

## 2014 INTERNATIONAL OIL SPILL CONFERENCE

**Hurricane Isaac Post-Storm Response<sup>1</sup>**

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**ABSTRACT 299553:**

Hurricane Isaac made landfall on August 29, 2012 over Louisiana, lingering overhead for more than 60 hours. While most were concerned with surviving the 80+ mph winds and ensuing storm surge and floods, Coast Guard members statewide knew there would be no calm after the storm; instead it would be a grueling fight to restore the port to normalcy. The slow moving storm caused grounded deep draft vessels and barges, spilled oil, releases of hazardous materials (HAZMAT), and damage to various buildings and infrastructures. U.S. Coast Guard Sector New Orleans integrated local, states, and federal agencies into a Unified Command structure to coordinate limited resources post-storm. Within Sector New Orleans, the Incident Management Division (IMD) made it their primary mission to mitigate any substantial threats of oil discharges or HAZMAT releases and ensure proper cleanup. On September 2, 2012, IMD utilized the Incident Command System (ICS) to establish a Marine Environmental Response (MER) Incident Management Team (IMT) to achieve their post storm mission. The MER IMT consisted of 200 personnel, of which 60 were Coast Guard members, and included representatives from the National Strike Force, U.S. Environmental Protection Agency (EPA), U.S. Fish and Wildlife Service (USFWS), National Oceanic and Atmospheric Administration (NOAA), Louisiana Department of Environmental Quality (LDEQ), Louisiana Oil Spill Coordinator's Office (LOSCO), Louisiana Department of Wildlife and Fisheries (LDWF), and three Oil Spill Removal Organizations (OSROs); together the team collected 4500 barrels of oily water and 1200 HAZMAT containers, deployed over 11,000 feet of containment boom, and federalized three pollution projects. The MER IMT was disestablished on September 28, 2012 leaving Sector New Orleans IMD to maintain complete management of the ongoing federalized projects, "Fantome", "Map Drilling", and "Gulf South". The projects included oil discharges in adjacent waterways of two oil production/storage facilities, oil discharges from fixed facility barges, and oil discharges from a storage platform along the marsh shoreline. Sector New Orleans executed \$9.5 million in Oil Spill Liability Trust Funds towards emergency response efforts and successfully restored safety to the public health, welfare, environment, and maritime community.

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<sup>1</sup> This paper expresses the views of the authors and does not necessarily represent the views of the U.S. Coast Guard

**INTRODUCTION:**

On August 24, 2012, Sector New Orleans initiated the Incident Command System (ICS) structure as a contingency plan due to the projected landfall on the Florida Panhandle. Hurricane Isaac made landfall in the Sector New Orleans Area of Responsibility on August 28, 2012 as a category 1 hurricane with 80 mph sustained winds over an area of 200 miles. The slow moving storm hovered over the mouth of the Mississippi River for over sixty hours, bringing over 20 inches in rainfall and a 10-15 foot storm surge. During this period, the Sector New Orleans ICP staff sheltered in place at the Sector building, preparing for the post-storm response. The Hurricane Isaac post-storm marine environmental response became a model example for the proper use of ICS and necessary command organization within a Unified Command to execute a uniform, thorough response meeting all agency objectives and priorities. The following points discuss the analysis of the Marine Environmental Response Incident Management Team, aggressive identification of targets and subsequent response, review of notable hazmat and oil cases, and discussion of the funding limitations and Emergency Support Function (ESF)-10 mission.

**MER IMT DEVELOPMENT AND ORGANIZATION:**

The Sector New Orleans Incident Management Team (IMT) was comprised of a robust Operations Section with five branches aligning with post-storm response USCG missions including Waterways Management, Search and Rescue, Port Operations, Law Enforcement/ Security/ Safety, and Marine Environmental Response (MER). Following the storm's passing, 46 search and rescue cases were executed and 75 grounded vessels, 100 vessel breakaways, and 85 oil spills/ hazardous material (hazmat) releases were reported to the Sector New Orleans IMT. With operational stability achieved within four of the five branches, Sector New Orleans stood down from the ICS structure. However, the number of pollution targets rapidly increased to 400 pollution cases including known and unknown facility and vessel discharges/releases and mystery sheens, allowing the transition of the MER branch into a Unified Command (UC) and MER IMT.

The UC in the MER IMT was established on September 2, 2012 and was composed of the USCG, Environmental Protection Agency (EPA), Louisiana Department of Environmental Quality (LDEQ) and Louisiana Oil Spill Coordinator's Office (LOSCO). The USCG served as the Incident Commander for the tenure of the post-Hurricane Isaac pollution response. The mission of the UC was to mitigate substantial threats of oil discharges or hazmat releases and ensure proper clean-up of existing discharges and releases. In order to create a fully staffed ICP and IMT to achieve the UC's mission, all ICS positions were fulfilled by appropriate trustees, stakeholders, specialized teams, and agency personnel.

The MER IMT was composed of over 200 personnel from various agencies to include USCG, EPA, LOSCO, LDEQ, the National Oceanic and Atmospheric Administration (NOAA), U.S. Fish and Wildlife Service (USFWS), Louisiana Department of Wildlife and Fisheries (LDWF), and Department of Natural Resources (LDNR). The IMT was organized by utilizing appropriate ICS principles including a full-bodied Command Staff and a matured Operations, Planning, Logistics, and Finance Section. Additional stakeholders and parties intertwined in the

MER IMT included local Parish representatives, the State Historic Preservation Office, non-governmental agencies, and three Oil Spill Removal Organizations. The trustees, stakeholders, and organizations within the MER IMT became a vital resource to the UC in order to execute a thorough response to meet pre-determined UC objectives as well as shed light on the priorities of over twenty government and non-government organizations.

The National Strike Force (NSF), Incident Management Assistance Team (IMAT), Public Information Assist Team (PIAT), and Reserve Forces were valuable assets in strengthening the operational readiness of Sector New Orleans, replacing fatigued USCG members who worked tirelessly before, during, and immediately following Hurricane Isaac as well as providing invaluable resources and position expertise. Of significant note, with the high influx of public interest far exceeding the capacity and expertise of local personnel, the PIAT joined the Command Staff as the Public Information Officer, fielding all questions, inquiries, and requests from the public as well as expediting press releases to maintain a positive rapport between the MER IMT and public audience. The National Strike Force played an assertive role in the initial post-storm response as Aerial Operations and Hazardous Material Group Supervisors; however, their function proved to be invaluable during the later development of the ESF-10 mission.

#### **AREAS OF IMPACT AND RESPONSE TACTICS:**

Immediately following the storm, aerial overflights were vital to provide insight to the destruction in southeastern Louisiana and identify pollution targets requiring a response. Within 24 hours of the post-storm response, the MER IMT identified the most heavily impacted areas to include Braithwaite, Myrtle Grove, and Southwest Pass. Suffering over 15 feet in flooding, the community of Braithwaite was destroyed including the Stolthaven Chemical Facility. Myrtle Grove, located in Plaquemines Parish, became a significant pollution response target and area of interest due to the high number of facilities in the area as well as reports of flooding. Southwest Pass, located in the most southern portion of Louisiana, posed significant geographic issues and required adaptability in logistics and operations.

Despite the identified areas of significant impact via overflight, pollution reports stemmed across the entire New Orleans Area of Responsibility (AOR). The UC with the assistance of the NOAA Scientific Support Coordinator, who was elected as the Environmental Unit Leader within the MER IMT, continuously assessed the impact of pollution on the Louisiana shorelines as well as identified oil and orphan hazmat containers impacting several salt marshes and bayous near Jefferson Parish, Chandeleur Islands, Petit Chene Fleur, a small portion of the Mississippi River near Port Sulphur, and several areas around Plaquemines Parish. In addition, the UC concentrated efforts to maintain the resources at risk in the Delta National Wildlife Refuge (NWR), Breton NWR, Pass a Loutre State Wildlife Management Area (WMA), Isle Denieres Barrier Islands Refuge, East Timbalier Island NWR, Big Branch NWR, and Grand Isle State Park.

With a vast AOR and variety of oil and hazmat reports via overflights, National Response Center reports, and third-party notifications, aerial operations were utilized to efficiently locate and prioritize targets. During the planning cycle and organization of tactics, the Operations Section Chief quickly identified the issue of re-reporting targets since the initial aerial assets

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would fly similar flight patterns; therefore, a grid system was developed and utilized to isolate previously reported targets as well as ensured 100% accountability of the AOR. The increased number of overflights as well as specific task direction given to riders onboard led to the rapid collection and prioritization of targets.

An Aerial Operations Group under the Operations Section was established to maintain accountability of the areas surveyed and organize the flight plans for assigned USCG and state aerial assets. The overflights proved to be valuable tactical assets, locating orphaned facilities, actively discharging wellheads/platforms, and a plethora of hazmat.

**SPECIAL CIRCUMSTANCES:**

While focusing on pollution in the aftermath Hurricane Isaac, the MER IMT was forced to face unusual circumstances outside the usual spectrum of pollution response. During a regular overflight in search of orphan containers and oil discharges, LDEQ recorded several unearthened caskets in Braithwaite, scattered and toppled along the main public road. Since The Unified Command quickly took action to secure the area and expedite a response to the caskets due to the gravity of the situation. Contacting Plaquemines Parish Sheriff's office, Department of Justice, and Department of Health and Human Services, the open and displaced tombs were properly recovered and secured.

**STOLTHAVEN CHEMICAL FACILITY:**

Within the MER IMT, a separate incident command was established in Braithwaite to respond to the Stolthaven Chemical Facility. The separate incident command included a restructured UC to include the USCG, Louisiana State Police, LDEQ, and Plaquemines Parish in order to secure the actual and potential release of methylacrylate, styrene, 1-octene, and loaded chemical rail cars at the Stolthaven Chemical Facility.

The high-profile Stolthaven Chemical Facility gained a significant amount of media interest due to the severity of damage and actual chemical release. 187 loaded chemical rail cars were at the facility during Hurricane Isaac, causing several cars to derail and release product. In addition, secondary containment and chemical process emission scrubbers on several tanks at the facility had failed, elevating the potential for a chemical explosion.

The UC quickly prioritized command objectives as well as tactics based upon chemical compounds and the potential risk for further destruction at the facility. All rail cars were secured and those previously loaded with styrene were emptied and the product was properly stored. Chemical process emission scrubbers were re-established for the 1-octene, styrene, and methylacrylate tanks in order to store the chemical at the proper chill temperature and stabilize the chemical compounds. In addition, all secondary containment was repaired on the tanks as well as inspected prior to product transfer.

**OIL RESPONSE:**

In collaboration with three hired Oil Spill Removal Organizations and partners from the UC, the MER IMT responded to and mitigated 579 pollution incidents, recovered over 4,500 bbls of oily waste, and deployed over 11,000 ft of containment boom. Throughout the post-storm response, three abandoned facilities with no Responsible Party, “Fantome,” “Map Drilling,” and “Gulf South,” were federalized, utilizing funds from the Oil Spill Liability Trust Fund.

“Fantome” was initially reported as dark oil sheen in the adjacent waterway of two unknown oil product/storage facilities. The on-site assessment on September 22, 2012 confirmed that four tanks on the facility contained various amounts of oily water and had actively discharged an unknown amount of product. The four tanks contained approximately 240 barrels of oily waste and the tanks were decontaminated and rendered unusable for any future storage/dumping. A barge package and multiple flowlines attached to the abandoned facility were decontaminated and removed. Due to the oil discharge, the OSRO conducted soil excavation of the impacted marsh area, behind, and under the facility. Approximately 100 bags of oily debris was recovered following the completion of oil removal from the marshland. The final step before the UC could conduct their final assessment or “sign-off” was to ensure the facility was clean and decontaminated. 500 gallons of oily waste was recovered from the facility after deck cleaning operations. The UC conducted their final sign-off on October 22, 2012. The total cost for the project was approximately \$3.6 million.

Following an initial report of an abandoned storage platform with three tanks containing oily product and one tank leaking along the marsh shoreline, the MER IMT conducted an initial assessment of “Gulf South” on September 18, 2012. The task force identified the actively leaking tank and quickly ordered resources to secure the discharge and federalize the abandoned platform. 300 barrels of oily water mixture was recovered from the leaking tank and 200 bags of oily debris were collected from the facility. All tanks on the platform were flushed and rendered unusable. “Gulf South” received the final UC sign-off on October 11, 2012.

Initially reported as dark oil in the water around a facility barge with three tanks onboard, “Map Drilling” was an abandoned facility with an unstable barge containing an unknown amount of oily water. One tank onboard the barge appeared to be discharging oil. All associated tanks and heater treaters were fully flushed and decontaminated on the facility and barge. 350 bags of oily debris were removed from the marsh and 675 barrels of oily waste was removed from the barge tanks.

Both “Gulf South” and “Map Drilling” were located in Manila Village, an area within Barataria Bay. Within “Gulf South” and “Map Drilling,” six wells were identified by field personnel to potentially pose a risk for discharge. A petroleum well engineer was hired to conduct a site assessment and well diagnostics on the six wells in both sites. All six wells showed considerable corrosion and well integrity issues due to rusting, improper maintenance, illegal well construction, and missing critical mechanical/equipment components; however, well 105141 was not only located in a heavily trafficked area but was actively leaking gas at the surface casing annulus due to severe corrosion. Despite the various issues with all six wells, the petroleum well engineer and UC agreed that well 105141 was deemed the most probable to pose

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an imminent and substantial threat to the environment and a candidate for immediate plugging and abandonment. The remaining five wells were added to the Louisiana's Oilfield Site Restoration Fund Program for future plug and abandonment

In order to properly use funds for the mitigation of well 105141 and to not set a precedent of using the Oil Spill Liability Trust Fund (OSLTF) over the Louisiana's Oilfield Site Restoration Fund, the UC discussed the need for the plug and abandonment under LDNR's authority and funding; however, LDNR was unable to provide necessary funding to plug and abandon the orphan well 105141. The USCG was authorized by the Shore Infrastructure Logistic Center (SILC) to subcontract and hire a well intervention company to plug and abandon well 105141. With a separate Emergency Response Branch, SILC is USCG unit, which authorizes the use of contractors during emergency response to pollution.

**WILDLIFE REHABILITATION:**

A rehabilitation center was established in order to manage a surplus of oiled animals including 29 pelicans and several toads and vultures. A rehabilitation team was contracted in order to provide proper resources to the injured wildlife. The initial rehabilitation center was restructured to a built-to-purpose facility, which included modern equipment and necessary space for rehabilitation. Five pelicans were successfully rehabilitated and released back into the environment.

**RESPONSE FUNDING:**

The post-storm response was funded by the OSLTF and the Comprehensive Environmental Response, Compensation, & Liability Act (CERCLA). Expending \$9.5 million in federal funds from the OSLTF, the major expenditures during the oil response aspect of Hurricane Isaac included Pollution Removal Funding Authorizations (PRFAs) for participating agencies (\$733,500) while the remaining OSLTF funds were dedicated to clean-up costs for the three federal projects (\$7.2 million).

**HAZMAT RESPONSE AND ESF-10 MISSION:**

With hundreds of hazmat containers dispersed throughout the AOR and a variety of container statuses reported by third-parties and field teams, the MER IMT prioritized their hazmat response/recovery tactics to solely focus on actively leaking hazmat containers, an imminent threat to public health or welfare, and/or actual or potential impact to a navigable waterway. The targets which fell into those categories were only removed if they did not involve complex logistical planning and/or heavy equipment in order to judiciously manage the limited CERCLA budget. By September 14<sup>th</sup>, 2012, the MER IMT exhausted its ceiling of \$250,000 in CERCLA funds, reaching its maximum amount for federal funds. However, the MER IMT still had multiple hazmat containers as well as wrack lines to be recovered; yet, no funding available.

With no request for federal assistance by the state of Louisiana, the MER IMT discontinued any response to hazmat; yet, continued to record and track waste via overflights and field teams. More than a month following Hurricane Isaac, Louisiana requested assistance from

the federal government and Stafford Act funding became available to complete orphan container removal.

With the obligation of funding, the Federal Emergency Management Agency (FEMA) issued a Mission Assignment for the Emergency Support Function (ESF) -10 or Oil and Hazardous Materials Response, specifically providing federal support in response to the release of hazardous materials. The specific ESF-10 Mission Assignment related to Hurricane Isaac was to collect all orphan containers from southeastern Louisiana. On October 15<sup>th</sup>, 2012, the “Phase 2” ESF-10 IMT, led by the USCG Federal On-Scene Coordinator within a UC, including EPA, NOAA, LDEQ, and LOSCO, was re-established with thirty personnel to complete the \$2 million Mission Assignment within a two month deadline. The Mission Assignment was granted 2.5 weeks following the break-down of the “Phase 1” MER IMT and transition of post-storm targets to Sector New Orleans Incident Management Division.

To conduct a proper and necessary response, the ESF-10 IMT established a set of end points or target closures to be used when conducting a proper assessment of containers. These endpoints defined the conclusion of cleanup operations while attempting to minimize overall impact (including those from operations) to sensitive resources. Consensus within the UC was authorized to determine whether or not a select grid area met requirements for closure. The ESF-10 IMT collected over 1200 hazmat orphan containers within 145 original hazmat targets (including wrack lines) before the December deadline. In addition, the ESF-10 IMT saved the federal government over \$1 million in response costs for the orphan container collection mission.

## **CONCLUSION:**

Though hurricanes and disastrous weather events are common within the Gulf of Mexico, each weather system brings a unique set of circumstances and challenges within the pollution response community. However, Hurricane Isaac was a clear representation of the effectiveness of a Unified Command and strength in incorporating stakeholders and trustees within the IMT to effectively remove over 4500 bbls of oil waste and collect over 1200 hazmat containers. Not only are interagency operations strengthened within a response, new best practices are developed within the community and applied to the next event. Hurricane Isaac highlighted the importance of an efficient data management process as well as applicable use of the Sector New Orleans Area Contingency Plan, which include Geographic Response Plans for all coastal parishes in the New Orleans Captain of the Port Zone and a robust Sensitive Site Index. Through thorough investigations and aggressive field operations, the MER IMT was able to stabilize pollution response and successfully restore safety to public health, welfare, environment, and maritime community within southeastern Louisiana.