



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.