U.S. ENVIRONMENTAL PROTECTION AGENCY

OFFICE OF INSPECTOR GENERAL

Ensuring clean and safe water

Region 2's Hurricanes Irma and Maria Response Efforts in Puerto Rico and U.S. Virgin Islands Show the Need for Improved Planning, Communications, and Assistance for Small Drinking Water Systems

Report No. 21-P-0032 **December 3, 2020**

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Abbreviations

EPA	U.S. Environmental Protection Agency
FEMA	Federal Emergency Management Agency
OIG	Office of Inspector General
PRASA	Puerto Rico Aqueduct and Sewer Authority
USVI	U.S. Virgin Islands

Cover Photos: *Left to right:* Hurricane Maria, a rural water system in Puerto Rico, and clean drinking water. (Photos from the National Oceanic and Atmospheric Administration, EPA OIG, and Centers for Disease Control and Prevention)

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U.S. Environmental Protection Agency
Office of Inspector General

21-P-0032
December 3, 2020

At a Glance

Why We Did This Audit

We conducted this audit to determine how the U.S. Environmental Protection Agency's preparedness and response efforts for the three major hurricanes of 2017—specifically, hurricanes Harvey, Irma, and Maria—protected human health and water resources from storm-related drinking water and surface water contamination. This report addresses the response to drinking water and wastewater systems impacted by hurricanes Irma and Maria in Puerto Rico and the U.S. Virgin Islands.

The OIG issued two previous reports assessing EPA Region 6's preparedness and response efforts pertaining to water issues associated with Hurricane Harvey in Texas, and EPA Region 4's preparedness and response efforts pertaining to water issues associated with Hurricane Irma in Florida.

This audit addresses the following:

- *Ensuring clean and safe water.*
- *Partnering with states and other stakeholders.*
- *Operating efficiently and effectively.*

This audit addresses two top EPA management challenges:

- *Overseeing states and territories implementing EPA programs.*
- *Communicating risks.*

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List of OIG reports.

Region 2's Hurricanes Irma and Maria Response Efforts in Puerto Rico and U.S. Virgin Islands Show the Need for Improved Planning, Communications, and Assistance for Small Drinking Water Systems

What We Found

Before hurricanes Irma and Maria made landfall, Region 2 established an incident command structure and staffing plan to direct and manage its emergency response efforts. The region also contacted agencies in Puerto Rico and the USVI to determine the ability of the islands' drinking water and wastewater systems to weather the storms.

Enhancements to water system capacity and emergency preparation for island response could better protect the health of communities impacted by hurricanes and other disasters.

Hurricane Irma approached Puerto Rico and the USVI on September 5, 2017, as a Category 5 storm. Beginning on September 20, 2017, Hurricane Maria struck the USVI as a Category 5 storm and Puerto Rico as a Category 4 storm. After the hurricanes, regional emergency response staff performed operational assessments of drinking water and wastewater systems; conducted water sampling and analyses; and helped small, rural drinking water systems obtain generators. Despite these regional efforts and the federal government's largest-ever hurricane response, some small, rural drinking water systems in Puerto Rico and the USVI still had not returned to normal operations more than nine months after the storms made landfall. The damage caused by the hurricanes and the pre-storm conditions of those systems complicated the response.

The EPA's internal review processes delayed distribution of public health announcements, such as instructions on how to treat drinking water to reduce risk of illness. In addition, Region 2 did not fully engage its local staff in Puerto Rico and the USVI during hurricane preparations. By adjusting its review-and-approval process for public outreach information; strengthening the capacities of small, rural drinking water systems; and involving local EPA staff in the planning stages, Region 2 can improve the effectiveness of its emergency response efforts.

Recommendations and Planned Agency Corrective Actions

We made three recommendations to Region 2: first, develop and train staff on a procedure to locally disseminate public health information after emergencies; second, develop a supplemental emergency response plan that includes roles for local staff and addresses specific geographic, logistical, and cultural challenges; third, help improve the capacity and resilience of small, rural drinking water systems.

The region agreed with the recommendations and provided estimated milestone dates for its planned corrective actions. All recommendations are resolved.

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

THE INSPECTOR GENERAL

December 3, 2020

MEMORANDUM

SUBJECT: Region 2's Hurricanes Irma and Maria Response Efforts in Puerto Rico and U.S. Virgin Islands Show the Need for Improved Planning, Communications, and Assistance for Small Drinking Water Systems
Report No. 21-P-0032

FROM: Sean W. O'Donnell

TO: Peter Lopez, Regional Administrator
Region 2

This is our report on the subject audit conducted by the Office of Inspector General of the U.S. Environmental Protection Agency. The project number for this audit is OPE-FY18-0005. This report contains findings that describe the problems the OIG has identified and corrective actions the OIG recommends. Final determinations on matters in this report will be made by EPA managers in accordance with established audit resolution procedures.

The Region 2 regional administrator is responsible for the findings outlined in this report.

In accordance with EPA Manual 2750, your office provided acceptable planned corrective actions and estimated milestone dates in response to OIG recommendations. All recommendations are resolved, and no final response to this report is required. However, if you submit a response, it will be posted on the OIG's website, along with our memorandum commenting on your response. Your response should be provided as an Adobe PDF file that complies with the accessibility requirements of Section 508 of the Rehabilitation Act of 1973, as amended. The final response should not contain data that you do not want to be released to the public. If your response contains such data, you should identify the data for redaction or removal along with corresponding justification.

We will post this report to our website at www.epa.gov/oig.

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Introduction

Purpose

The U.S. Environmental Protection Agency's Office of Inspector General conducted an audit to determine how the EPA's preparedness and response efforts for the three major hurricanes of 2017—specifically, hurricanes Harvey, Irma, and Maria—protected human health and water resources from storm-related drinking water and surface water contamination.

Top Management Challenges

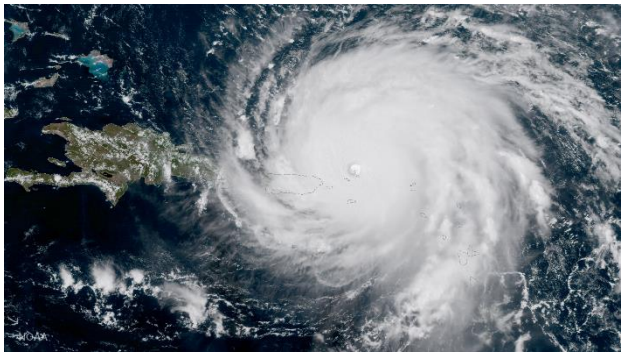
This audit addresses the following top management challenges for the Agency, as identified in OIG Report No. 20-N-0231, *EPA's FYs 2020–2021 Top Management Challenges*, issued July 21, 2020:

- Overseeing states and territories implementing EPA programs.
- Communicating risks.

This report contains our findings and recommendations related to EPA Region 2's response efforts in Puerto Rico and the U.S. Virgin Islands after hurricanes Irma and Maria. On July 16, 2019, the OIG issued Report No. 19-P-0236 assessing EPA Region 6's preparedness and response efforts pertaining to water issues associated with Hurricane Harvey in Texas. On October 7, 2019, the OIG issued Report No. 20-P-0001 assessing EPA Region 4's preparedness and response efforts pertaining to water issues associated with Hurricane Irma in Florida.

Background

Hurricane Irma began to impact Puerto Rico and the USVI on September 5, 2017, as the storm approached and passed over the islands. It was rated as high as a Category 5 storm with wind speeds up to 185 miles per hour. On September 20, 2017, Hurricane Maria struck the USVI as a Category 5 storm with wind speeds of up to 175 mph. Later that day, Hurricane Maria struck Puerto Rico as a Category 4 storm with wind speeds up to 155 mph.



Hurricane Irma over Puerto Rico and the USVI. (National Oceanic and Atmospheric Administration photo)

The resulting hurricane damage led the Federal Emergency Management Agency to initiate an emergency response that became the longest sustained air mission of food and water delivery in its history. Many lives were lost in the wake of these hurricanes. According to various news outlets, the government of Puerto Rico initially reported the official death toll as 64, but researchers at the George Washington University's Milken Institute School of Public Health estimated that 2,975 people in Puerto Rico died after Hurricane Maria. The official USVI toll of those who died as a direct result of the hurricanes

was five, but the American Journal of Public Health reported that 49 others died after being medically evacuated from the USVI. In addition, the storms severely damaged drinking water and wastewater infrastructure. The U.S. Government Accountability Office reported the overall repair costs to be $132 billion for Puerto Rico and total damages of $10.7 billion for the USVI.

Drinking Water and Wastewater Systems

Water systems are considered one of the nation's critical infrastructures. They provide water for drinking and other household and commercial uses, as well as a means for treating our wastewater. Drinking water and wastewater systems are vulnerable to service interruption during and following extreme weather events, such as hurricanes.

A public ***drinking water system*** provides water for human consumption through a distribution system to at least 15 service connections or to an average of at least 25 people for at least 60 days a year. Distribution systems consist of an interconnected series of components, including pipes, storage facilities, and other components, that convey drinking water. A public drinking water system may be publicly or privately owned.

The EPA classifies public drinking water systems according to the number of people they serve and whether they serve the same customers year-round or on an occasional basis. Typically, very small systems serve 25 to 500 people and small systems serve 501 to 3,300 people. Throughout this report, we refer to both small and very small systems as "small" systems. A public water system that supplies water to the same population year-round is referred to as a "community water system."

A public ***wastewater system*** treats water that has been used for various purposes by residences, businesses, and industry. Sewers collect wastewater and deliver that water to a treatment plant for processing, so that it can be safely be reused or returned to lakes, rivers, and streams. Some wastewater systems have sewers that collect both stormwater and wastewater. These are known as "combined sewer systems."

Technical, Managerial, and Financial Capacities of Water Systems

Improving the technical, managerial, and financial capacities of water systems contributes to their resilience. ***Resilience*** is the ability of a water system to withstand and recover from disasters, such as hurricanes. In general, water systems in rural locations face longstanding capacity issues, thus hindering resilience.

Technical, managerial, and financial capacity issues can cause noncompliance with and violations of drinking water regulations. Some of the limitations are:

- *Technical capacity limitations*, wherein systems lack the proper equipment or personnel to operate and maintain the equipment.

- *Managerial capacity limitations*, wherein systems lack accountable owners or adequate staffing and organization.

- *Financial capacity limitations*, wherein systems lack proper fiscal management and controls, such as the ability to collect payments from customers or apply for financial assistance.

Water systems are subject to laws and regulations governing safety and resilience. In 1972, the Clean Water Act was enacted to protect the waters of the United States. The EPA implements the Clean Water Act by establishing wastewater standards and water quality criteria, as well as by regulating discharges of pollutants. In addition, Congress passed the Safe Drinking Water Act in 1974 to ensure that public drinking water systems deliver safe water to their consumers. Under the Safe Drinking Water Act and its amendments, the EPA established protective drinking water standards for more than 90 contaminants.

America's Water Infrastructure Act of 2018, which amended the Safe Drinking Water Act, outlines strategies to address drinking water system resilience in the face of disasters and provides tools for improving resilience, including at small, rural drinking water systems. The 2018 Act requires the EPA administrator to:

> [P]rovide guidance and technical assistance to community water systems serving a population of less than 3,300 persons on how to conduct resilience assessments, prepare emergency response plans, and address threats from malevolent acts and natural hazards that threaten to disrupt the provision of safe drinking water or significantly affect the public health or significantly affect the safety or supply of drinking water provided to communities and individuals.

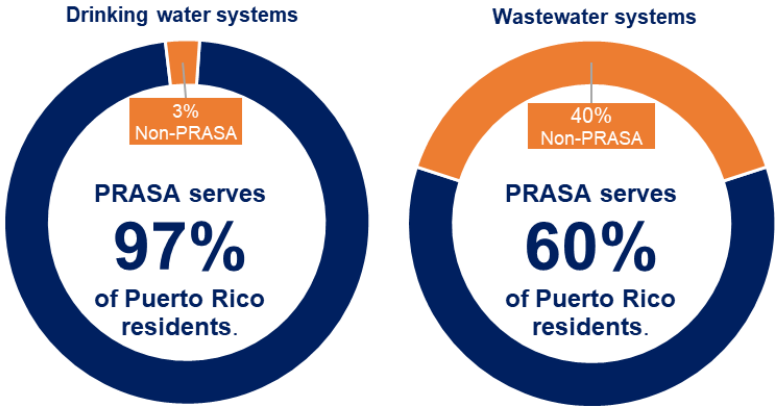
Water and Wastewater Services in Puerto Rico and USVI

The Puerto Rico Aqueduct and Sewer Authority provides most of Puerto Rico's 3.19 million residents with drinking water and wastewater services.[1] PRASA manages 114 community water systems, which at the time of hurricanes Irma and Maria served 97 percent of the island's residents (Figure 1). Drinking water for the remaining 3 percent of the population, about 76,000 people when the hurricanes made landfall, was provided by 237 small community water systems, which are commonly referred to as "non-PRASA" systems. In addition, as shown in Figure 1, PRASA operates 51 wastewater systems serving 60 percent of Puerto

[1] July 2019 U.S. Census data.

Rico's population. The remaining 40 percent of the island's population uses private septic systems for wastewater services.

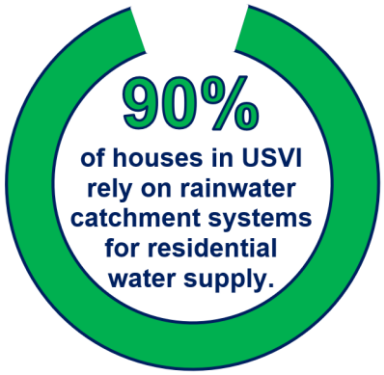
Figure 1: Puerto Rico population served by PRASA systems



Source: OIG analysis based on a 2018 EPA Caribbean Environmental Protection Division presentation. (EPA OIG image)

The USVI has nearly 106,000 residents, with 77 community water systems serving drinking water to approximately 81,000 people. Two large water systems serve the majority of residents (69,000). The remaining 75 are small systems that supply drinking water to a total of approximately 12,000 people. Despite the availability of these water systems, 90 percent of houses in the USVI rely on rainwater catchment systems, such as cisterns, as their main residential water supply (Figure 2). A ***cistern*** is an underground or aboveground vessel attached to a home or business that stores rainwater collected from a rooftop drainage system. Cisterns are not regulated under the Safe Drinking Water Act unless these sources regularly serve at least 25 individuals. The USVI Waste Management Authority provides wastewater services to 60 percent of the residents through eight municipal wastewater treatment plants.

Figure 2: USVI dependency on rainwater catchment systems



Source: OIG analysis based on 2019 USVI Department of Health Cistern Study. (EPA OIG image)

EPA Responds to Hurricane Disasters Under FEMA Direction and at Request of States or Territories

The EPA responds to disasters under the direction of FEMA and at the request of the states or U.S. territories experiencing the disaster. To facilitate a consistent federal approach to emergency response, all federal agencies adhere to the National Response Framework. The framework includes 15 emergency support functions under which federal agencies coordinate the resources and capabilities most needed in a national response (Table 1).

Table 1: National Response Framework emergency support functions

#	Resource/capability	#	Resource/capability
1	Transportation	9	Search and Rescue
2	Communications	**10**	**Oil and Hazardous Materials***
3	Public Works and Engineering	11	Agriculture and Natural Resources
4	Firefighting	12	Energy
5	Information and Planning	13	Public Safety and Security
6	Mass Care, Emergency Assistance, Temporary Housing and Human Services	14	Superseded by the National Disaster Recovery Framework
7	Logistics	15	External Affairs/Standard Operating Procedures
8	Public Health and Medical Services		

Source: OIG analysis of U.S. Department of Homeland Security data. (EPA OIG table)

** EPA-led emergency support function in response to hurricanes Irma and Maria.*

Under each emergency support function, FEMA issues mission assignments to federal agencies for specific tasks, such as the cleanup of hazardous waste or the inspection of water systems. For hurricanes Irma and Maria, FEMA activated Region 2 with mission assignments under Emergency Support Function #10, *Oil and Hazardous Materials Response*, from October 30, 2017, through September 15, 2018. ESF #10 activities can expand beyond oil and hazardous materials to include monitoring more broadly for environmental contamination. For Region 2, this FEMA assignment included the sampling and monitoring of drinking water and wastewater systems in Puerto Rico and the U.S. Virgin Islands. At its peak, approximately 450 EPA staff participated in the emergency response.

Responsible Offices

The Region 2 Superfund and Emergency Management Division, which has staff in New York, New York, and Edison, New Jersey, implements the National Response Framework and provides emergency response services during environmental incidents, including hurricanes. The division is also responsible for emergency response planning, preparedness, and prevention activities.

The Region 2 Water Division, based in New York, New York, implements environmental statutes that protect water, such as the Clean Water and Safe Drinking Water acts. The Division also supports cross-cutting, water-related programs and provides financial and technical assistance to states and localities. The EPA Office of Water headquarters, based in Washington, D.C., is also responsible for implementing the Clean Water and Safe Drinking Water acts and works with the EPA's ten regional offices.

The Region 2 Caribbean Environmental Protection Division implements a variety of environmental programs from its main office in Guaynabo, Puerto Rico, and a field office in St. Thomas, USVI. The Division implements water protection

programs in Puerto Rico and the USVI through permitting, grant administration, compliance assistance, and enforcement.

Scope and Methodology

We conducted this performance audit from July 2018 to August 2020 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 objective. We believe that the evidence obtained provides a reasonable basis for our findings and conclusions based on our audit objective.

We reviewed the EPA's management and situation reports about hurricanes Irma and Maria, as well as documents about federal emergency response. We interviewed Region 2 staff who participated in the response for hurricanes Irma and Maria; staff from Puerto Rico's and the USVI's environmental agencies; staff of a nongovernmental organization that provides support for public, environmental, and economic health in Puerto Rico and the USVI; and drinking water and wastewater system operators. The scope of our audit did not include examining Region 2's emergency response related to the monitoring of air quality, the remediation of household hazardous waste, or the assessment of oil and hazardous materials releases.

Prior Reports

The OIG published reports about other EPA hurricane response activities related to hurricanes Katrina, Harvey, and Irma. After Hurricane Katrina in 2006, we reported that the EPA could improve its coordination with state and local officials.[2] In the aftermath of the 2017 hurricane season, when hurricanes Harvey and Irma made landfall in the United States, we reported that Regions 4 and 6 had forged close working relationships with state emergency response partners.[3] This preparation enabled these regions to protect human health and water sector resources. We recommended that both regions improve their emergency response training and planning and that Region 6 improve its communications with non-English-speaking communities. According to the Agency's audit tracking system, as of November 2020, Region 4 had completed all corrective actions, while Region 6 had completed two recommendations and had corrective actions pending for two recommendations.

In the aftermath of Hurricane Harvey, we reported that we did not identify significant issues in the EPA's contracting, logistics, or resource acquisition

[2] OIG, *Lessons Learned: EPA's Response to Hurricane Katrina*, Report No. 2006-P-00033, September 14, 2006.
[3] OIG, *Region 6 Quickly Assessed Water Infrastructure after Hurricane Harvey but Can Improve Emergency Outreach to Disadvantaged Communities*, Report No. 19-P-0236, July 16, 2019; *Region 4 Quickly Assessed Water Systems After Hurricane Irma but Can Improve Emergency Preparedness*, Report No. 20-P-0001, October 7, 2019.

processes, and we did not make any recommendations in that report.[4] In a subsequent report, we did find that state, local, and EPA mobile air monitoring activities were not initiated in time to assess the impact of toxic air emission incidents occurring within a five-day period of the hurricane's landfall.[5] Additionally, once started, monitoring efforts did not always generate data considered suitable for making health-based assessments, in part because there was no guidance outlining how to monitor air quality following an emergency. We recommended that the EPA develop guidance for emergency air monitoring and provide public access to those data. As of November 2020, two of the six recommendations were resolved with corrective actions completed. Resolution efforts are underway for the remaining four recommendations.

[4] OIG, *EPA Adequately Managed Hurricane Harvey Funding Received from FEMA*, Report No. 20-P-0010, October 23, 2019.
[5] OIG, *EPA Needs to Improve Its Emergency Planning to Better Address Air Quality Concerns During Future Disasters*, Report No. 20-P-0062, December 16, 2019.

Chapter 2
EPA Needs to Improve Its Emergency Response Planning, Communications, and Assistance to Small Water Systems

Hurricanes Irma and Maria severely damaged the water, electricity, communication, and transportation infrastructures in Puerto Rico and the USVI. This damage affected the EPA's ability to carry out FEMA mission assignments by hindering and delaying the deployment of response personnel and the Agency's access to communications and other equipment. Some drinking water systems in Puerto Rico and the USVI still had not returned to normal operations more than nine months after the storms made landfall. Despite these challenges, EPA staff prepared for and fulfilled their response roles performing operational assessments; conducting water sampling and analyses; and helping small, rural drinking water systems become operational after the storms. EPA Region 2 did not, however, optimally use the technical expertise and cultural awareness of its local employees when preparing for and responding to the hurricanes. In addition, pre-storm conditions rendered many small drinking water systems vulnerable to storm damage. Additional attention to advance planning can correct issues with small drinking water system resilience, public information dissemination, engagement of local EPA personnel, and awareness of cultural norms.

Conditions in Puerto Rico and USVI Slowed Response to Hurricanes Irma and Maria

We found the reasons for the EPA's delay in responding to the hurricanes' aftermath in Puerto Rico and the USVI were not fully within the control of the Agency's emergency response personnel. For example:

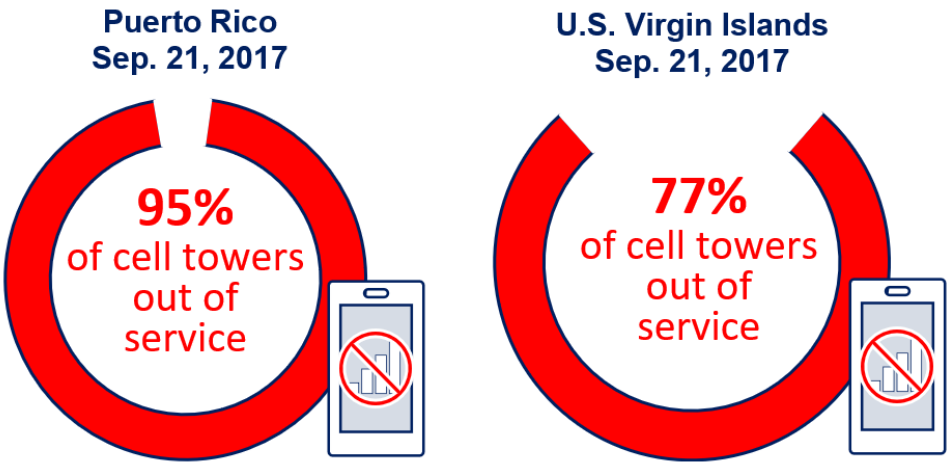
- Most Puerto Rico and USVI residents did not have electricity after Hurricane Irma made landfall on September 5, 2017. In the USVI, 98 percent of electrical service was not restored until February 2018, five months after the two storms. Full electrical service was not restored for most Puerto Rico residents until August 2018, almost one year after the storms.

- Damage to transportation infrastructure lengthened travel time across Puerto Rico and the USVI and prevented access to many rural communities.

- In the aftermath of Hurricane Maria, approximately 95 percent of the cell towers in Puerto Rico were out of service, and approximately 77 percent of cell towers in the USVI were out of service (Figure 3). According to a 2018 Federal Communications Commission report, cell service on the

islands was restored gradually over a six-month period, considerably longer than for any other storm. This limited service hindered communication among emergency responders.

Figure 3: Cell service three weeks after Hurricane Maria



Source: OIG analysis of Federal Communications Commission data. (EPA OIG image)

- As Hurricane Maria approached the islands, the EPA evacuated its response personnel who had been deployed to the USVI after Hurricane Irma.

- There were not enough supplies available—such as water, meals, medical kits, and tarps—for distribution after Hurricane Maria made landfall because FEMA distributed the majority of its inventory from its Caribbean warehouse after Hurricane Irma struck.

- The EPA assisted the U.S. Coast Guard with over 700 sunken vessels, as well as with the resulting debris and oils spills.

In addition, the hurricanes exacerbated pre-storm conditions in Puerto Rico and the USVI. Technical, managerial, and financial capacity limitations preceding the storms not only left water systems vulnerable to storm damage but also placed residents' health at risk. Almost one year after the hurricanes made landfall in Puerto Rico, some non-PRASA drinking water systems were still dealing with hurricane damage, such as (1) power restoration taking months in some rural areas or (2) damage to the distribution system, such as broken aboveground plastic pipes, like the one pictured here.

Aboveground drinking water distribution pipe in rural Puerto Rico broken as a result of a hurricane. (EPA OIG photo)

Small, rural drinking water system in Puerto Rico with treatment chemicals improperly stored outside and exposed. (EPA OIG photo)

Many of the water systems in isolated rural areas of Puerto Rico and the USVI—such as the small, rural drinking water system pictured here, with its treatment chemicals unsecured and exposed to the elements—generally lack full operational capacity even in nonemergency situations. The aftermath of hurricanes Irma and Maria demonstrated that small, rural drinking water systems lack the resilience to protect human health from drinking water contamination in the event of a disaster. This lack of resilience persists despite Region 2 working for years to address compliance and capacity problems at small drinking water systems in Puerto Rico.

In contrast, even though the 2017 hurricanes in Texas (Hurricane Harvey) and Florida (Hurricane Irma) were among the most powerful and damaging in U.S. history, the response on the mainland was quicker. In both Texas and Florida, EPA emergency response personnel immediately assessed the status of drinking water and wastewater systems by telephone and in person. As a result, the impacted residents of both states were served by operational drinking water and wastewater systems within days or weeks of the storms.

EPA Emergency Response Personnel Provided Critical Help

Prior to the hurricanes, Region 2 established an incident command structure and staffing plan to direct and manage its response to the storms. In response to the FEMA mission assignment, the EPA provided emergency response assessments of drinking water and wastewater systems, as well as assistance to non-PRASA drinking water systems. These efforts helped water and wastewater systems in Puerto Rico and the USVI return to operations in the aftermath of the back-to-back hurricanes.

EPA Made Emergency Response Preparations in Anticipation of Storms

Before the start of the 2017 hurricane season, the EPA's emergency response staff routinely participated in training sessions, preparation exercises, and other meetings. In anticipation of Hurricane Irma's arrival, Region 2 emergency response staff engaged in prelandfall and predeployment activities by establishing an incident command structure and a staffing plan to direct and manage response efforts. They also established data collection tools for the EPA's drinking water and wastewater assessment teams.

As part of those emergency response preparations, Region 2 developed a regional operations plan for the hurricane, which subsequently became the *Regional Operations Plan and Multiple Disaster Contingency Plan for the Hurricane Irma/Maria Response*. This emergency response plan supported the deployment

of EPA staff and resources to FEMA's San Juan office, the Puerto Rico Environmental Quality Board office, and the USVI Department of Planning and Natural Resources office. The plan addressed preparations and administrative needs for response efforts involving public health and the environment.

Region 2's Emergency Response Personnel Evaluated Drinking Water and Wastewater Systems After Storms

As part of the FEMA mission assignments in Puerto Rico and the USVI, Region 2 evaluated the operational status of drinking water and wastewater systems and tracked the progress of systems returning to operational status. In Puerto Rico, EPA emergency response personnel and PRASA staff conducted 284 on-site assessments of drinking water systems and 233 on-site assessments of wastewater systems by the end of November 2017 to determine operational status.[6] Some systems were assessed multiple times. The EPA also helped 21 small, rural drinking water systems remain operational by fueling and maintaining their generators.

In the USVI, EPA response personnel conducted 1,282 on-site assessments of drinking water systems, the majority of which were cisterns, and 33 on-site assessments of wastewater systems, by the end of November 2017. Some of these systems were also assessed multiple times. In the USVI, more than 2,400 drinking water samples were collected for analysis.

Tables 2 and 3 detail the systems' progress in returning to operational status, as recorded in EPA management reports until June 2018. These reports did not contain information about the percentage of population with water services, only the percentage of drinking water and wastewater systems returning to pre-storm operational levels. From July 2018 until the conclusion of the Agency's mission assignment in September 2018, the EPA reported the remaining operational needs of individual drinking water systems, rather than reporting the overall number of operating drinking water and wastewater systems.

Table 2: Puerto Rico—operational status of drinking water and wastewater systems

	Number of systems assessed	Percentage of systems operational by:				
		10/20/17	11/20/17	12/20/17	1/22/18	6/6/18
PRASA drinking water systems	*114	60%	81%	93%	96%	99%
Non-PRASA drinking water systems	237	No data	81%	86%	87%	95%
Wastewater systems	51	80%	92%	100%	98%	100%

Source: OIG analysis of EPA management reports. (EPA OIG table)

* EPA reports varied in the number of PRASA drinking water systems assessed: 121 in October 2017, 115 in November and December 2017, and 114 thereafter. The percentage of systems operational is based upon the number of systems reported as assessed.

[6] Region 2's comments to the draft report noted that the Puerto Rice Department of Health also participated in on-site assessments of drinking water and wastewater facilities.

Table 3: USVI—operational status of drinking water and wastewater systems

	Number of systems assessed	Percentage of systems operational by:				
		10/20/17	11/20/17	12/20/17	1/22/18	6/6/18
Public drinking water systems*	**344	No data	74%	74%	80%	85%
Private cisterns	***207	No data	95%	95%	84%	91%
Wastewater systems	8	No data	63%	100%	100%	100%

Source: OIG analysis of EPA management reports. (EPA OIG table)

* Management reports did not distinguish between community water systems and noncommunity water systems, such as hospitals, schools, and gas stations.

** The EPA reported 344 systems assessed until its June 2018 report, which reported 338. The percentage of systems operational is based upon the number of systems reported as assessed.

*** Management reports varied in the number of nonutility drinking water systems assessed: 207 in January 2017, 191 in November and December 2017, and 170 thereafter.

As shown in Table 2, when the EPA stopped tracking Puerto Rico's water and wastewater systems in June 2018, which was nine months after the first storm, nearly all systems had achieved pre-storm levels of operation. As shown in Table 3, 85 percent of public drinking water systems in the USVI had returned to pre-storm levels of operation by June 2018. Because at least 95 percent of the USVI's residents use private cisterns, many still had access to drinking water after the public water and power systems became inoperable; however, even in June 2018, 9 percent of private cisterns remained nonoperational.

EPA Provided Direct Assistance to Non-PRASA Drinking Water Systems

The EPA provided direct assistance to non-PRASA drinking water systems to fuel and maintain temporary generators. The widespread power outages in Puerto Rico after the hurricanes particularly affected non-PRASA drinking water systems. These remote systems were in areas where electricity was not restored for several months.

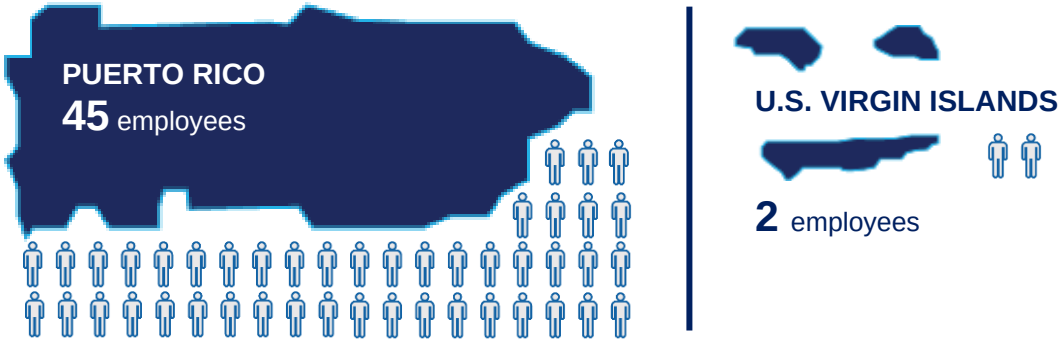
After the hurricanes, the owners or operators of drinking water systems could request generators through the FEMA Public Assistance grant program. FEMA Public Assistance provides federal funding to help communities respond to and recover from disasters, such as hurricanes. Not all Puerto Rican and USVI water systems were able to qualify for such assistance, however. As noted previously, non-PRASA systems face technical, managerial, and financial capacity limitations for both day-to-day operations and after weather emergencies, such as hurricanes. These capacity limitations contributed to the systems' inability to qualify for assistance from FEMA because water system operators could not provide the necessary documents to qualify for the Public Assistance grants. For example, before hurricanes Irma and Maria, many non-PRASA water systems were not incorporated, which is a requirement to obtain FEMA Public Assistance grants.

With EPA assistance, 68 percent (161) of the 237 non-PRASA water systems obtained certification during the EPA's emergency response period. Some of those systems then obtained temporary generators from FEMA to operate their water systems. In addition, as part of the Agency's mission assignments, EPA emergency response staff and contractors fueled and maintained 21 generators at non-PRASA systems until September 2018. The priority for generators was hospitals, PRASA systems, and power stations. As a result of prioritizing other facilities, not all non-PRASA systems needing generators received them due to a shortage of generators on the island.

Hurricane Preparation and Response Activities Should Include All Local EPA Staff and Follow Cultural Norms

While Region 2 devised an emergency response plan prior to the arrival of the storms to help guide its response efforts, it did not specify roles for the 45 local EPA staff in Puerto Rico and the two local EPA staff in the USVI (Figure 4). Staff we interviewed from the EPA's Puerto Rico office said that they participated in some preparations or emergency response activities. The two EPA staff stationed in the USVI said that they had limited or no involvement in preparation or response activities.

Figure 4: Local EPA staff



Source: Data from July 2018 meeting with Agency. (EPA OIG image)

Staff told us that some EPA emergency response personnel did not follow some cultural norms on the islands. For example, we were told that exchanging personal greetings regarding family or health before meetings begin is a cultural norm in the USVI but that EPA emergency response personnel did not always follow this etiquette. EPA response personnel also took photographs without the permission of local USVI residents, which was described to us as not in keeping with local cultural norms.

The local EPA staff were familiar with island geography and cultural norms, and they had logistical and technical expertise. Region 2 would have benefited from their knowledge and skills when preparing and, to the extent local EPA staff were safely available, in the immediate aftermath of the storms. Region 2 could

strengthen cultural understanding by using local EPA staff expertise in disaster preparation activities and response efforts. These staff could help enhance understanding by mainland-based emergency response personnel about local cultural norms.

To address the lack of cultural awareness during the response effort, Region 2 staff created and distributed an etiquette document: *Things to Know Working in the Virgin Islands*. This document highlighted USVI cultural norms and suggested how to sensitively interact with residents.

The EPA's Office of Emergency Management reviewed the Agency's response activities for hurricanes Harvey, Irma, and Maria and the California wildfires. The resulting *2017 Hurricane and Wildfire Response After-Action Report*, dated September 2018, identified strengths, areas for improvement, and recommendations to improve the EPA's emergency response. The report identified local staff involvement in response operations as an area for improvement and recommended that the EPA delineate roles and responsibilities for local staff in future disasters. The report also suggested that "guidance on cultural attitudes in communication" be included in predeployment packages going forward.

EPA Could Better Inform the Public and Prepare Small Water Systems in Puerto Rico and USVI

Although Region 2 fulfilled its FEMA water sector mission assignment, we identified two additional areas for improvement that would further enhance the region's emergency response capabilities and would better prepare small, rural drinking water systems in Puerto Rico and the USVI to protect human health. Specifically, the EPA could improve its processes for informing the public about protecting health and for assisting small, rural drinking water systems with developing resilience.

Public Health Messages Delayed Because of EPA Procedures

In the USVI, most residents relied on cisterns as their drinking water source after hurricanes Maria and Irma caused power outages, which made public water systems nonoperational. In Puerto Rico, the damage to distribution systems and power outages after the hurricanes made small, rural drinking water systems inoperable, and residents either relied on alternative sources for water, such as artesian wells, or traveled several kilometers to obtain water. To reduce the risk of illness following disasters, residents need to know how to disinfect drinking water obtained from sources other than regulated public drinking water systems. According to EPA response staff, such public health information was delayed after hurricanes Maria and Irma because, in part, of the Agency's vetting process.

As part of pre-storm preparations, Region 2 and headquarters implemented EPA Order 2010, *Crisis Communication Plan*. According to the *Crisis Communication Plan*, messages should be "conveyed to the public quickly, accurately, and consistently by working with the media and sharing information externally." The EPA had previously developed public health messages to distribute after disasters regarding how to disinfect drinking water. These messages, dated June 2015, were previously used in the Hurricane Harvey response efforts, which occurred less than two weeks before Hurricane Irma.

As specified in the EPA's *Crisis Communication Plan*, public health outreach messages are subject to review and approval by headquarters, even if they contain previously approved information, before they are distributed to the public. In response to hurricanes Irma and Maria, multiple headquarters offices were involved in the review-and-approval process for these messages: the Office of Public Affairs, which was identified as the lead reviewing office; the Office of General Counsel; and the Office of Water. According to Region 2, this required vetting process led to delays in the delivery of the public health messages in Puerto Rico and the USVI. The delayed dissemination of this information, however, was not in accordance with the *Crisis Communication Plan*'s directive to provide messages to the public quickly. In response to our draft report, Region 2 stated that in addition to internal vetting, it was necessary that messaging also be coordinated with other response partners, including the Puerto Rico Department of Health.

The EPA's *2017 Hurricane and Wildfire Response After-Action Report* also identified the distribution of public health messages as an area for improvement. Any delay in distributing public health information puts residents at risk if they do not know how to treat water that does not come from a regulated water system.

America's Water Infrastructure Act Could Help Vulnerable Systems

Region 2 has worked for years to address capacity problems at small, rural drinking water systems in Puerto Rico and the USVI. Despite this assistance, many small, rural drinking water systems lack the technical, managerial, and financial capacity to recover quickly from disasters, such as the two back-to-back hurricanes that devastated the islands in 2017.

In September 2018, Region 2 agreed to participate in a Memorandum of Understanding to enhance the resilience of non-PRASA systems in Puerto Rico. The memorandum establishes working relationships among Region 2, a university, and six nongovernmental organizations, with the intent to "build capacity, develop, and implement equitable, reliable, and resilient solutions" to non-PRASA and other unregulated drinking water systems in remote areas of Puerto Rico.

Implementation of the America's Water Infrastructure Act could further help vulnerable systems. The Act requires that the EPA provide guidance to small drinking water systems "on how to conduct resilience assessments, prepare

emergency response plans, and address threats from [disasters] that threaten to disrupt the provision of safe drinking water." In response, the Office of Water:

- Issued instructions in July 2019 for water systems on how to develop emergency response plans.
- Issued guidance in May 2020 for small community water systems on how to conduct risk and resilience assessments.
- Developed risk assessment and emergency response plan training for systems that service over 3,300 people.
- Planned workshops for the fall of 2020 to help small water systems comply with the America's Water Infrastructure Act.

America's Water Infrastructure Act also established an annual grant program of up to $10 million to provide technical assistance grants to small drinking water systems to conduct resilience assessments, prepare emergency response plans, and address threats from malevolent acts and natural hazards. While Congress has, to date, not funded this grant program, Congress appropriated $3 million for fiscal year 2020 to fund a separate grant program for increasing drinking water resilience to natural hazards.[7] Small, rural drinking water systems in Puerto Rico and the USVI would benefit from this aid, which is consistent with the goals established in the 2018 Memorandum of Understanding.

Conclusion

The EPA's preparations for the 2017 hurricane season enabled EPA emergency response staff to complete their FEMA mission assignments in the aftermath of two back-to-back hurricanes. Specifically, the EPA assessed the status of drinking water and wastewater systems, collected and tested drinking water samples, and provided assistance to small drinking water systems in Puerto Rico and the USVI. However, the severity of the consecutive storms; the logistical difficulties the storms caused; the geographic isolation of the islands; the pre-storm operating challenges of some small, rural drinking water systems; and cultural differences complicated and prolonged the emergency response efforts, especially compared to the 2017 hurricane response efforts in Texas and Florida.

Region 2 can better protect human health after future disasters in Puerto Rico and the USVI by working with the Office of Water to improve the resilience of small, rural drinking water systems through implementing the America's Water Infrastructure Act. Additional improvements to the Region 2 emergency response planning processes can improve communications during the response, engage local EPA staff, and inform response personnel on local cultural norms.

[7] Appendix B contains Region 2's technical description of these two new grant programs that were created by the America's Water Infrastructure Act to support resiliency and federal appropriations for those activities.

Recommendations

We recommend that the Region 2 regional administrator:

1. Develop and implement a written regional procedure for the timely approval and dissemination of predrafted public health messages in the aftermath of a disaster so that impacted communities receive critical information in a timely manner, in accordance with EPA Order 2010, *Crisis Communication Plan*. After this procedure is developed, also:

    a. Train regional emergency response personnel on the procedure.

    b. Include the procedure in disaster planning and response documents and exercises.

2. Develop and implement a supplement to Region 2's emergency response plan to describe and address the specific geographic, logistical, and cultural norms applicable to disaster response in Puerto Rico and the U.S. Virgin Islands. This supplement should include local EPA staff roles and responsibilities, as well as address the likely limitations to transportation, communications, and power in the aftermath of disasters.

3. In coordination with the Office of Water, implement America's Water Infrastructure Act in Puerto Rico and the U.S. Virgin Islands by:

    a. Developing and implementing a strategy to provide training, guidance, and assistance to small drinking water systems as they improve their resilience.

    b. Establishing a process for small drinking water systems to apply for America's Water Infrastructure Act grants. This process should include (1) implementing the EPA's May 2020 guidance provided to small drinking water systems regarding resilience assessments and (2) establishing a public information campaign to inform small drinking water systems of the America's Water Infrastructure Act grant opportunity, qualifying requirements, and application deadlines.

Agency Response and OIG Assessment

The Region 2 regional administrator provided an initial response (Appendix A) to our draft report on October 22, 2020, as well as a second response (Appendix B) on November 2, 2020, regarding Recommendation 3. Region 2 also provided technical comments, and we made changes to our report where appropriate. The region provided acceptable planned corrective actions and estimated milestone dates in response to our recommendations. All recommendations are resolved.

Status of Recommendations and Potential Monetary Benefits

RECOMMENDATIONS

Rec. No.	Page No.	Subject	Status[1]	Action Official	Planned Completion Date	Potential Monetary Benefits (in $000s)
1	17	Develop and implement a written regional procedure for the timely approval and dissemination of predrafted public health messages in the aftermath of a disaster so that impacted communities receive critical information in a timely manner, in accordance with EPA Order 2010, *Crisis Communication Plan*. After this procedure is developed, also: a. Train regional emergency response personnel on the procedure. b. Include the procedure in disaster planning and response documents and exercises.	R	Region 2 Regional Administrator	9/30/21	
2	17	Develop and implement a supplement to Region 2's emergency response plan to describe and address the specific geographic, logistical, and cultural norms applicable to disaster response in Puerto Rico and the U.S. Virgin Islands. This supplement should include local EPA staff roles and responsibilities, as well as address the likely limitations to transportation, communications, and power in the aftermath of disasters.	R	Region 2 Regional Administrator	6/30/23	
3	17	In coordination with the Office of Water, implement America's Water Infrastructure Act in Puerto Rico and the U.S. Virgin Islands by: a. Developing and implementing a strategy to provide training, guidance, and assistance to small drinking water systems as they improve their resilience. b. Establishing a process for small drinking water systems to apply for America's Water Infrastructure Act grants. This process should include (1) implementing the EPA's May 2020 guidance provided to small drinking water systems regarding resilience assessments and (2) establishing a public information campaign to inform small drinking water systems of the America's Water Infrastructure Act grant opportunity, qualifying requirements, and application deadlines.	R	Region 2 Regional Administrator	12/31/22	

[1] C = Corrective action completed.
R = Recommendation resolved with corrective action pending.
U = Recommendation unresolved with resolution efforts in progress.

Initial Agency Response to Draft Report

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION 2
290 Broadway, New York, NY 10007-1866

MEMORANDUM

DATE: October 22, 2020

SUBJECT: Response to Office of Inspector General Draft Report for Project No. OPE-FY18-0005: "Region 2's Response Efforts in Puerto Rico and U.S. Virgin Islands Need Improved Planning, Communications, and Assistance for Small Drinking Water Systems," dated September 1, 2020

FROM: Walter Mugdan for:
Peter D. Lopez
Regional Administrator

TO: Kathlene Butler
Director, Water Directorate
Office of Evaluation
Office of Inspector General

Thank you for the opportunity to respond to the issues and recommendations in the subject audit report. Following is a summary of our overall position. More detailed, specific comments and suggestions are included in a Technical Comments Attachment, below.

We agree with Recommendation 1 and 2, and we have provided an accounting of current management strategies/actions along with additional high-level intended corrective management initiatives. Please note that we have provided estimated completion dates to the maximum extent possible.

Recommendation 3 involves EPA's Office of Water (OW). In consultation with OW, we expect to provide additional comments about that recommendation (including factual corrections about AWIA and resilience grants) by October 30.

AGENCY'S OVERALL POSITION

Region 2 appreciates the Office of Inspector General's initiative to undertake an assessment and reporting of the Region's hurricane response efforts in Puerto Rico (PR) and the U.S. Virgin Islands (USVI), and for acknowledging the severity of the consecutive storms and their disastrous impacts; the geographic isolation of the islands; the pre-storm operating and economic challenges of numerous small, rural drinking water systems; as well as cultural differences which complicated and prolonged the emergency response efforts.

EPA also thanks the OIG for its gracious acknowledgement of the additional and creative efforts made by EPA to respond to the urgent needs and unusual circumstances faced by the people of the Caribbean as we worked to stabilize and support both PR's and USVI's efforts to protect public health and the environment in the wake of the twin storms.

In response to the recommendations made by the OIG in this report, EPA respectfully offers the following:

> Region 2 agrees that additional attention should be given to expediting the approval and dissemination of public health messages.
>
> In this regard, however, EPA emphasizes that the pervasive and prolonged disruption of communications, power and transportation infrastructure systems provided serious challenges to advancing broad-based and rapid deployment of health information and services.
>
> While more effective protocols and systems can be established between EPA, the Commonwealth and local governments, it is imperative to recognize that local staffing and fiscal limitations present additional challenges to ensuring rapid, consistent response capabilities. As such, EPA intends to advance its capacity building efforts, even as it continues to coordinate closely and amplify the work of local health department systems.
>
> EPA concurs with the importance of ensuring rapid consensus on public health messages and the delivery of the same in coordination with other federal agencies such as the Federal Emergency Management Agency (FEMA) and Health and Human Services (HHS).
>
> EPA also agrees that the Region 2 emergency response plan could be enhanced by engaging its local staff and reducing the challenges to support disaster response typically caused by the specific geographic, logistical, cultural norms, and language barriers in PR and USVI. With that said, it is imperative to note that Region 2's plans must allow flexibility, allowing for the likelihood of limited availability of local staff from the Region's Caribbean Environmental Protection Division (CEPD) due to likelihood of staff being heavily impacted by

a disaster, as they were in the 2017 hurricane season. It should also be noted that EPA's local staff in PR will invariably have responsibilities to continue to manage important ongoing environmental programs and, therefore, may not be able to assume disaster response functions.

Region 2 is proactively advancing actions to strengthen the capacity and resilience of small, rural drinking water systems in PR and USVI, and will continue to provide training and technical assistance for system operators, and financial assistance as available and authorized by law.

Our existing Memorandum of Understanding (MOU, see attachment 3), established a framework that supports collaborative working relationships between non-governmental organizations (NGOs), academia, and EPA that have joined efforts to build capacity, and develop and implement equitable, reliable and resilient solutions to help these remote drinking water systems continue achieving improved capacity and resilience. This MOU led to the creation of the Water Coalition, which further expands this collaboration with the PR Department of Health, the U.S. Department of Agriculture Rural Development, and other representatives from academia and the not-for-profit sector. Region 2 will continue to use its best efforts to ensure a reliable provision of safe drinking water to these communities.

Notably, this collaboration is furnishing additional support through USDA in the form of staff persons to serve as "circuit riders" responsible for providing a broad range of continuous, dedicated technical support to the small, non- PRASA community water systems. This initiative is being further augmented through the announcement of additional circuit rider contracting support funded through EPA's Office of Enforcement and Compliance Assurance (OECA) to provide compliance assistance to 45 non-PRASA systems in Puerto Rico.

AGENCY'S RESPONSE TO REPORT RECOMMENDATIONS

Agreements

No.	Recommendation	High-Level Intended Corrective Action(s)	Estimated Completion by Quarter and FY
1.	Develop and implement a written regional procedure for the timely approval and dissemination of pre-drafted public health messages in the aftermath of a disaster so that impacted communities receive critical information in a timely manner in accordance with EPA Order 2010, *Crisis Communication Plan*.	EPA is currently updating its Crisis Communications Plan to refine the plan and ensure that it clearly lays out the process for communicating during an emergency. Part of the challenge during the response to Maria and Irma was that some EPA responders were not familiar with the EPA Crisis Communications Plan. To rectify this, EPA Region 2 will ensure that the plan is provided as part of the mobilization/orientation package given to responders, particularly those who will serve as community liaisons in the field. Further, Region 2 will ensure that in the summary of preparations a responder should make before arriving on scene the crisis communications plan is noted, and responders are encouraged to familiarize themselves with the plan.	2nd Quarter FY 2021 3rd Quarter FY 2021 4th Quarter FY 2021, contingent upon HQ finalization and availability of

		To address any delays in getting materials approved for public dissemination particularly on major incidents like Hurricanes Irma and Maria, Region 2 will embed an Assistant Public Information Officer (PIO) in the incident who will focus on the EPA approval process and will serve as a liaison to get materials approved as quickly as possible. This Assistant PIO would also help coordinate, through EPA' Office of Public Affairs, messaging with other federal agencies. In addition, Region 2 will provide the latest version of the EPA Crisis Communications Plan to relevant emergency response and response corps members and also ensure that it is discussed during training sessions or exercises so that all responders will better understand the expectations set forth in the plan.	the updated Crisis Management Plan in 2nd Quarter FY 2021
2.	Develop and implement a supplement to Region 2's emergency response plan to describe and address the specific geographic, logistical, and cultural norms to disaster response in Puerto Rico and the U.S. Virgin Islands. This supplement should include local EPA staff roles and responsibilities, as well as address the likely limitations to transportation, communications, and power in the aftermath of disasters.	Region 2 agrees with the recommendation. The Region 2 emergency response program has initiated the development/implementation of plans to respond to emergency and disaster responses in the Caribbean. Discussions include the development and scope of a training, workshop and exercise program to better coordinate and integrate local personnel into the region's response structure. This initiative would include training on EPA's various roles, responsibilities and procedures, as well as identification of ways to effectively utilize CEPD personnel capabilities and expertise, especially during the early stages of a response to address limitations to transportation, communications, and power in the aftermath of disasters. Further development of cultural awareness guidance developed during the response to Hurricanes Irma and Maria and strategies for addressing language barriers would also be addressed and included in deployment materials. Region 2's plans must allow flexibility since limited availability of local staff must also be considered, as the majority of CEPD staff will likely be heavily impacted by a disaster, as they were in the 2017 hurricane season. In addition, capabilities of the EPA local staff in PR and USVI may be limited due to existing responsibilities managing environmental programs.	3rd Quarter FY 2023 The implications of travel restrictions due to COVID, and also diversion of resources to disaster responses within the region or nationally, may delay this completion date.

Please refer to Attachment 2 for additional information that could provide context and background information for the above responses.

Recommendation 3 involves EPA's Office of Water (OW). In consultation with OW, we expect to provide additional comments about that recommendation (including factual corrections about AWIA and resilience grants) by October 30.

CONTACT INFORMATION

If you have any questions regarding this response, please contact let me know or have your staff contact Arlene Chin, Region 2's Audit Coordinator, at (212) 637-3408 or Chin.Arlene@epa.gov, or Rudnell (Rudy) O'Neal, Chief, Grants and Audit Management Branch, Mission Support Division, at (212) 637-3427 or Oneal.Rudnell@epa.gov.

Attachments

cc: Doug Benevento, Associate Deputy
Administrator Mandy Gunasekara, Chief of
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David Ross, Assistant Administrator, Office of Water
Dennis Lee Forsgren, Jr., Deputy Assistant Administrator, Office of Water
Anna Wildeman, Principal Deputy Assistant Administrator, Office of Water
Susan Bodine, Assistant Administrator, Office of Enforcement & Compliance
Assurance
James Hewitt, Associate Administrator, Office of Public Affairs
Nancy Grantham, Principal Deputy Associate Administrator, Office of Public
Affairs

Second Agency Response to Draft Report

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION 2
290 Broadway, New York, NY 10007-1866

MEMORANDUM

DATE: **November 2, 2020**

SUBJECT: Supplemental Response to Office of Inspector General Draft Report for Project No. OPE-FY18-0005:
"Region 2's Response Efforts in Puerto Rico and U.S. Virgin Islands Need Improved Planning, Communications, and Assistance for Small Drinking Water Systems," dated September 1, 2020

FROM: Peter D. Lopez
Regional Administrator

TO: Kathlene Butler
Director, Water Directorate
Office of Evaluation
Office of Inspector General

Thank you for the opportunity to provide a supplement to our initial response provided on October 22, 2020. This supplemental response addresses Recommendation 3 in the subject audit report and has been developed in coordination with the Office of Water.

We agree with Recommendation 3, and consistent with our previous response we have provided an accounting of current management strategies/actions along with additional high-level intended corrective management initiatives. Please note that we have provided estimated completion dates to the maximum extent possible.

AGENCY'S POSITION (Related to Recommendation #3)

Region 2 is proactively advancing actions to strengthen the capacity and resilience of small, rural drinking water systems in PR and USVI, and will continue to provide training and technical assistance for system operators, and financial assistance as available and authorized by law. EPA will continue to promote America's Water Infrastructure Act (AWIA) section 2013 training. Small water systems and technical assistance providers in Puerto Rico and the U.S. Virgin Islands are welcome to attend these workshops to assist them in developing risk and resilience assessments and emergency response plans. Small drinking water systems in

Puerto Rico and the U.S. Virgin Islands do not serve more than 3,300 people, so AWIA certification requirements do not apply to them. However, EPA encourages drinking water systems of all sizes to perform risk and resilience assessments and, in addition to the risk and resilience checklist specifically designed for use by small systems that serve 3,301-49,999 people, EPA plans to publish guidance for systems serving less than 3,300 people in 2021. EPA also plans to conduct outreach to primacy agencies, including Puerto Rico and U.S. Virgin Islands, and via press release or social media when the competitive announcement for the resilience grant program authorized under the Safe Drinking Water Act (SDWA) section 1459A(l) (AWIA Section 2005) opens.

TECHNICAL COMMENTS ON THE REPORT (Related to Recommendation #3)

The discussion in the report regarding resiliency grant programs authorized under AWIA is unclear. AWIA amended SDWA in a number of ways, including establishing two new paragraphs that authorized two separate grant programs to support resiliency:

- 1433(g) – Technical Assistance Grants to implement the Drinking Water Infrastructure Risk and Resiliency Program and
- 1459A(l) – Drinking Water Infrastructure Resilience and Sustainability Grant to assist small and disadvantaged in increasing resilience to natural hazards.

No funding has been appropriated for the grant program authorized under Section 1433(g) of SDWA. EPA recommends clarifying that the recommendations and report do not relate to this program. For fiscal year 2020, Congress appropriated $3 million to fund grants authorized under 1459A(l). This program was not established to implement the programs in Section 1433 of SDWA.

AGENCY'S RESPONSE TO REPORT RECOMMENDATION 3

Agreements

No.	Recommendation	High-Level Intended Corrective Action(s)	Estimated Completion by Quarter and FY
3.	In coordination with the Office of Water, implement America's Water Infrastructure Act in Puerto Rico and the U.S. Virgin Islands by: a. Developing and implementing a strategy to provide training, guidance, and assistance to small drinking water systems as they improve their resilience. b. Establishing a process for small drinking water systems to apply for	EPA Office of Water will be promoting and conducting a series of AWIA section 2013 virtual workshops during January through March 2021 aimed at systems serving 3,301- 49,999 people, including a workshop focused on Region 2 water systems, to include Puerto Rico and U.S. Virgin Islands. Small water systems and technical assistance providers in Puerto Rico and the U.S. Virgin Islands are welcome to attend these workshops to assist them in developing risk and resilience assessments and emergency response plans. Since small drinking water systems in	Conduct training by end of Quarter 2 of FY 2021. Publish guidance for systems serving 3,300 or fewer customers by end of Quarter 1 of FY 2022. Conduct outreach when Request for Applications is released for the AWIA Drinking Water Infrastructure Resilience and Sustainability Grant by end of Quarter 1 of FY

	America's Water Infrastructure Act grants. This process should include (1) implementing the EPA's May 2020 guidance provided to small drinking water systems regarding resilience assessments and (2) establishing a public information campaign to inform small drinking water systems of the America's Water Infrastructure Act grant opportunity, qualifying requirements, and application deadlines.	Puerto Rico and the U.S. Virgin Islands do not serve more than 3,300 people, AWIA certification requirements do not apply to them. However, EPA encourages drinking water systems of all sizes to perform risk and resilience assessments and has developed a risk and resilience checklist specifically designed for use by systems that serve 3,301-49,999 people. While the May 2020 guidance was for water systems serving 3,301-49,999 people, EPA plans to publish guidance for systems serving less than 3,300 people in 2021. EPA also plans to publish a Spanish version of this guidance to make it more accessible to small systems and technical assistance providers in Puerto Rico. As stated in the report, AWIA authorizes two grant programs to support resiliency of public water systems, and Congress appropriated $3 million for the program authorized under SDWA Section 1459A(l) (AWIA Section 2005). In accordance with EPA's *Policy for Competition of Assistance Agreements*, OW is preparing a competitive announcement to award the grants under this program. EPA will conduct outreach to primacy agencies, including Puerto Rico and U.S. Virgin Islands, and via press release or social media when the competitive announcement opens.	2022.

CONTACT INFORMATION

If you have any questions regarding this response, please contact let me know or have your staff contact Arlene Chin, Region 2's Audit Coordinator, at (212) 637-3408 or Chin.Arlene@epa.gov, or Rudnell (Rudy) O'Neal, Chief, Grants and Audit Management Branch, Mission Support Division, at (212) 637-3427 or Oneal.Rudnell@epa.gov.

cc: Doug Benevento, Associate Deputy Administrator Mandy Gunasekara, Chief of Staff
David P. Ross, Assistant Administrator, Office of Water
Dennis Lee Forsgren, Jr., Deputy Assistant Administrator, Office of Water Anna Wildeman, Principal Deputy Assistant Administrator, Office of Water

Susan Bodine, Assistant Administrator, Office of Enforcement & Compliance Assurance James Hewitt, Associate Administrator, Office of Public Affairs
Nancy Grantham, Principal Deputy Associate Administrator, Office of Public Affairs

Appendix C

Distribution

The Administrator
Assistant Deputy Administrator
Associate Deputy Administrator
Chief of Staff
Deputy Chief of Staff/Operations
Agency Follow-Up Official (the CFO)
Agency Follow-Up Coordinator
Regional Administrator for Region 2
Assistant Administrator for Water
Regional Deputy Administrator for Region 2
Principal Deputy Assistant Administrator for Water
Deputy Assistant Administrators for Water
General Counsel
Associate Administrator for Congressional and Intergovernmental Relations
Associate Administrator for Public Affairs
Director, Office of Continuous Improvement, Office of the Administrator
Director, Office of Regional Operations
Audit Follow-Up Coordinator, Office of the Administrator
Audit Follow-Up Coordinator, Region 2
Audit Follow-Up Coordinator, Office of Water