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Paper Abstract

Name of Paper: Major Issues in Platform and Facility Recovery: The People Factor.

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**Introduction:**

Since the major hurricane series in the late 1950's and early 1960's (Hurricanes Audrey, Carla, Celia, Camille and others), through the pre-2005 hurricane season, the Gulf of Mexico oil industry (offshore and onshore) has continually updated, upgraded and improved hurricane preparedness and response programs. Procedures for pre-planning shut-in and evacuation of offshore facilities and shut-down of refineries and pipelines have been standardized throughout the industry and have been fine tuned to the point of being standard operating procedures. One of the largest and relatively untested gaps in the evolution of these procedures has been the assumption that people would be available, infrastructure would be intact and response organizations would be ready and able to respond once the storm passed. While hurricanes of category 5 strength have always been a potential, they have been fairly rare and the odds of a direct hit by such a storm has traditionally been considered very remote. In fact, many offshore facilities are designed to withstand only a category 3 storm (the current Minerals Management Service requirements). One other significant fact that compounded the 2005 hurricane season in relation to the past is there are now over 4000 platforms in operation in the Gulf compared to a few hundred in the late 1950's to early 1960's.

The hurricane season of 2005 (Katrina, Rita and a host of other storms), and to a lesser degree the 2003 (Lili) and 2004 (Ivan) seasons, have drastically changed the way the industry thinks about and must now prepare for these devastating storms. Before 2005 it was unthinkable that the 2 worst storms in history would hit back to back, directly devastating the entire Louisiana and Mississippi coastlines and a significant portion of the Texas and Alabama coastlines, taking complete infrastructure systems, and in fact entire towns and cities, out like they were built of straw. The industry learned that after such a storm, not only should severe damage to facilities be expected, but the ability to evaluate and repair the damage and bring operations back to normal may be non-existent or at least severely hampered. With entire towns and public infrastructure destroyed, the ability of local operating employees to return to work to assist in the restoration and start-up is non-existent. A common assumption in the Gulf region was that humanitarian response to employees was the business of government, not industry, whereas industry had the prime responsibility for operational response. Many hurricane response plans called for bringing operational personnel from other company locations to bring the facilities back on-line while government response agencies handled the humanitarian issues. Hurricane Lili (2003), a relatively moderate category 3 storm, proved that a precisely placed hit by a hurricane can quickly inundate most government response capability.

With this in mind, during preplanning for the 2003 hurricane season, Marathon Oil Company decided to design pre-planned post-storm response on employee humanitarian response as primary, then restoration of operations secondary. The result of this pre-planning was that local employees, the most familiar with these operations, were located, assisted and given the ability to return to work more quickly than most of the offset operators. In the aftermath of Hurricane Lili, Marathon's offshore platforms and pipelines, based in Lafayette, Louisiana, were some of the first to restart operations. As our Lafayette operations are relatively small (less than 70 employees), this humanitarian effort was relatively easy to accomplish.

Building on the success of the 2003 season, Marathon's procedures were further revised and enhanced to respond to employee populations for both our refinery in Garyville, Louisiana (650 employees) and our Corporate operations and Texas City refinery in the greater Houston metropolitan area (1400 employees). This paper will discuss how these procedures were developed, activated and carried out and the results that were achieved in the aftermath of the Hurricane Katrina/ Rita sequence. It will discuss how the Incident Command and Response Management Systems utilized for humanitarian response and how this was helped turn a devastating situation into a managed and organized project situation.

#### **Operational Preparation:**

Over the years, industry, in partnership with government, have developed well honed procedures and timing requirements for shut down of offshore facilities and evacuation of personnel. A well honed protocol is used to track the storm and predict when conditions will prevent the use of air and sea transport to evacuate personnel. Well in advance of this decision point, platform and drilling operations begin ramping down and preparations are made to evacuate. At this point, non-essential personnel are taken to shore. If the storm turns and it is obvious that it will miss the area, operations can quickly resume. If the storm does not turn, full shut down and evacuation takes place. Many times this is when the skies are still blue and conditions at the platform are relatively calm.

A similar set of criteria are used for making the decision to shut in and evacuate onshore facilities. Forecasts of wind, flood and tidal conditions are used to plan and time the start and completion of shut down. Basically, the timing coincides with prediction of cessation of emergency services and/or when models show that roads, bridges, causeways and other access routes will be non-passable. For operations near major metropolitan areas, consideration is also given to ordered resident evacuations and how this will affect road access. Additionally, with the obvious designation as "critical national infrastructure", as was painfully apparent during the recent hurricane season, refineries and product terminals must do a balance between how much feedstock and product to keep in tank batteries to both ballast the tanks and have operational capability in the aftermath of the storm. In refineries, where tidal conditions are not expected to exceed safe conditions, minimal ride-out crews stay through the storm, their purpose being to quickly evaluate damage and assist with start-up after the storm passes. Criteria are set at many refineries where the ride-out crew makes a decision to evacuate to safer ground

when conditions deteriorate. Such is the case for our Texas City refinery, where storm surge from Rita was expected to completely inundate the area surrounding the refinery and submerge the refinery and office complex.

**Organizational Preparation:**

As many corporations tend to house their critical infrastructure in office complexes along the Gulf Coast, organizational and corporate continuity planning are necessary issues in the pre-planning sequence. For a major corporation, there are many business functions which simply cannot stop operation for even a few days. These functions are either relocated to other locations throughout the area or in other offices around the country. Marathon relocates small groups of key employees (including a key executive decision making team) to various company offices around the US. Likewise, we relocate a portion of our upstream Corporate Emergency Response Team to Findlay, Ohio to assist our downstream team with response planning during and after the storm. The remainder of our employees (including Houston based response team members) are allowed to take care of personal business and evacuate, as appropriate. Similar to the criteria that key a refinery shut-down, our corporate office follows an organized slow down, then shut-down procedure. Local conditions are continually monitored and if necessary, shut-down and evacuation procedures are modified. In the case of Rita, Galveston and other Southern counties began mandatory evacuations 36 hours ahead of their approved plans. This measure caused a drastic modification of Marathon's preparedness plans and the corporate office was closed 24 hours ahead of the approved plan. This move turned out to be a critical step in allowing for effective repositioning of company business entities to other office locations. This also allowed Marathon's employees the ability to avoid the eventual massive traffic jams that plagued the 7 county Greater Houston Area during the Rita evacuation.

**Employee Humanitarian Pre-Planning:**

As mentioned earlier, Marathon has adopted a policy of employee humanitarian response first; operational response second. As long as operational shut-down and securing procedures are adequate, the company's position is that the operational facilities should be relatively intact after the storm. If the storm effect turns out to be severe, re-entry to the effected area may be difficult or impossible, so utilization of the most appropriate employees, those that operate the facility affected, is paramount to full and effective recovery.

Our humanitarian response is three-fold: 1) location and evaluation of employee status, 2) determination of need and 3) appropriate response. The location and evaluation piece is strongly dependent on pre-planning and communication systems to log both pre-storm employee evacuation plans, complete with location, telephone numbers and other specific information and post-storm status and need. For Katrina and Rita, the pre-storm evacuation planning was determined through supervisor interviews and spreadsheet tracking. This information was passed to our downstream Crisis Center in Findlay, Ohio for use by our Corporate Response Phone Bank. The post storm status was accomplished by 24 hour phone bank operation to call and locate all employees and determining status and need. For Katrina, all employees were located and assisted in less than 48 hours. For

Rita, this was accomplished in less than 24 hours. The Phone Bank responders log need, if any, of all employees. This information was then passed to the physical response teams that were sent to the field to assist with humanitarian needs.

The logistics and materials required for humanitarian response must be pre-planned, purchased, shipped and pre-positioned prior to storm landfall. Marathon worked with national suppliers, Wal-Mart and Home Depot to determine and ship supplies into the region, both for Katrina and Rita. Wal-Mart and Home Depot have developed extensive experience over the years working with the state of Florida and have developed pre-determined supply lists for hurricane response. The equipment/ supplies included everything from electric generators and building supplies to baby food, water and pet needs. This material was acquired from Wal-Mart's and Home Depot's national supply warehouses outside the hurricane corridor and shipped in semi-trucks (Lorries) to pre-determined staging areas just outside the impacted areas.

### **Humanitarian Response:**

#### **Katrina**

Humanitarian response for Katrina was broken into two primary initiatives: 1) Set up a primary staging/ distribution center at the Garyville, Louisiana refinery and 2) develop and equip mobile reconnaissance teams to travel to the most effected areas in Southern Mississippi and the Eastern Louisiana area.

The distribution center, staged at the Garyville refinery, was able to service about 600 employees, who were able to drive to the plant and pick up needed supplies. Employees in close proximity to the plant and needing assistance at their home were visited by mobile teams carrying generators, building supplies, food, water and gasoline.

Marathon also has several dozen employees living in Southern Mississippi, the area most affected by the storm. For this response, Marathon equipped a mobile team consisting of one box truck loaded with generators, food and home supplies, one fuel truck carrying diesel fuel and gasoline, 4 SUV's with volunteer company responders and 4 SUV's with armed Texas Department of Public Safety SWAT team members. As communication and road systems in Mississippi were significantly affected, the team was outfitted with an amply supply of Iridium satellite phones, vehicle to vehicle radios and advanced GPS mapping systems. The State of Texas allowed the DPS SWAT team members to take paid administrative leave and assist Marathon in the response effort. As conditions in Southern Mississippi had deteriorated drastically, this security contingent was deemed absolutely necessary for the mission to be successful. However, the team experienced no security issues during their mission. Once in Mississippi, the team visited all affected employees residences and provided enough supplies necessary for them to survive until the area began recovery. This employee group was also left with enough Iridium satellite phones to keep adequate communication. Re-supply convoys were sent back to Mississippi until the area returned to normal operations.

## **Rita**

Although Rita eventually turned and missed the greater Houston area, planning for humanitarian response in Houston was significantly more complex, as the company's corporate offices are located here and employees live in all of 7 counties in a 120 mile by 70 mile area. In addition, the company operates one refinery (Texas City) and several pipelines in the area. In all, the company employs approximately 1400 employees in the greater Houston/ Galveston area. Planning for this response involved identifying local airports around the area, multiple distribution centers and set-up of a primary staging area at the company hanger at George Bush Intercontinental Airport. Aircraft from private industry were procured and put on standby in the Texas hill country (200 miles from the coast). These were to be used as necessary to deliver supplies to the distribution sites and/or provide employee assistance. The greater Houston area was broken into 6 major response sectors, with one primary and one alternate distribution site each and at least 2 small airports identified per sector. The company had one C-130, one smaller cargo aircraft and two helicopters at its disposal to carry out this mission. If activated, each distribution site would have been equipped with a generator, motor home, supply truck, 2 pick-up trucks with flatbed trailers, necessary communication equipment, 6-8 responders and a security detail. The plan also called for recruitment of employees assisted in each sector as they became available..

**Operational Response Efforts:** In addition to the Humanitarian Response efforts, the Corporate Emergency Response Team also operated the following response efforts:

**Katrina** - Incident Command centers and response teams were set up to coordinate restart efforts at the Garyville refinery, Lafayette Louisiana offshore operations office, Zachary Louisiana pipeline operations office and the Louisiana Offshore Offloading Port (LOOP). In addition, both Corporate Crisis Centers in Houston and Findlay operated 24 hours per day.

**Rita** – Incident Command centers and response teams were set up to coordinate restart efforts at the Texas City refinery, Pasadena pipeline operations office and Beaumont Texas pipeline operations. The Corporate Crisis Center in Findlay, Ohio coordinated this response until the corporate office in Houston was reopened.

## **Results of Katrina and Rita Response Efforts:**

In the wake of both storms, all employees were located and assisted within the first 48 hours after the storms passed. Overall, the company utilized over 200 response employees and suffered no injuries among all responders and assisted employees.

In the wake of Katrina, Marathon's Garyville refinery was restarted only 24 hours after the storm passed through the area, the first refinery to restart after Katrina. The company's local pipelines and offshore platforms were also among the first to be restarted. . This was due in large part to providing assistance to our local employees and getting them back to work quickly.

Likewise, Marathon's Texas City refinery was re-started the day after the storm passed through the area after Rita. Again, the Texas City refinery was the first to be re-started.

**Lessons Learned and Action Items:**

-In general, communications systems were the biggest issue. While satellite phones worked, they are cumbersome and require significant training. Blackberries worked in some cases, while cell phones did not.

-Shut-down of company servers caused e-mail issues, deactivation of some blackberries, and IT infrastructure problems among some of our US operations areas.

-Evacuation of employees requires more preplanning and may require allowing employees to leave earlier. Once the lower Gulf counties started to evacuate, Houston highways were clogged to a standstill. Although most employees were given enough time to get out of the Houston area in advance of the worst of the traffic jams, this area needs improvement.

-The company needs to take another look at business functions that are critical for business resumption.

**Summary:**

Pre-planning for the onslaught of a major hurricane is something many businesses along the US Gulf Coast have taken for granted for years. While most companies have a "hurricane plan", most plans are inadequate or not up-to-date and most employees are barely aware of their contents. In planning for a major storm, business continuity of both operational and corporate systems should be considered a major concern and employees are key to the success of business continuity programs. Once an adequate plan is developed, it should be practiced each year, prior to the start of hurricane season.