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

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OFFICE OF CONGRESSIONAL AND
INTERGOVERNMENTAL RELATIONS

The Honorable John Shimkus
Chairman
Subcommittee on Environment
Committee on Energy and Commerce
U.S. House of Representatives
Washington, D.C. 20515

Dear Chairman Shimkus:

Enclosed please find the U.S. Environmental Protection Agency's responses to the Committee's questions for the record following the November 14, 2017, hearing titled "Response and Recovery to Environmental Concerns from the 2017 Hurricane Season."

I hope this information is helpful to you and the members of the Committee. If you have further questions, please contact me or your staff may contact Carolyn Levine in my office at levine.carolyn@epa.gov or (202) 564-1859.

Sincerely,

[redacted]

Troy M. Lyons
Associate Administrator

Enclosures

Enclosure

U.S. Environmental Protection Agency
Responses to Questions for the Record
Committee on Energy and Commerce
Subcommittee on Environment
Hearing on
"Response and Recovery to Environmental Concerns from the 2017 Hurricane Season"
November 14, 2017

Questions to Regional Administrator Peter Lopez:

The Honorable John Shimkus

1. **Mr. Lopez, how does the financial condition of the Puerto Rico Aqueduct and Sewer Authority affect its ability to use Drinking Water Revolving fund monies to address Safe Drinking Water Act compliance needs? Do you have suggestions for fiscally prudent ways to address this matter?**

Response: Currently, funding is not flowing through either Puerto Rico's Clean Water nor the Drinking Water State Revolving Funds (SRF) due to the fiscal issues that have impacted Puerto Rico Aqueduct and Sewer Authority (PRASA's) ability to pay contractors, resulting in planned projects being halted, particularly in the wastewater arena. Under current law, Puerto Rico is required to provide a 20% statutorily required match in order to receive SRF capitalization grants. Given Puerto Rico's severe financial challenges, this 20% match requirement currently serves as an impediment to Puerto Rico's ability to access federal SRF funds. Congress could choose to eliminate or reduce the 20% match requirement as a means to help accelerate disbursement of funds for clean water and drinking water projects, though this would not resolve PRASA's ongoing cash-flow problems. For longer term implementation, Congress could consider taking steps to make subsidy provisions, including principal forgiveness, more consistent across federal funding agencies for disaster relief projects.

2. **Mr. Lopez, as I understand it, the Disaster Declarations for Texas, Florida, and the US Virgin Islands are Category A-F. In Puerto Rico, the disaster declaration came out last week and I understand that the designation was moved to Category A-G, including the permanent repair of publicly owned water treatment and delivery systems and sewage collection and treatment facilities**

    a. **Did EPA have any role in finally getting this declaration moved from temporary work to permanent repair work?**

Response: No, EPA did not have a role in the disaster declarations.

    b. **Do you know why Puerto Rico went so long being relegated to only temporary aid?**

Response: The EPA does not have this information. The Commonwealth and FEMA would be the source of this information.

3. **Mr. Lopez, what superfund sites, oil sites, and chemical facilities on the US Virgin Islands – have they been evaluated?**

   a. **If so, what was the result of the evaluation and is there any follow up required?**

Response: Yes. EPA Region 2 performed field assessments of all Superfund and oil sites in the U.S. Virgin Islands. In addition, EPA assessed about 87 regulated facilities in the U.S. Virgin Islands. The region found that the tank was damaged at the Cruz Bay Oil Tank site in St. John, U.S. Virgin Islands, during Irma but overflights of the area did not show any oil spills from the site. EPA worked with FEMA and the U.S. Navy to gain access to the site and pump the damaged tank to provide more capacity for future rainfall. The tank is currently stable. The remaining oil in the tank bottom will be removed and the tank dismantled once access to St. John has improved and Hurricane response priorities allow EPA personnel and contractors to address the site.

4. **Mr. Lopez, what is the Agency doing about hazardous waste, household hazardous waste, and medical waste that has found its way into the landfills in Puerto Rico?**

Response: EPA is working with the U.S. Army Corps of Engineers, the government of Puerto Rico and municipalities, as well as residents, to protect people and prevent hazardous materials from reaching landfills.

EPA is assisting the government of Puerto Rico and municipalities in the collection of household hazardous waste, electronic, and abandoned or "orphan" containers, which include drums, tanks, containers, and cylinders that were found floating in or near water bodies. In Puerto Rico, about 56,500 drums, propane tanks, cylinders, white goods and other containers have been collected, preventing them from reaching landfills. While EPA does not have a specific mission assignment for medical waste collection in Puerto Rico, the agency has been collecting it incidental to the household hazardous waste and orphan container mission assignments.

   a. **Has EPA been working with Puerto Rico Environmental Quality Board to look at the landfills – both before and after the hurricanes?**

Response: The EPA worked closely with the Puerto Rico Environmental Quality Board in setting up its staging areas, some of which are at landfills. In these cases, the landfills were assessed by the EPA for staging area suitability, along with the EQB and local municipalities. Previous concerns with landfill capacity, operations and maintenance issues were exacerbated by the storms. EPA's long-term goal is to assist Puerto Rico and the U.S. Virgin Islands in identifying sustainable solutions to managing solid waste, including recycling and proper siting, recognizing, in particular, the geographical constraints of being in an island setting.

5. **Mr. Lopez, has EPA conducted air quality assessments in the impacted areas?**

a. If so, when and how many?
b. What have the results of those assessments been, generally?

Response: One way EPA "assesses" air quality is through a network of air monitors. EPA is working with both the Puerto Rico and U.S. Virgin Islands governments to re-establish the regulatory ambient air monitoring network across the islands. As a result of Hurricanes Irma and Maria, the air quality monitoring networks in Puerto Rico and USVI were rendered inoperable due to the lack of electrical power and because of other damage and access issues at particular sites. The equipment is very sensitive and EPA is in the process of working with FEMA and other authorities to restore the network's operation. A Mission Assignment (MA) was approved by FEMA to repair and restore priority stations in Puerto Rico. A similar MA is in process with VITEMA and FEMA for USVI. Region 2 is also working closely with the Puerto Rico and USVI air quality agencies in establishing air monitoring priorities and getting the system running.

While the increase in power generators in these areas often increases the amount of pollutants in the air, there is also an urgent need for power to run wastewater treatment systems, drinking water systems and pollution control systems on facilities on the islands.

6. **Mr. Lopez, what is the status of the wastewater treatment plants in Puerto Rico and the US Virgin Islands?**

Response: As of January 3, 2018, of the 51 wastewater treatment plants operated by PRASA in Puerto Rico, two are not operating. All eight of the wastewater treatment plants are operating in the U.S. Virgin Islands.

a. Your written testimony notes that of the 800 pump stations in Puerto Rico, "about" 106 are overflowing sewage due to lack of power, malfunctioning generator or damage – what is the Agency doing about it?

Response: Thanks to the partnerships between federal and local partners, the situation in Puerto Rico has improved since EPA testified before the Subcommittee. As of January 3, 2018, 49 of the approximately 714 wastewater pump stations in Puerto Rico are not operating. Many of those are out of service due to lack of primary power which FEMA is helping to address by providing generators. The remaining pump station outages are due to clogs and broken lines, which PRASA is addressing. The EPA continues to coordinate with the Puerto Rico government, FEMA and the U.S. Corps of Engineers to provide generators and make necessary repairs to get these pump stations back up and running.

b. Your written testimony also notes that "many" of the wastewater plants on St. Thomas, St. Croix, and St. John are operating, though some plants and pump stations are damaged or blocked by storm debris – what is EPA doing about that?

Response: The situation continues to improve in the U.S. Virgin Islands with respect to wastewater treatment. As of January 3, 2018, all of the eight USVI wastewater treatment plants are in service. Three of the 30 pump stations are still experiencing problems. The three have some damage or are without power. The EPA continues to coordinate with the USVI

government, FEMA and the U.S. Corps of Engineers to make necessary repairs and restore power to get the remaining pump stations back up and running.

c. What is the impact of this sewage on source water for drinking water or, as Mrs. Rodriguez testifies on the next panel, backup into peoples' showers and sinks?

Response: Sewage backups can be serious, and EPA is working to ensure that these types of situations are addressed expeditiously. The particular issue of sewage backup into homes in the municipality of Corozal was addressed. The backup was caused by transmission pipe damage PRASA repaired those pipes. Some overflows were caused by clogged sewer lines, and EPA worked with PRASA, the Puerto Rico Environmental Quality Board, FEMA and the U.S. Corps of Engineers to prioritize sewer lines that need to be fixed or cleaned to prevent backups. EPA is coordinating with PRDOH and PRASA to conduct comprehensive drinking water sampling program throughout the island on PRASA and non-PRASA drinking water systems.

The Honorable Diana DeGette

1. Mr. Glenn testified that Region 4 took several steps to prepare for its response before Hurricane Irma made landfall. Before Hurricane Irma hit Puerto Rico and the U.S. Virgin Islands did leaders in Region 2:

a. Increase staffing in the Regional Emergency Operations Center?
b. Deploy On-Scene Coordinators to an on-site Emergency Operations Center?
c. Provide a Region 2 liaison to the FEMA Regional Coordination Center?
d. Did Region 4 take any of the above actions before Hurricane Maria?

Response: It is difficult to directly compare the response in a contiguous state, which is more than 450 miles long, with the response in an island setting. While EPA Region 4 was able to make preparations in areas nearby anticipated landfall in Florida, the island setting in Puerto Rico and the U.S. Virgin Islands made the ability to have responders pre-deployed and stationed in a safe place, while still being within reach of areas expected to be hard hit, much more challenging than the agency's preparations and response to Hurricane Harvey in Texas and Hurricane Irma in Florida.

The EPA's first mission objective is to protect its responders. That said, the agency increased staffing in its Regional Emergency Operations Center and staff were on stand-by to respond to Hurricane Irma. In addition, EPA communicated with both the Puerto Rico and U.S. Virgin Islands governments and a senior official – the Caribbean Environmental Protection Division Director – was located in San Juan and equipped with a satellite phone to help facilitate communications. Hurricane Irma made landfall in the U.S. Virgin Islands and then Puerto Rico on September 6, 2017. Both areas were still receiving severe weather the following day. After receiving Mission Assignments from FEMA, EPA deployed personnel on September 8. EPA sent four assessment teams to both Puerto Rico and the U.S. Virgin Islands, and provided staff to the FEMA's Regional Response Coordination Center in New Jersey.

Mr. Glenn testified that Region 4 deployed numerous senior regional leaders, including the regional administrator, to the impacted region before Hurricane Irma made landfall in Florida.

- **e. Did Region 2 deploy EPA senior regional leaders to Puerto Rico and the U.S. Virgin Islands to coordinate with local officials before Hurricane Irma made landfall?**
- **f. How many senior leaders were deployed previous to the Hurricane Irma's landfall?**
- **g. Who was the most senior official who was pre-deployed?**
- **h. Please Response the questions above for the period before Hurricane Maria made landfall.**

Response: As EPA noted to your staff following the hearing, the island setting in Puerto Rico and the U.S. Virgin Islands made the ability to have responders pre-deployed and stationed in a safe place, while still being within reach of areas expected to be hard hit, unique and much more challenging than the agency's preparations and response to Hurricane Harvey in Texas and Hurricane Irma in Florida.

As Maria was bearing down on the U.S. Virgin Islands and Puerto Rico as a Category 5 storm, FEMA, in concert with other responding agencies, ordered all responders in the USVI to leave the islands until after the storm. At FEMA's request, a very small number of federal response personnel, including one EPA On-Scene Coordinator, remained on St. Croix in a bunker. The EPA made the decision to manage response personnel in Puerto Rico in the same manner, and response staff were likewise instructed to return to the mainland United States until after the storm.

Unlike areas of the mainland where responders could travel out of harm's way, there was no area of the U.S. Virgin Islands or Puerto Rico that would ensure their safety. EPA's own staff who live in Puerto Rico and the USVI remained, of course, with the safety of themselves and their families being their first priority, including Region 2's Director of the Caribbean Environmental Protection Division. EPA provided key people with satellite phones to facilitate re-connection after the hurricane and made arrangements to re-deploy its resources, along with other agencies' resources, as soon as it was possible to do so. During the week of October 16, 2017, just days after taking office as the new EPA Regional Administrator, Pete Lopez visited both Puerto Rico and the U.S. Virgin Islands. This included trips into the field to strengthen partnerships with local governments and to gauge community needs first-hand. Regional Administrator Lopez focused on finding solutions to challenges and emphasized working directly with Puerto Rico and U.S. Virgin Islands government officials as well as with local governments and community organizations.

Immediately following landfall, EPA Region 2 deployed personnel to the islands and moved response staff to the islands as soon as transport and lodging became available. Even today, several months after the storm, securing sufficient lodging remains one of the biggest logistical challenges.

2. Mr. Glenn testified that on September 12, two days after Irma made landfall in Florida, Region 4 had 12 Field Hazard Assessment Teams conducting targeted facility assessment support at chemical and oil storage facilities.

- **a. How many Field Hazard Assessment Teams were operational in Puerto Rico and the U.S. Virgin Islands two days after Irma made landfall?**
- **b. How about two days after Maria made landfall?**
- **c. When were the first Field Hazard Assessment Teams operational?**
- **d. How many teams were there at that time?**

Response: Following Hurricane Irma, impacts to St. Thomas and St. John were extreme, but impacts to St. Croix and Puerto Rico were less severe. The EPA was therefore able to deploy personnel within 1-2 days of Hurricane Irma passing Puerto Rico and St. Croix. By that time, EPA was required to remove personnel from the islands (per FEMA's orders in advance of Hurricane Maria's landfall), there were about 44 EPA response personnel on the ground in Puerto Rico and the US Virgin Islands.

As was noted previously, unlike areas of the contiguous states where responders could travel out of harm's way, there was no area of the U.S. Virgin Islands or Puerto Rico that would ensure their safety. Hurricane Maria caused devastating destruction and the most severe impacts of the storm lasted for several days after the initial landfall. The hurricane did not completely clear the northwestern portion of Puerto Rico until late morning on September 21, 2017, and dangerous wave activities continued throughout the Caribbean for several days. All ports and airports were closed for days and in some cases for weeks. FEMA began re-deploying people from Atlanta within a few days, but gave first priority to responders involved with immediate life-saving missions. The EPA was able to start re-deploying by September 23, 2017.

3. Mr. Glenn testified that on September 12, two days after Irma made landfall in Florida, Region 4 had six teams making boots-on-the-ground assessments of Superfund sites.

- **a. How many teams did Region 2 have making boots-on-the-ground assessments of Superfund sites two days after Irma made landfall?**
- **b. How about two days after Maria made landfall?**
- **c. When were the first Superfund site assessments made?**
- **d. How many teams were there at that time?**

Response: The location, terrain and circumstances in Florida is very different from that in Puerto Rico or the U.S. Virgin Islands, with Florida being accessible from the mainland, versus the island setting of Puerto Rico and the U.S. Virgin Islands, where airports and ports were closed. EPA began assessing Superfund sites within a few days after Hurricane Irma made landfall and had completed those assessments within the few weeks between Hurricanes Irma and Maria hitting the U.S. Virgin Islands and Puerto Rico. About a dozen people were involved with these assessments, with the number and mix of responders varying for each site, including project managers for the sites, contractors and responsible parties.

As noted above, Hurricane Maria caused intense destruction and the most severe impacts of the storm lasted for several days after initial landfall. Even after the hurricane completely cleared Puerto Rico, dangerous wave activity continued throughout the Caribbean for several days, and all ports and airports were closed for several days and in some cases for weeks. FEMA began re-deploying personnel within a few days, but gave first priority to responders involved with immediate life-saving missions. EPA was able to start re-deploying by September 23, 2017. EPA assessments of Superfund sites began on September 22, 2017, performed by EPA employees from the EPA Caribbean office that remained in Puerto Rico. There were twelve people involved in these assessments, including project managers, contractors and responsible parties. Most of the assessments were completed within a few weeks, with a few taking longer due to accessibility of the sites. There were no major releases of hazardous materials or chemicals from any of the sites, though a few had sustained some damage. That damage consisted of broken fencing and lack of power to pump and treatment facilities. The fencing has now been repaired and the pump and treatment facilities are operational.

Questions to Regional Administrator Trey Glenn:

The Honorable John Shimkus

1. **Mr. Glenn, your written testimony states that Region 4 personnel were deployed to Florida to assist the State and the US Army Corps of Engineers with water and wastewater support and that the Region coordinated with the Florida Department of Environmental Protection to monitor the status of more than 1,600 community drinking water systems and to assist with contacting small, non-community drinking water systems such as schools and restaurants. What is the status of those efforts?**

Response: As of November 14, 2017, all assessments of drinking water systems that were impacted by the hurricanes were completed. All water systems are fully operational and all boil water notices had been rescinded.

2. **Mr. Glenn, has EPA evaluated all of the superfund sites in Region 4? [(If no/, when do you anticipate that will be completed? If so, what were the results of the evaluations?]**

Response: EPA assessed vulnerabilities at sites in the states impacted by the storms, including all Superfund remedial sites in Florida, and deployed six teams to conduct boots-on-the-ground assessments of all National Priority List (NPL) sites within the state. As a further measure, EPA also deployed teams to assess NPL sites in Alabama, Georgia, and South Carolina.

   a. Do any of the superfund sites require follow up?

Response: Three sites required minor repairs: 1) Fairfax Wood in Jacksonville, Florida (fallen trees damage to a fence and minor soil erosion); 2) Post Lumber in Quincy, Florida (seam separation in the geomembrane cover protecting a waste pile from weather elements); and 3) Terry Creek in Brunswick, Georgia (fence damage by fallen trees and erosion in the creek and at the storm and process water outfall). During post storm inspection, EPA also noticed damage to a weir at the process outfall at the Terry Creek site. The Potentially Responsible party (PRP) has removed the trees and repaired the fence. The weir will be addressed during the Remedial Action as part of the Superfund Cleanup process.

3. **Mr. Glenn, your written testimony states that in preparation for Hurricanes Harvey and Irma EPA worked to ensure that the Agency had an awareness of potential vulnerabilities at superfund sites and that due to the trajectory of Hurricane Irma, you were able to attend to concerns in Florida prior to the storm's landfall. What issues were you able to head off and can you give us more information on what steps Region 4 took in preparation?**

Response: EPA conducted Incident Management Training for staff the week prior to landfall to ensure that regional Response Support Corps personnel were refreshed in the Incident Command System (ICS).

Regional Administrator Glenn personally reached out to the Environmental Directors of Alabama, Georgia, Florida, North Carolina and South Carolina to inform them of Region 4's ability to assist, if needed. The region also reached out to tribal partners who might be impacted by the storm. Other than Florida, no other Region 4 state or tribe requested EPA assistance relative to Hurricane Irma.

EPA Region 4 increased staffing in the Regional Emergency Operations Center to provide continuity of operations and coordination across the response activities. At the request of the State, Region 4 also deployed an On-Scene Coordinator (OSC) stationed in Florida to the State Emergency Operations Center (SEOC.) The purpose of this deployment was to provide direct coordination and planning support to the state. Prior to Irma's landfall, we also provided a Region 4 liaison to the FEMA Regional Response Coordination Center (RRCC), and deployed EPA regional senior leaders to coordinate with local officials on Hurricane Irma preparations and immediate response needs.

Before and after landfall, the region worked closely with EPA Headquarters to issue twelve fuel waivers across multiple states whose fuel supply was impacted by the hurricanes and no action assurances to help stabilize prices at the pump and ensure that emergency vehicles had access to fuel. The region also contacted state drinking water primacy agencies to ensure that emergency contact information was accurate, and that states agencies were familiar with the process for requesting federal water sector assistance under the National Response Framework. In addition, twelve Field Hazard Assessment Teams consisting of EPA OSCs, technical assistance team contractors and Florida Department of Environmental Protection personnel were identified and pre-positioned for deployment when needed. In addition, the team included a number of OSCs mobilized from the EPA Region 5 office in Chicago to support our efforts.

a. Your testimony also notes that Region 4 conducted boots-on-the ground assessments of all sites on the National Priorities List in Florida, Georgia, Alabama, and South Carolina and your testimony reports that these teams were directed to complete onsite assessment of the sites, document current operating conditions, verify that there were no releases from the sites and—where necessary—take any further actions to protect health and the environment. This sounds like a very proactive plan — do all EPA Regions conduct this sort of proactive planning with respect to superfund sites and if not, shouldn't they?

Response: EPA believes that a proactive approach was necessary and the prudent course of action given the number of sites in Region 4. A similar approach is employed in all of EPA's regions.

4. Mr. Glenn, your written testimony notes that teams were deployed to Orlando, Florida to provide oil and hazardous substance response support by first conducting targeted facility assessment support at chemical and oil storage facilities as prioritized by the State of Florida. What was the result of the facility assessment?

Response: EPA Hazardous Assessment Teams conducted field assessments at more than 200 chemical and oil storage facilities identified as priorities in Florida. There were no significant storm-related hazardous substance or oil pollution incidents.

5. Mr. Glenn, your written testimony discussed how Region 4 reached out directly to ascertain the status of all 310 oil storage facilities required to maintain Facility Response Plans (FRP facilities) within Florida, Alabama, Georgia, and South Carolina and all 274 chemical facilities within Florida required to maintain Risk Management Plans (RMP facilities). What was the result of that assessment?

Response: Overall, there were very minimal reports of oil and hazardous substance spills that could be attributed to the storm.

a. Your testimony indicates that one of the 274 RMP facilities reported a hazardous substance release — what facility was it and what was release?

Response: There was a release of a hazardous air pollutant (ammonia) at the Pilgrims Pride facility in Live Oak, Florida. The release was short in duration (approximately 10 minutes according to the facility), quickly dissipated, and did not cause adverse health or environmental impacts**.**

b. Your testimony states that the source was "mitigated quickly" — what steps did the Agency take to mitigate the source?

Response: Mitigation of the source was performed by the facility. The facility implemented their emergency response plan and called the National Response Center to provide notification in a timely manner.

Trained hazmat facility employees responded to the release and isolated the impacted system to minimize the amount of ammonia released, and to make system repairs. During the response, facility personnel used hand held ammonia sensors to monitor the mechanical room air for ammonia concentrations to ensure responding employee safety. The facility reported that the ammonia release was contained onsite, did not leave the complex grounds. There were no injuries and no environmental or outside impact. The corrective action implemented after the incident investigation to prevent reoccurrence, was to shut off all starters during power outages to prevent unplanned start-ups.

6. Mr. Glenn, what is the status of the stationary air quality monitoring network sites in the impacted areas?

Response: In Florida, sites were fully operational and collecting air monitoring data at 97 of 98 sites within about two weeks after the storm. The remaining station was back up collecting air quality data approximately two months after storm.

In Georgia, no monitoring sites or equipment were damaged. Several sites lost power and were unable to collect data for a few days. All sites are now back online and operational. The Fort Mountain site lost power but was operational and collecting data a week post storm.

a. If these monitors have been damaged or rendered inoperable, when do you anticipate getting them back online?

Response: All sites that experienced damage or were inoperable due to the storm are fully operational at this time.

b. **If you are having to use other means of monitoring and measuring, such as portable and mobile collection devices, are you concerned about whether these samples are accurate and/or exemplary of air quality conditions throughout the regions?**

Response: EPA Region 4 is not using portable and mobile collection devices to assess ambient air quality. The region did not deploy mobile or portable air monitoring resources to assess the region's ambient air quality during the Hurricane Irma response.

Questions to Acting Regional Administrator Sam Coleman

The Honorable John Shimkus

1. **Mr. Coleman, has EPA evaluated all of the superfund sites in Region 6? [If not, when do you anticipate that will be completed? If so, what were the results of the evaluations?]**

    a. **Other than the San Jacinto Waste Pits, did any other superfund sites require follow up?**

Response: All 43 Superfund National Priority List (NPL) sites in the hurricane affected area were inspected and sampled. Only the San Jacinto site required repair and that has been completed. Post-hurricane Superfund site summaries and sampling data for all 43 sites have been published on EPA's website: www.epa.gov/hurricane-harvey.

2. **Mr. Coleman, we have heard a lot about the San Jacinto Waste Pits superfund site in your region with the most troubling being reports of the cap being damaged and dioxin levels as high as 70,000 parts per billion when the cleanup level is only 30 parts per billion. What can you tell us about the status of elevated levels of dioxin?**

    a. **I believe that EPA was requiring the potentially responsible parties to do additional sampling in the area around the site to determine the extent of the problem from the damage to the cap – what the result of that sampling?**

Response: EPA directed the potentially responsible parties to conduct probing the week of September 6, 2017, to ascertain possible areas of the cap where waste material might be exposed. EPA approved 14 locations for sampling and analysis. During the week of September 11 2017, sampling was conducted of all 14 areas and additional sampling was conducted in sediments adjacent to the cap to determine if waste material had been transported off of the cap. In one 2-foot by 2-foot location, dioxin levels of 70,000 ppb were measured. This area was covered by cap materials shortly after the samples were taken. The other 13 locations had background levels of dioxins. The sampling results from the adjacent sediment locations showed dioxin levels consistent with the pre-storm levels. EPA believes that this result means that the exposed area of elevated dioxin levels did not cause significant recontamination of the surrounding sediment.

    a. **I know that EPA signed the Record of Decision (ROD) in mid-October and I believe that the remedy selected was removal of the contamination- is that correct?**

Response: Yes, the ROD selected excavation and removal of over 200,000 cubic yards of dioxin contaminated wastes followed by off-site disposal.

    b. **Are the potentially responsible parties on board with the ROD and with conducting any immediate repairs necessary on the cap?**

Response: The potentially responsible parties submitted significant comments in support of an enhanced cap, and raised several concerns with the alternative of excavation and off-site

disposal. EPA provided extensive responses in the ROD to the comments raised by the potentially responsible parties during the comment period. While the potentially responsible parties have not agreed to conduct the site cleanup, they have shown interest working with EPA on the best design for the remedial action.

The potentially responsible parties promptly conducted the immediate repairs necessary on the cap following impacts from Hurricane Harvey as required by the maintenance plan for the site and they have agreed to the sampling that EPA required.

3. Has Region 6 had to deal with orphan containers like drums, tanks, canisters, cylinders and similar containers displaced by the hurricane found floating in or washed up near waterways because of the flooding?

Response: Yes, U.S. EPA, U.S. Coast Guard, Texas Commission on Environmental Quality, and Texas General Land Office formed a Unified Command in response to Hurricane Harvey. The Unified Command completed hazmat reconnaissance and recovery activities associated with hurricane impacts. Orphan containers, including drums, tanks, canisters, cylinders and similar hazmat containers found floating in or washed up near waterways were assessed, collected, sorted and grouped by type prior to shipping them offsite for proper treatment and disposal. The Unified Command collected over 1,088 orphan containers and responded to approximately 266 reported spills or discharges. As part of Unified Command, USCG and the Texas General Land Office addressed and completed the marine operations to recover abandoned vessels (boats).

4. Mr. Coleman, your written testimony describes the Airborne Spectral Photometric Environmental Collection Technology – the ASPECT aircraft. It sounds like the ASPECT aircraft could ascertain whether here was any danger from the Arkema plant which had an explosion in the aftermath of the flooding and was able to assess and damage to and environmental issues with miles of pipelines, 134 Risk Management Plan facilities, 456 drinking water plants, and 105 wastewater plants. Is the ASPECT aircraft owned by EPA?

Response: The aircraft is owned by Airborne ASPECT Inc.; all of the monitoring equipment onboard the aircraft is government-owned, contractor-operated. Though the ASPECT aircraft is stationed in Dallas, Texas, it is a national asset and is available to other Regions. It has been used in over 170 responses, exercises, pre-deployments and environmental assessment activities throughout the country. (See attached fact sheet for additional information.)

5. Did Region 6 conduct air quality assessments in the impacted areas?

a) if so, when and how many?
b) What have the results of those assessment been, generally?

Response: The EPA completed air quality monitoring using their Trace Atmospheric Gas Analyzer (TAGA), ASPECT aircraft, and handheld instruments. The TAGA conducted monitoring in Houston (September 5-7, 2017 and September 10-12, 2017), Deer Park (September 14, 2017), Baytown (September 15, 2017), Sweeny and Texas City (September 17, 2017), Beaumont, Port Arthur, Victoria, and Point Comfort (September 18), and Corpus Christi

(September 19-20, 2017). The results from continuous air monitors, hand-held instruments, ASPECT and TAGA indicated no levels of immediate health concern.
TAGA data summary reports for September 5-7, 2017 and September 10-13, 2017 are available under the 'documents' section of EPA Hurricane Harvey 2017 website: www.response.epa.gov/hurricaneharvey2017.

Two TAGA mobile air monitoring buses began monitoring air quality around additional industrial sources in Texas. Additional TAGA reports are available under 'documents' section of this website.

EPA also sent its aerial surveillance aircraft to conduct a screening level assessment to evaluate unreported or undetected releases from facilities with Risk Management and/or Response Plans within the hurricane impacted areas. EPA's plane instrumentation measured 13 chemicals. The Airborne Spectral Photometric Environmental Collection Technology aircraft found no exceedances of the Texas comparison values. The screening level results from ASPECT were compared to the ASPECT list of the TCEQ's short-term Air Monitoring Comparison Values and found no exceedances of the short-term AMCVs. A report (see hyperlink) which summarizes the flights dated from September 4-11, 2017 (hyperlinked below) is included on the website at response.epa.gov/hurricaneharvey2017.

ASPECT Sept 11 Flight 2 report
ASPECT Sept 11 Flight 1 report
ASPECT Sept 10 Flight 2 report
ASPECT Sept 10 Flight 1 report
ASPECT Sept 9 Flight 2 report
ASPECT Sept 9 Flight 1 report
ASPECT Sept 8 Flight 2 report
ASPECT Sept 8 Flight 1 report
ASPECT Sept 7 Flight 2 report
ASPECT Sept 7 Flight 1 report
ASPECT Sept 6 Flight 2 report
ASPECT Sept 6 Flight 1 report
ASPECT Sept 5 Flight 1 report
ASPECT Sept 4 Flight 2 report
ASPECT Sept 4 Flight 1 report

6. Mr. Coleman, your written testimony mentions that EPA deployed the Trace Atmospheric Gas Analyzer which is a mobile air pollution detection vehicle that can provide air quality results quickly by collecting constant, real-time data for outdoor air quality. Is EPA concerned about whether the samples taken by the mobile air pollution detection vehicle are accurate and/or exemplary of air quality conditions throughout the regions?

Response: The TAGA provides accurate, real-time air monitoring data for the immediate location in which the monitoring is conducted. The instruments are calibrated using laboratory-grade standards and methodologies. TAGA laboratories have supported the agency on numerous and varied responses, projects, developments, preparedness activities and deployments. The

following is an illustrative sample of deployments where TAGA data was crucial to air monitoring efforts:

- Emergency Responses: The Paulsboro train derailment, Deepwater Horizon oil spill, and World Trade Center response.
- Vapor Intrusion Studies and Advancement in the Field: Started in 1987 with the Love Canal Habitability Study. The Mass Spectrometer/ Mass Spectrometer system can identify contributions associated with vapor intrusion from contaminated groundwater or soil as well as isolate impacts from confounding sources such as lifestyle materials, outdoor ambient air contributions and accidental or intentional releases.
- Urban Air Toxics Program Studies: Initiated to reduce public exposure to hazardous pollutants. TAGA laboratories provided analytical support in the Baton Rouge (Louisiana), Port Arthur (Texas), and Houston Ship Channel areas.
- Fumigation Remediation Activities: Building decontamination of anthrax at the Hart Senate Office Building, Brentwood and Hamilton Post Offices, Operation Lemon Drop aboard the ship CSAV Rio Puelo, and the former America Media Incorporated (AMI) facility. TAGA was used to monitor outdoor ambient air for the fumigant, chlorine dioxide, and its breakdown product, chlorine, to ensure that public health was not impacted.
- Chemical Warfare Agent (CWA) Monitoring Preparedness: The technology was evaluated by testing its efficacy in monitoring CWAs in parts per trillion by volume (pptv) levels or lower at the U.S. Army's Edgewood Chemical and Biological Center in Maryland.
- Engineering Support: Analytical information provided to optimize operating parameters for remediation operations used to evaluate the effectiveness of a building depressurization system to mitigate a vapor intrusion pathway.
- Pre-deployment and Planning during Events of National Consequence: TAGA laboratories used as operational units during major events such as the Superbowl, political conventions, international conferences, etc.

ASPECT

Airborne Spectral Photometric Environmental Collection Technology

Nation's *only* 24/7 Airborne Stand-off Chemical and Radiological Detection, Infrared and Photographic Imagery Platform

Aircraft

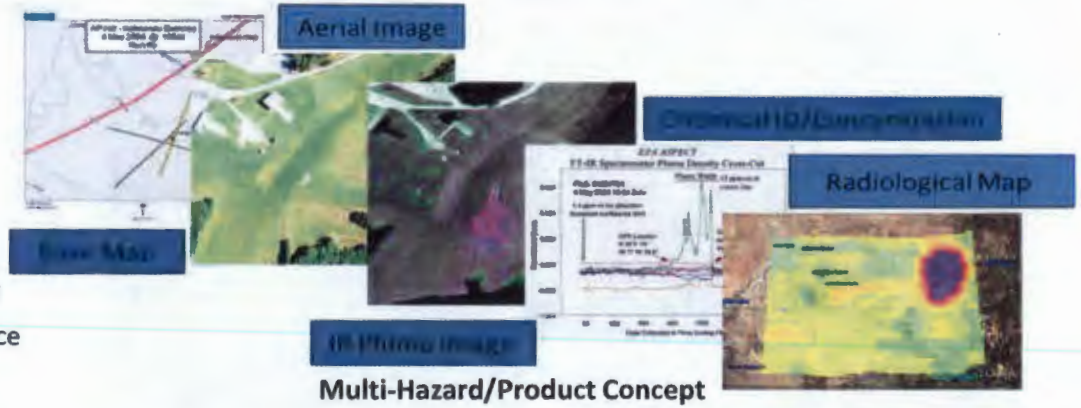
- Cessna 208B Super Cargo Master Platform based in Addison, Texas
- Aircraft Crew: Two Pilots, One Operator, All Commercial/ATP Rated
- Speeds: Data Collection at 100 kts; Cruise at 170 kts
- Range/Aloft Time: Range 1,200 NM; Aloft Time 4 – 6 hours
- Range: Can be anywhere CONUS collecting data within 9 hours
- Coverage: 4-hour coverage within a 800 mile radius
- Service Altitude: Data Collection at 300 to 5,000 ft AGL
- Ground Needs: Standard FBO, ISP with high speed internet

ASPECT Team

- Scientists and engineers all with advanced degrees with over 75 years of collective airborne remote chemical and radiological detection experience
- Derived from collaborative research, development, testing and implementation with the interagency, academia, states, and the private sector
- Provides onsite support to first responders, performs data analyses, and makes adjustments and repairs to the system and/or data products per the customer needs
- Provides time critical information while maintaining a budget conscious response
- Designs the chemical detection hardware and develops software applications; commercially available hardware is used for the radiological applications

ASPECT Program

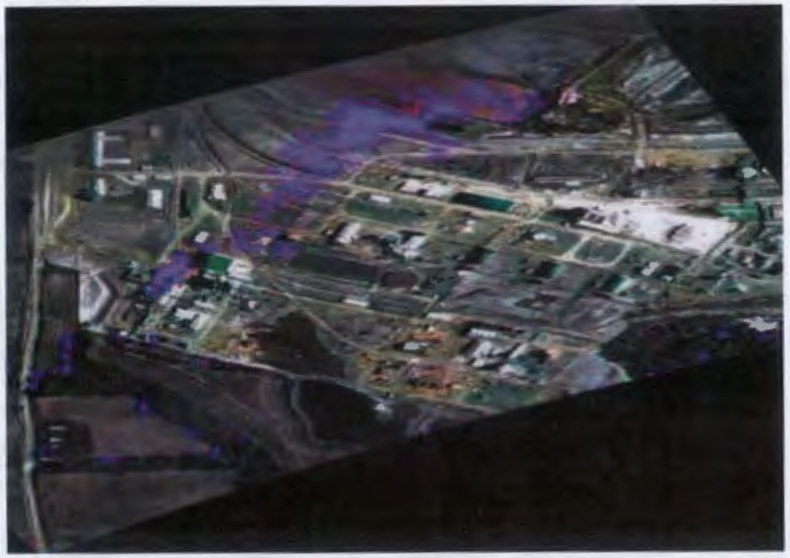
- **24/7/365 Readiness** with 1 hour wheels up capability
- Provides secure information to the **First Responder / Incident Commander** that is **timely, useful, and compatible** with numerous software applications
- **Promotes coordination and communication** with all stakeholders regarding operational data and products
- **Multi-role responses** (homeland security, emergency response, and environmental characterization)
- Provides **infrared & photographic images** with **geospatial chemical and radiological information**
- Products and data formats are **customer driven and** can be **provided to the customer within minutes** to hours depending on the mission



Multi-Hazard/Product Concept

ASPECT Technologies:

- An **Infrared Line Scanner** to image chemical plumes
- A **High Speed Infrared Spectrometer** to identify and quantify the composition of the chemical plume in the ppb to ppm range
- **Gamma-Ray Spectrometer** for radiation detection and isotope identification
- **Neutron Detection System** for enhanced radiological detection
- **High resolution digital cameras** (aerial & oblique) with ability to rectify for inclusion into GIS
- **Broadband Satellite Data System** (SatCom)



Methane Plume IR image

Chemical Capabilities

- ASPECT uses the principles of remote passive infrared detection via a Fourier Transform Infrared Spectrometer (FTS) to detect and quantify gaseous constituents present in the air column between the aircraft and the ground
- Chemical detection software is designed to filter out common atmospheric constituents as it automatically searches for 78 chemical compounds in near real-time (5 in the air column below the aircraft
- Hundreds of other chemicals can be processed by the team post survey

Deployment History

- Over **170** responses and deployments since 2001
- National Special Security Events (NSSE) and Special Event Assessment Rating (SEAR) level events (e.g., DNC, RNC, Inauguration, Super Bowl)
- Natural Disasters (e.g., Hurricanes Katrina, Rita, Gustav, and Sandy)
- Environmental Emergencies (e.g., Deepwater Horizon/BP Oil, West Fertilizer, Gold King Mine, site characterizations for Superfund sites)

Radiation Exposure Contour Map

Radiological Capabilities

- The only airborne remote sensing system in the country that provides NaI & LaBr and neutron detectors
- Improves the US EPA airborne ***gamma-screening and mapping*** capability of ground-based commercially available state-of-the-art hardware
- Applies IAEA, DOE, and EPA processing algorithms
- Near real-time product development based on customer input
- Possess NRC licensed gamma and neutron sources for use in exercises and training activities

Photography

- High resolution geo/orthorectified visible digital aerial images
- Geo/orthrectified infrared images
- Georeferenced oblique images
- Customizable display engines (ESRI, Google)

Website: http://www2.epa.gov/emergency-response/aspect

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