAO-19-543](#) (Washington, D.C.: Oct. 16, 2019).

large errors that had significantly skewed the results so that the estimate was not reliable. Officials explained that several factors led to concerns about their ability to calculate a reliable measure of pollutant reductions resulting from an increased compliance with NPDES permits.

However, EPA uses pollutant reduction measures for other programs and has resolved or disclosed issues in calculating such measures in the past. For example, in 2008, we recommended that EPA, when reporting major outcome measures of civil enforcement efforts, clearly disclose that the pounds of pollution reduced represent the anticipated reduction for a 1-year period; EPA took this action in its fiscal year 2011 annual performance report.⁴⁶

Without an outcome-based measure, OECA cannot show improvements to water quality resulting from increased compliance with NPDES permits. An outcome-based measure for the water quality improvements resulting from reducing the number of NPDES-permitted facilities in significant noncompliance could be developed and used if clear disclosures are made about the measure's limitations. For example, using a subset of data could resolve issues complicating the calculation of a water quality measure. OECA's implementation strategy includes identifying a list of 1,600 high-priority facilities that have the most serious violations and working with states to ensure that they take timely and appropriate enforcement actions. As part of this effort, regions and states could report on the results achieved from the actions taken to resolve the significant noncompliance, including estimates of pollutant reductions to be achieved through bringing the facilities into compliance with their NPDES permits. By developing a performance measure to track the reduction in pollutant discharges resulting from enforcement actions for facilities in significant noncompliance and clearly disclosing its limitations, OECA can demonstrate the results for water quality of increased compliance by NPDES-permitted facilities.

Conclusions

Through its activities for NPDES compliance and enforcement, and in partnership with states, EPA seeks to reduce illegal pollutant discharges into the nation's waters, which in turn supports the goal of the Clean Water Act to improve the quality of the nation's waters. Since the transition to electronic reporting of NPDES data began in 2015, EPA and states have made data about their NPDES compliance and enforcement

⁴⁶GAO, *Environmental Enforcement: EPA Needs to Improve the Accuracy and Transparency of Measures Used to Report on Program Effectiveness*, [GAO-08-1111R](#) (Washington, D.C.: Sept. 18, 2008).

activities more accessible to the public through EPA's Enforcement and Compliance History Online website. The availability of complete and accurate data is important for understanding the effectiveness of EPA's compliance actions and allows the agency to make adjustments to improve these efforts.

EPA is aware of data problems and reporting issues resulting from the transition to electronic reporting and has ongoing actions to improve the quality of the data it collects from states and NPDES-permitted facilities. However, the incomplete and inaccurate data currently available through EPA's State Water Dashboard make them unreliable for analyzing state- or national-level changes in NPDES compliance and enforcement activities. EPA's guidance for reviewing the completeness and accuracy of state-reported data on NPDES compliance and enforcement activities directs the agency to use a representative sample to select files for review. However, the samples do not allow EPA to estimate data accuracy or completeness rates, which limits the agency's ability to compare the nationwide summary data or show changes in activities over time. Furthermore, users may not understand whether the data are usable for these purposes. Without revising its guidance for how to select files for its SRF assessments of state-reported data using probability sampling, EPA is unable to estimate the completeness and accuracy of the universe of state-reported data on NPDES compliance and enforcement activities.

EPA's State Water Dashboard provides some disclosures about known problems and limitations in the summary data available on the website. However, the disclosures are unclear; dispersed across multiple webpages; and incomplete and outdated, so data users are likely not fully aware of the data limitations. Without disclosing consolidated, complete, and updated information on all data limitations on the State Water Dashboard, OECA will not be able to ensure that it is providing transparent and accurate information for all potential users of these data.

OECA has developed two quantifiable measures to identify and track progress toward achieving its goal of reducing significant noncompliance by individually permitted NPDES facilities. However, inaccurate and incomplete discharge monitoring data that OECA used to detect significant noncompliance by NPDES-permitted facilities make the results of the measures uncertain. Without a plan for selecting and analyzing a statistically valid probability sample of discharge monitoring data to assess the accuracy of this data, OECA does not have the information it needs to assess the quality of the universe of discharge monitoring data

recorded in ICIS-NPDES that it uses to track progress in reducing facilities' rates of noncompliance.

One of the anticipated outcomes of the significant noncompliance national initiative is to increase the quality of the nation's waters, the goal of the Clean Water Act. While OECA's measures track changes in rates of significant noncompliance by NPDES permittees, OECA does not have a measure to gauge how increasing compliance affects water quality. However, OECA could develop an outcome-based measure, such as by using a subset of NPDES facilities in significant noncompliance, as long as it discloses limitations of the approach. By developing a performance measure to track the reduction in pollutant discharges resulting from enforcement actions for facilities in significant noncompliance and clearly disclosing its limitations, OECA can demonstrate the results that increased compliance by NPDES-permitted facilities has on water quality.

Recommendations for Executive Action

We are making the following four recommendations to the Environmental Protection Agency:

The Assistant Administrator of EPA's Office of Enforcement and Compliance Assurance should revise its guidance to select files for its State Review Framework assessments of state-reported data to incorporate statistically valid probability sampling. (Recommendation 1)

The Assistant Administrator of EPA's Office of Enforcement and Compliance Assurance should ensure that consolidated, complete, and updated information on all data limitations is disclosed on the State Water Dashboard. (Recommendation 2)

The Assistant Administrator of EPA's Office of Enforcement and Compliance Assurance should develop a plan to determine the overall accuracy and completeness of the permit limit and discharge monitoring report data recorded in its national database. (Recommendation 3)

The Assistant Administrator of EPA's Office of Enforcement and Compliance Assurance should develop a performance measure to track the reduction in pollutant discharges resulting from enforcement actions for facilities in significant noncompliance and disclose any limitations. (Recommendation 4)

Agency Comments and Our Evaluation

We provided a draft of this report to EPA for review and comment. In its comments reproduced in appendix III, EPA generally agreed with our findings, conclusions, and recommendations. In these comments, EPA also suggested revising one of our recommendations in a way that broadens the scope of the recommendation and allows EPA more latitude in carrying out the recommendation's intent. EPA also provided technical comments, which we incorporated, as appropriate.

For our third recommendation, EPA suggested that we modify it to focus on developing a plan to determine the overall accuracy and completeness of the permit limit and discharge monitoring report data in its NPDES data system. We had recommended that EPA select and analyze a statistically valid probability sample of discharge monitoring data to assess the accuracy of the data. We note that the suggested modification broadens the recommendation to address both the accuracy and completeness problems that we identified with the data, and it tasks EPA with developing a plan to address these problems. As we stated in the report, OMB requires federal agencies to develop a survey design that includes selecting samples using generally accepted statistical methods, which can provide estimates of sampling error. We believe that EPA can incorporate a statistically valid probability sample within the plan it proposes and expect that it will. For these reasons, we modified the recommendation.

In its comments, EPA also stated that there was limited evidence cited in the report or otherwise available to EPA suggesting that the discharge monitoring data in the national database fail to accurately represent the actual discharges that have occurred. We did not independently assess the reliability of the permit limit and discharge monitoring data as part of this review, but we reviewed information about the data's accuracy and completeness and found enough issues to be concerned about the data's overall reliability. As noted in the report, we discussed the accuracy of the data with OECA officials, who told us about significant errors in some of the data, which they discovered as part of their efforts to develop a measure for the significant noncompliance national initiative. We also found that the SRF assessments did not include reviewing the accuracy of the permit limit and facility discharge data. While OECA officials expressed confidence in the accuracy of these data, the agency does not have any information or statistical evidence to support its conclusions about the quality of the data. While we agree that having complete data is an important first step, the agency also needs to take steps to ensure that the data being reported are accurate.

We are sending copies of this report to the appropriate congressional committees and the Administrator of the Environmental Protection Agency. In addition, the report will be available at no charge on the GAO website at <http://www.gao.gov>.

If you or your staff have any questions about this report, please contact me at (202) 512-3841 or gomezj@gao.gov. Contact points for our Offices of Congressional Relations and Public Affairs may be found on the last page of this report. GAO staff members who made key contributions to this report are listed in appendix IV.

A handwritten signature in black ink that reads "Alfredo Gómez". The signature is written in a cursive style with a large, stylized 'G'.

J. Alfredo Gómez
Director, Natural Resources and Environment

Appendix I: Objectives, Scope, and Methodology

You asked us to review the Environmental Protection Agency's (EPA) Clean Water Act compliance and enforcement activities. This report (1) describes changes in EPA's national priorities for ensuring compliance with the Clean Water Act since 2015, and actions that selected states have taken in response; (2) examines how state National Pollutant Discharge Elimination System (NPDES) compliance and enforcement activities conducted have changed since 2015; and (3) evaluates the extent to which EPA is measuring and tracking progress toward increasing compliance with the NPDES program.

To address all three objectives, we interviewed EPA and Office of Enforcement and Compliance Assurance (OECA) headquarters officials about their compliance and enforcement priorities, activities, and data. We collected and reviewed relevant EPA and OECA guidance, memorandums, and other agency documents to verify their compliance and enforcement priorities and activities. We reviewed prior GAO and EPA Office of Inspector General reports and coordinated with the office on their related work on changes in EPA's enforcement activities and on OECA's transition from enforcement to compliance issued in March 2020.¹

We conducted semistructured interviews with a nonprobability sample of eight states and collected documentation about their NPDES programs' compliance and enforcement priorities and activities. We selected states to interview by first dividing the NPDES-authorized states into their EPA regions and then evaluating the states on four criteria: (1) the total number of facilities with state-issued NPDES permits in fiscal year 2019, (2) the percent of state-permitted facilities inspected in fiscal year 2019, (3) the average number of formal enforcement actions taken by the state from fiscal year 2015 to 2019, and (4) the percentage of major NPDES permitted facilities in significant noncompliance in fiscal year 2019. Although we identified problems with the accuracy and completeness of the data for detecting changes in compliance and enforcement activities over time, we determined that they were reliable for the purpose of

¹See GAO, *Environmental Protection: Action Needed to Ensure EPA's Enforcement and Compliance Activities Support Its Strategic Goals*, [GAO-21-82](#) (Washington, D.C.: Dec. 9, 2020); *Environmental Protection: Additional Action Needed to Improve EPA Data on Informal Enforcement and Compliance Assistance Activities*, [GAO-20-95](#) (Washington, D.C.: Jan. 31, 2020); and Environmental Protection Agency, Office of Inspector General, *EPA's Compliance Monitoring Activities, Enforcement Actions, and Enforcement Results Generally Declined from Fiscal Years 2006 Through 2018*, 20-P-0131 (Washington, D.C.: Mar. 31, 2020).

selecting a nongeneralizable sample of states for interviews. We ranked each state within a region relative to the other states in that region across the four criteria, giving each state four individual rankings. We then took the average ranking of each state across the four criteria and selected the state in each region with the highest average rank.² We initially selected 10 states and conducted interviews with eight. The eight states we selected and conducted interviews with were California, Iowa, Kentucky, Oklahoma, Pennsylvania, Rhode Island, Wyoming, and Washington. Two states, Ohio and New York, were not able to meet with us. Ohio officials declined to conduct an interview with us, citing limited availability of staff to participate due to other higher agency priorities. We attempted to schedule an interview with New York beginning in May 2020 and continued our efforts in multiple phone calls and email correspondence with state officials through August 10, 2020. After this point, we discontinued our efforts and proceeded without their participation.

To conduct the semistructured interviews, we developed a standard set of questions about the selected state agencies' NPDES compliance and enforcement approach and strategic priorities, the NPDES electronic reporting rule, compliance and enforcement activities, data quality, and efforts to support EPA's national initiative to reduce significant noncompliance. We then identified compliance and enforcement officials or water officials in our selected states through state websites and contacted them to request an interview. In advance of each interview, we sent fact sheets to the relevant state officials; we created the fact sheets using available information online from state documents and Enforcement and Compliance History Online (ECHO) data on inspections, violations, and electronic reporting. We also interviewed representatives from the Association of Clean Water Administrators, Environmental Integrity Project, and Environmental Council of States to obtain their views on EPA and states' Clean Water Act compliance and enforcement activities. We selected these organizations because they have key responsibilities related to working with states on EPA priorities.

To determine changes in EPA's national initiatives for ensuring compliance with the Clean Water Act since 2015, and the actions selected states have taken in response, we reviewed EPA's strategic plans, OECA documentation on the development and selection of the national compliance initiatives for fiscal years 2020 through 2023 and

²The final sample included 12 states, because two regions produced ties using the ranking system. Additionally, we decided to exclude two states from our selection process due to irregularities with some of their data.

previous initiatives, *Federal Register* notices, EPA websites related to former initiatives, OECA national program guidance, and OECA annual compliance and enforcement results. We interviewed EPA and OECA officials about the process and information they relied on to develop the national compliance and enforcement initiatives, including how they remove priorities from their list, and their strategies for implementing them. We also collected and analyzed state documents from selected states available online or through document requests to the state agencies and EPA to assess the extent to which they support EPA's national initiatives. These documents included performance partnership agreements, performance partnership grants, grant work plans and progress reports, strategic plans, annual reports, and other documentation of states' NPDES compliance and enforcement activities.³

To determine how state NPDES compliance and enforcement activities conducted have changed since 2015, we collected and reviewed publicly available data from the State Water Dashboard on EPA's ECHO website for fiscal years 2015 through 2020. To determine the data's reliability, we collected information on the known data issues and limitations from different EPA webpages, summarized the information available on the accuracy and completeness of these data by state, and reviewed this information. Specifically, we reviewed and documented the process that states follow to report data to EPA using EPA documents and interviews with agency officials responsible for maintaining the data. We also reviewed reports for each of the 17 states that EPA selected for its program performance assessments conducted through EPA's State Review Framework (SRF) for fiscal years 2018 through 2022. We reviewed and compared the Office of Management and Budget's (OMB) standards and guidelines for statistical sampling methods and EPA's sampling guidance on SRF file reviews.⁴

In addition, we collected and analyzed comments available on EPA's website that states submitted during the annual data verification process for fiscal years 2015 through 2019. We also reviewed known data issues,

³To characterize the views of state agency officials throughout this report, we defined the modifiers "most" to represent five to eight officials, and "some" to represent two to four officials.

⁴Office of Management and Budget, *Standards and Guidelines for Statistical Surveys* (Washington, D.C.: September 2006); and Environmental Protection Agency, *State Review Framework Reviewer's Guide Round 4 (2018-2022)* (Washington, D.C.: July 31, 2018).

general disclosures about the data linked to EPA's ECHO State Water Dashboard website, and caveats about discharge monitoring report data that states submitted voluntarily and that are posted online. We compared the data issues and limitations identified in these sources, as well as data errors that we learned about from interviews with the eight selected states. We also compared reported disclosures to OMB's standards for federal agency websites on transparency and information dissemination.⁵ According to our review of the data, available information, and interviews with OECA and state agency officials, we determined the data available from the ECHO dashboard are unreliable for determining the changes in state compliance and enforcement activities since 2015.

To determine the extent to which EPA is measuring and tracking progress toward increasing compliance with the NPDES program, we collected and analyzed EPA and OECA strategic planning documents, policy memorandums, guidance, performance reports, and plans for implementing its national compliance initiative. We interviewed OECA officials and reviewed guidance documents to learn about the tools being developed and other efforts taken to work with states to improve the quality of the data being used to monitor and track permitted facilities' compliance with their NPDES permit limits. We reviewed OMB's guidance on performance measures and compared it with EPA's performance measures.⁶ We also collected EPA information on the reduction in significant noncompliance each year and reported on EPA's total percentage of facilities in significant noncompliance and targets during the years of the national initiative. We determined that the information and communication component of internal controls—along with the underlying related principles that management should internally and externally communicate necessary quality information to achieve its objectives—was significant to this objective.⁷ We assessed the content of EPA's policies, procedures, and guidance against these principles.

We conducted this performance audit from December 2019 to June 2021, in accordance with generally accepted government auditing standards.

⁵OMB, "Policies for Federal Agency Public Websites and Digital Services," M-17-06 (Washington, D.C.: 2006). See also, GAO, *DATA Act: OMB, Treasury, and Agencies Need to Improve Completeness and Accuracy of Spending Data and Disclose Limitations*, [GAO-18-138](#) (Washington, D.C.: Nov. 8, 2017).

⁶OMB, Circular No. A-11, Part 6: *The Federal Performance Framework for Improving Program and Service Delivery* (Washington, D.C.: July 2020).

⁷GAO, *Standards for Internal Control in the Federal Government*, [GAO-14-704G](#) (Washington, D.C.: Sept. 10, 2014).

**Appendix I: Objectives, Scope, and
Methodology**

Those standards require that we plan and perform the audit to obtain sufficient, appropriate evidence to provide a reasonable basis for our findings and conclusions based on our audit objectives. We believe that the evidence obtained provides a reasonable basis for our findings and conclusions based on our audit objectives.

Appendix II: Disclosures of Limitations Relating to Quality of Data Reported by States and Displayed on the Environmental Protection Agency’s State Water Dashboard

This appendix provides additional information about our review of EPA’s disclosures relating to the accuracy and completeness of state-reported data displayed on the Enforcement and Compliance History Online (ECHO) State Water Dashboard. To provide this overview, we reviewed four sets of disclosures about data limitations that EPA posts across multiple webpages on its ECHO website.

EPA does not include any disclosures or other information about potential data limitations on the main page of the State Water Dashboard. To find this information, users must click on a “help” icon, which takes them to the dashboard’s help page. On the dashboard’s help page, EPA has posted a general disclaimer explaining that the data on the dashboard are based on data reported to EPA and “may not reflect all compliance monitoring, inspections, enforcement, or the full extent of noncompliance” within a given state. It also directs users to consult state websites for more information. The page does not contain complete state limitation information or link to all the state limitation information. It includes a specific disclosure for New Jersey, which notes that the state did not begin electronically reporting National Pollutant Discharge Elimination System (NPDES) compliance and enforcement information until March 2018, and a list of 15 other states for which data may be incomplete for 2011 and 2012.

EPA also posts a second set of disclosures that states submit as part of the annual data verification process, but these are incomplete and outdated. These disclosures are hyperlinked to the dashboard’s help page that goes to a separate webpage, titled “state comments on frozen data.” In our review of these disclosures, 39 states submitted at least one comment on their NPDES compliance and enforcement data since fiscal year 2015. On average, 25 states submitted comments annually from 2015 through 2019. These comments ranged from general notes on problems encountered in reporting the data to detailed submissions that include data corrections for specific permits. Some state comments are simple statements that confirm the accuracy of all or parts of their data. However, information on the potential data limitations or verification of data accuracy is not available for all states in any given year. According to EPA officials, state participation in the data verification process varies because participation is voluntary, and states are ultimately responsible for ensuring the completeness and accuracy of the data they report to the Integrated Compliance Information System-NPDES (ICIS-NPDES).

EPA collects and posts a third set of disclosures—referred to as “known data problems”—that are also submitted by states, but these disclosures

**Appendix II: Disclosures of Limitations
Relating to Quality of Data Reported by States
and Displayed on the Environmental
Protection Agency's State Water Dashboard**

are incomplete and outdated. The list of these known data problems is accessed by a hyperlink from the dashboard's help page and, as of March 2021, included disclosures for 19 states, with different reporting dates ranging from July 2009 to November 2020. Three of these disclosures were reported before the NPDES electronic reporting rule requiring electronic reporting took effect in 2016. EPA officials acknowledged that some of the known data problems were likely outdated and should be removed from the list. However, officials told us that states were responsible for reviewing and informing EPA when problems were resolved. The types of known data problems that states reported range from general to specific. For example, Arizona commented that data migration issues between Arizona's state database and ICIS-NPDES may have resulted in data quality errors in 2015, but the state has not submitted an update to indicate whether the problem has been resolved. In another example, Virginia commented that there are three different pH parameters, and permits have different exceptions related to these measures, which can affect compliance determinations.

Finally, EPA reports a fourth set of disclosures—referred to as “Major Caveats and Limitations”—that are accessed through a hyperlink on its NPDES Electronic Reporting Rule (eRule) Readiness and Data Completeness Dashboard, which is separate from the State Water Dashboard. The disclosures on the readiness and completeness dashboard focus on problems that states are experiencing in entering NPDES permit limits and transmitting facilities' discharge monitoring data into ICIS-NPDES. The page includes disclosures from 10 states, from fiscal years 2020 and 2021, but some of the state disclosures listed on this page are not mentioned on any of the other locations, such as the list of known data problems. In addition, while this dashboard includes links to the other disclosure pages, users cannot navigate to this Major Caveats and Limitations page directly from the other pages.

Appendix III: Comments from the Environmental Protection Agency



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
WASHINGTON, D.C. 20460

OFFICE OF
ENFORCEMENT AND
COMPLIANCE ASSURANCE

June 9, 2021

Mr. Alfredo Gomez
Acting Director
Natural Resources and Environment
U.S. Government Accountability Office
Washington, D.C. 20548

Mr. Gomez:

On behalf of the U.S. Environmental Protection Agency, thank you for the opportunity to respond to the issues and recommendations in the draft report on *Clean Water Act - EPA Needs to Better Assess and Disclose Quality of Enforcement and Compliance Data #GAO-21-290* (report). We also appreciate the prior engagement we have had with your staff, including the recent discussion on May 11, 2021. It was helpful to have an in-depth discussion of the proposed recommendations in the draft report.

The purpose of this letter is to provide EPA's response to your recommendations. The following is a general response to the report, along with responses to each of the report recommendations. We have provided high-level actions and estimated completion dates for the report recommendations. We have included technical comments for your consideration in the attachment.

EPA generally agrees with GAO's findings concerning the importance of accurate reporting of discharges covered by the Clean Water Act (CWA). Indeed, the need for accurate discharge data was a primary driver for promulgating the National Pollutant Discharge Elimination System (NPDES) e-reporting rule. In 2015, with the final promulgation of the NPDES e-reporting rule, the universe of required state data to be shared with EPA significantly increased from about 6,700 NPDES major permitted facilities to more than 60,000, including minor permitted facilities with discharge monitoring reports. As noted in the report, currently EPA receives about 70% of the required data. This is a significant accomplishment and a major step forward in EPA's ability to manage the pollutant discharges to the waters of the U.S., especially when considering:

1. Forty-seven states and one territory are authorized to implement the NPDES program;
2. Over 50% of the states have their own electronic data systems that must communicate with EPA's federal systems; and
3. Many states have suffered significant budget reductions leading to a reshuffling of organizational structure and priorities.

In addition, EPA included the reduction of significant noncompliance (SNC) with CWA NPDES permits as one of its six national compliance initiatives (NCIs). One of the important aspects of this NCI is improving the completeness and accuracy of the discharge monitoring report (DMR) data. EPA has

**Appendix III: Comments from the
Environmental Protection Agency**

provided, and will continue to provide, a variety of support efforts including one-on-one technical assistance, state-to-state mentoring opportunities, data visualization tools that help identify where data is incomplete, and training sessions that show states how to identify data quality issues. We continue to focus on this priority, innovating new means to support the states and their regulated facilities.

We agree with the GAO that the accuracy of the DMR data could be improved and our analysis of the data could be better explained with appropriate data limitations; therefore, we generally accept all of the recommendations in the report. While we respectfully disagree with the GAO's overall conclusion that the data are insufficient to gauge progress in CWA compliance, we are working to improve data completeness and quality in the system, as well as to address CWA effluent violations that the data show are occurring.

GAO Recommendation – for Recommendations 1 and 3, suggested alternative language is in redline
strikeout.

1. The Assistant Administrator of EPA's Office of Enforcement and Compliance Assurance should revise its guidance to select files for its State Review Framework assessments of state-reported data ~~that incorporates using~~ statistically valid probability sampling.

EPA Generally Agrees. The Agency will address this recommendation as part of its Round 5 re-design of the State Review Framework (SRF), including providing additional direction consistent with the principles of probability sampling. This re-design relies on the engagement of the many stakeholders involved in the SRF (i.e., EPA Headquarters, Regions, and states). Decisions related to the file sampling methodology will be completed within the next 18 months.

2. The Assistant Administrator of EPA's Office of Enforcement and Compliance Assurance should ensure that consolidated, complete, and updated information on all data limitations is disclosed on the State Water Dashboard.

EPA Generally Agrees. EPA provides several different webpages containing relevant information on data limitations related to its ECHO EPA/State Water Dashboard, and certain information needs updating. EPA will consolidate the webpages reporting data limitations related to the NPDES program and review the data limitation entries in consultation with the relevant states. EPA plans to complete this consolidation by September 30, 2022.

3. The Assistant Administrator of EPA's Office of Enforcement and Compliance Assurance should ~~select and analyze a statistically valid probability sample of discharge monitoring data recorded in its national database~~ **develop a plan to assess** ~~determine the overall accuracy and completeness of the permit limit and discharge monitoring report data recorded in its ICIS-NPDES national database.~~

EPA Generally Agrees. EPA agrees that there is long-term value in determining the accuracy of discharge monitoring data received by the ICIS-NPDES data system. EPA will consider conducting probability sampling once the DMR data are more complete. We note, however, that there is limited evidence cited in the report or otherwise available to EPA suggesting that the DMR data in the system fails to accurately represent the actual discharges that have occurred. A focus on assessing the accuracy of DMR data received will not improve the completeness of the DMR data in the system, which our NPDES Readiness and Data Completeness Dashboard

**Appendix III: Comments from the
Environmental Protection Agency**

(referenced on page 29 of the report) identifies as the critical impediment to more effective use of the data.

Therefore, to implement this recommendation, EPA proposes to develop a plan to determine the overall accuracy and completeness of the permit limit and DMR data in the ICIS-NPDES system. In Part 1 of the plan, EPA will continue to work with states to identify and correct problems that prevent proper transfer of DMR data to ICIS-NPDES and work to maximize the amount of DMR data and all necessary permit limit data that are in the system. EPA will also seek to bring all states into compliance with the requirement of the NPDES e-reporting rule to report all DMR data to EPA electronically. Once EPA has addressed the data completeness problems, we would then move to Part 2 of the plan, where we would develop a methodology for examining the accuracy of the DMR and permit limit data received by the ICIS-NPDES system from authorized states. Such a methodology would necessarily involve selecting a sample of available DMRs and permits and comparing them to the data in the state system. This would ensure that the data transfer process is working as expected. EPA anticipates that completion of all the steps outlined in the plan would take a number of years.¹

4. The Assistant Administrator of EPA's Office of Enforcement and Compliance Assurance should develop a performance measure to track the reduction in pollutant discharges resulting from enforcement actions for facilities in significant noncompliance and disclose any limitations.

EPA Generally Agrees. EPA has a performance measure for tracking the reduction in pollutant discharges resulting from enforcement actions (*Estimated Water Pollutants Reduced, Treated or Eliminated for the CWA NPDES Program*). We report on this annually in our [Enforcement and Compliance Annual Results](#), which also includes a page identifying data limitations. Additionally, we plan to develop a methodology and outcome measure for tracking the extent to which the SNC NCI is achieving reductions in illegal pollutant discharges. We plan to measure the change over time in the amount of pollutants discharged by NPDES permittees over their permitted limits. (Our expectation is that this value should decline as NPDES permit compliance improves because of the NCI.) Any data limitations for this measure will be disclosed. EPA anticipates the implementation of this new measure by December 31, 2021.

As stated above, EPA generally agrees with the report. Thank you for the opportunity to review and comment on the draft report and particularly to the audit team's flexibility to meet with us to discuss the recommendations and consider the alternatives we have proposed. If the GAO has any additional questions or needs further information, please contact Loan Nguyen at (202) 564-4041.

Sincerely,

LAWRENCE
STARFIELD

Lawrence E. Starfield
Acting Assistant Administrator

Digitally signed by LAWRENCE
STARFIELD
Date: 2021.06.09 12:40:19 -0400'

¹ During both Part 1 and Part 2, EPA would also continue to implement its DMR-QA program to evaluate the accuracy of laboratory analyses of discharge samples to help verify the accuracy of the DMR data reported to ICIS-NPDES. The purpose of this program is to provide an additional level of confidence in the quality of the DMR data.

**Appendix III: Comments from the
Environmental Protection Agency**

Attachment

cc: Kathleen Johnson, OECA
John Dombrowski, OECA/OC
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Appendix IV: GAO Contact and Staff Acknowledgments

GAO Contact

J. Alfredo Gómez, Director (202) 512-3841 or gomezj@gao.gov

Staff Acknowledgments

In addition to the contact above, the following staff made significant contributions to this engagement: Susan Iott (Assistant Director), Mike Meleady (Analyst-in-Charge), Natalie Block, Mark Braza, Antoinette Capaccio, Kathleen Drennan, Gwen Kirby, Zoe Need, Evan Nemoff, Corinna Nicolaou, Cynthia Norris, Sara Sullivan, and Sonya Vartivarian.

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