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ONE HUNDRED FIFTEENTH CONGRESS

Congress of the United States
House of Representatives
COMMITTEE ON ENERGY AND COMMERCE
2125 RAYBURN HOUSE OFFICE BUILDING
WASHINGTON, DC 20515-6115

Majority (202) 225-2927
Minority (202) 225-3641

MEMORANDUM

November 13, 2017

To: Subcommittee on Environment Democratic Members and Staff

Fr: Committee on Energy and Commerce Democratic Staff

Re: Response and Recovery to Environmental Concerns from the 2017 Hurricane Season

I. INTRODUCTION

On **Tuesday, November 14, 2017, at 10:00 a.m. in room 2123 of the Rayburn House Office Building**, the Subcommittee on Environment will hold a hearing on "Response and Recovery to Environmental Concerns from the 2017 Hurricane Season." The hearing will look at ongoing response and recovery efforts related to hurricanes Harvey, Irma, and Maria. The first panel will include state and federal government witnesses, and the second panel will include stakeholders and affected citizens.

II. BACKGROUND

On August 25, 2017, Hurricane Harvey made landfall off the Texas coast as a Category 4 hurricane, with winds of 80 miles per hour (mph). The hurricane was expected to produce a total of 15 to 30 inches of rain, with a possible maximum of 40 inches in isolated areas of the state.[1] The city of Houston, Texas received 51.88 inches of rain, the largest amount of rainwater recorded from a single storm in United States history. As a result, approximately 780,000 Texas residents evacuated their homes. The initial federal major disaster declaration, issued on August 25, 2017, included 30 Texas counties.

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[1] U.S. Department of Energy, Office of Electricity Delivery and Energy Reliability, Hurricane *Harvey Event Report (Update #1)* (Sept. 22, 2017) (energy.gov/sites/prod/files/2017/10/f37/Hurricane%20Harvey%20Event%20Summary%20%231.pdf).

Less than two weeks after Hurricane Harvey flooded Texas, Hurricane Irma became the strongest Atlantic hurricane on record, with winds of 185 mph.[2] Hurricane Irma hit the U.S. Virgin Islands and Puerto Rico on September 6, 2017, after moving across the Caribbean as a Category 5 hurricane. On reaching the United States mainland on September 10, as a Category 4 hurricane, Hurricane Irma devastated large portions of the Florida Keys with high winds and 12 inches of rain before making landfall again at Marco Island and then moving north along the Florida Gulf Coast to Tampa.[3]

On September 7, 2017, the U.S. Department of Energy (DOE) reported that over one million customers were without electricity in Puerto Rico, comprising approximately 66 percent of customers served by the Puerto Rico Electric Power Authority (PREPA). These power outages also affected drinking water and wastewater facilities, rendering them inoperable. Additionally, DOE reported that all customers on the islands of St. Thomas and St. John were without power, totaling 19,581 customers and 2,893 customers, respectively. The Island of St. Croix had approximately 9,000 power outages as a result of Hurricane Irma.[4]

Just ten days after Hurricane Irma, Hurricane Maria struck Puerto Rico and the U.S. Virgin Islands on September 20, as a Category 4 hurricane causing widespread flooding and catastrophic damage to the island's electrical grid, telecommunications system, and other infrastructure. Almost two months after the storm, close to 75 percent of Puerto Rico still lacks power for lighting, drinking water treatment, food and medicine refrigeration, mobile service to call 911, and a host of other critical functions. Additionally, almost 84 percent of the U.S. Virgin Islands remains without power.[5]

III. Drinking Water Impacts

Following Hurricane Harvey, approximately 3,607 drinking water systems supplying water to some 11 million people were affected by the storm. On September 3, the Environmental

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[2] *Hurricane Irma is now the strongest hurricane ever recorded in the Atlantic*, Quartz (Sept. 6, 2017).

[3] National Hurricane Center, *Irma Makes Landfall at Cudjoe Key in Lower Florida Keys* (Sept. 10, 2017) (www.nhc.noaa.gov/archive/2017/al11/al112017.update.09101318.shtml?); *Destructive winds, rain hit Florida as Hurricane Irma makes landfall in the Keys*, Washington Post (Sept. 10, 2017); National Hurricane Center, *Center of Hurricane Irma Makes Landfall at Marco Island* (Sept. 10, 2017) (www.nhc.noaa.gov/archive/2017/al11/al112017.update.09101941.shtml?).

[4] U.S. Department of Energy, Office of Electricity Delivery and Energy Reliability, Hurricane *Harvey Event Report (Update #22)* (Sept. 7, 2017) (energy.gov/sites/prod/files/2017/10/f37/Hurricane%20Harvey%20Event%20Summary%2022.pdf).

[5] U.S. Department of Energy, Office of Electricity Delivery and Energy Reliability, *Hurricane Harvey Event Report (Update #71)* (Oct. 26, 2017) (energy.gov/sites/prod/files/2017/10/f38/Hurricanes%20Maria%20and%20Irma%20Event%20Summary%20October%2026%2C%202017.pdf).

Protection Agency (EPA) reported that of the 2300 drinking water systems contacted, 166 had boil-water notices and 50 were shut down entirely. As of October 2, 38 water systems still had boil-water notices and five remained inoperable.

Following Hurricane Irma, four counties in Florida (Collier, Hollywood, Broward, and Lee counties) issued boil-water notices.[6] Such notices were still in effect in 13 water systems located in Lake, Marion, Osceola, and Orange counties as of October 13, 2017.[7]

In the U.S. Virgin Islands, where many residents rely on cistern water, Irma had significant drinking water impacts which were further exacerbated by Hurricane Maria. EPA drinking water assessment teams arrived in the Virgin Islands on September 24, and began monitoring drinking water. Despite concerns about contamination, no drinking water monitoring labs on the island had power immediately following the hurricanes, and no testing was done until the EPA team arrived.[8] On September 23, EPA issued an order to the Federal Emergency Management Agency and the U.S. Department of Defense (DOD) authorizing them to install and operate temporary drinking water treatment equipment.[9] DOD has brought four reverse osmosis treatment units to provide water in the Virgin Islands.[10]

In Puerto Rico, access to safe drinking water has been severely limited since Hurricane Maria. About 96 percent of the residents of Puerto Rico receive their water from the Puerto Rico Aquaduct and Sewer Authority (PRASA). Immediately following the hurricane, only 44 percent of PRASA customers had access to potable water. Customers of other water systems had no access to potable water. Forty-five days after Maria hit, roughly 83 percent of PRASA customers had access to potable water, some through bulk water deliveries.[11] It is not clear if any of the other water systems are currently operational.

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[6] *These Areas in Florida Should Boil Their Water After Irma*, TIME (Sept. 11, 2017) (time.com/4935621/irma-florida-boil-water-drinking/).

[7] Florida Department of Health, *Boil Water Notices* (www.floridahealth.gov/environmental-health/drinking-water/boil-water-notices.html) (accessed on Nov. 12, 2017).

[8] Environmental Protection Agency, *EPA Hurricane Maria Update for Monday, September 25* (Sept. 25, 2017) (www.epa.gov/newsreleases/epa-hurricane-maria-update-monday-september-25).

[9] Environmental Protection Agency, *EPA Acts to Increase Supply of Clean Drinking Water in U.S. Virgin Islands* (Sept. 24, 2017) (www.epa.gov/newsreleases/epa-acts-increase-supply-clean-drinking-water-us-virgin-islands).

[10] *EPA Assessing Drinking Water and Wastewater Treatment Facilities in USVI Following Hurricanes Irma and Maria*, The Virgin Islands Consortium (Sept. 26, 2017) (viconsortium.com/virgin-islands-2/epa-assessing-drinking-water-and-wastewater-treatment-facilities-in-usvi-following-hurricanes-irma-and-maria/).

[11] Federal Emergency Management Agency, *Hurricane Maria* (www.fema.gov/hurricane-maria) (accessed on Nov. 12, 2017).

IV. Impacts to Superfund Sites

Hurricane Harvey affected 43 Superfund sites around Houston, and 13 were damaged or flooded by the storm. EPA did not inspect the affected Superfund sites for days or weeks following the storm, despite reports by operators of at least one site that contaminants had been released.[12] When EPA assessments were completed, two highly polluted sites were found to require additional action. Those two sites are the San Jacinto River Waste Pits site and U.S. Oil Recovery. [13] At the San Jacinto River Waste Pits site, that work has progressed, and a new cleanup plan has been finalized requiring removal of contaminated sediments.[14]

Within the Irma-affected states and the U.S. Virgin Islands, 170 National Priority List sites were assessed and three issues were reported. In Florida, EPA is still working to determine the extent of the damage to Post and Lumber Preserving Co, Inc site. Additional monitoring at the Fairfax Wood Treating site in Jacksonville has shown no new contamination. In Brunswick, Georgia, the Terry Creek Dredge Spoil Areas/Hercules Outfall site suffered minor damage, and the responsible party is working to address the issues.[15]

In Puerto Rico, EPA has complete preliminary assessments for all of the Superfund sites for which EPA is the lead agency, and has made minor repairs to fencing and structures. EPA is coordinating with DOD to assess impacts to Culebra and Vieques, two large Superfund sites where DOD is the responsible party and the lead agency.[16]

V. Air Impacts

Following Hurricane Harvey, damaged refineries and chemical facilities reportedly released millions of pounds of hazardous substances into the air, such as nitrogen oxides, benzene, and other volatile organic compounds.[17] One refinery, owned by Valero, leaked

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[12] *AP Exclusive: Evidence of Spills at Toxic Site During Flood*, The Houston Chronicle (Sept. 17, 2017) (www.houstonchronicle.com/news/texas/article/AP-Exclusive-Evidence-of-spills-at-toxic-site-12208071.php).

[13] Environmental Protection Agency, *EPA/TCEQ: Updated Status of Systems Affected by Harvey* (Sept. 14, 2017) (www.epa.gov/newsreleases/epatceq-updated-status-systems-affected-harvey-2).

[14] Environmental Protection Agency, *San Jacinto River Waste Pits Superfund Site* (www.epa.gov/tx/sjrwp) (accessed on Nov. 12, 2017).

[15] Environmental Protection Agency, *EPA Irma Recovery Update for September 21, 2017* (Sept. 21, 2017) (www.epa.gov/newsreleases/epa-irma-recovery-update-september-21-2017).

[16] Environmental Protection Agency, *Hurricane Maria Response* (response.epa.gov/site/site_profile.aspx?site_id=12403) (accessed on Nov. 12, 2017).

[17] *A Sea of Environmental Health Hazards in Houston's Floodwaters,* New York Times, (Aug. 31, 2017).

significant amounts of benzene. The company's initial estimates of how much benzene had been released were significantly lower than current estimates, and impacts are still being evaluated.[18]

Chemical fires at an Arkema Facility in Crosby, Texas resulted in a 1.5-mile radius evacuation zone. Although no volatile organic chemicals or semi-volatile organic chemicals were detected in the surface water runoff, there are still risks to be investigated. The Texas Commission on Environmental Quality has an ongoing investigation and the U.S. Chemical Safety Board has initiated an investigation of the Arkema plant.[19]

In Puerto Rico and the U.S. Virgin Islands, significant air impacts have occurred because of ongoing reliance on diesel generators. EPA has issued a "no action assurance" for Puerto Rico stating that it will not bring enforcement actions over violations of the Clean Air Act caused by mobile generators.[20] These air impacts may be exacerbated if debris management practices rely on incineration.

VI. WITNESSES

Panel I:

Peter Lopez
Regional Administrator
EPA Region 2

Trey Glenn
Regional Administrator
EPA Region 4

Sam Coleman
Acting Regional Administrator
EPA Region 6

Bryan Shaw
Chairman
Texas Department of Environmental Quality

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[18] *Valero Houston Plant Underestimated Harvey Benzene Leak*, The Wall Street Journal (Sept. 15, 2017) (www.wsj.com/articles/valero-houston-plant-underestimated-harvey-benzene-leak-1505432176).

[19] Environmental Protection Agency, *Arkema Update* (Sept. 8, 2017) (www.epa.gov/newsreleases/arkema-update).

[20] Environmental Protection Agency, *EPA Exercises Enforcement Disrection for Mobile Power Generators Imported for Use in Puerto Rico* (Sept. 23, 2017) (www.epa.gov/newsreleases/epa-exercises-enforcement-discretion-mobile-power-generators-imported-use-puerto-rico).

Panel II:

Mark Lichtenstein
Chief of Staff and Chief Sustainability Officer
SUNY College of Environmental Science and Forestry

Lyvia N. Rodriguez Del Valle
Executive Director
Corporación del Proyecto ENLACE del Caño Martín Peña

Trent Epperson
Assistant City Manager
City of Pearland, Texas

Mike Howe
Executive Director
Texas Section of American Water Works Association
on Behalf of the American Water Works Association