TINTOMARA AND DM932 COLLISION AND OIL SPILL RESPONSE

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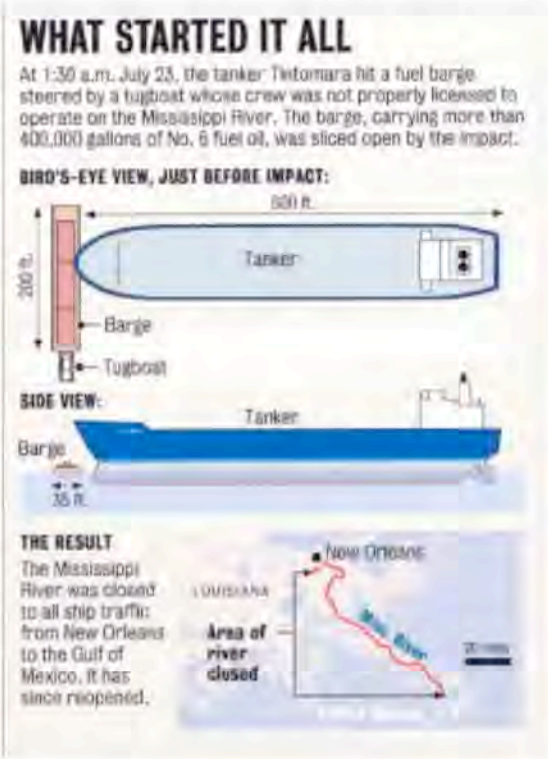
THE ACCIDENT

On July 23rd, 2008 at 0130 in the morning, the up-bound tank barge DM932, being pushed by the towing vessel MEL OLIVER, unexpectedly crossed in front of the down-bound tankship TINTOMARA near kilometer 159 on the Mississippi River. The resulting collision ripped the barge free from the towing vessel MEL OLIVER and split the barge in two spilling No. 6 fuel oil into the Mississippi River. The exact amount of fuel oil in the water could not readily be determined due to the catastrophic nature of the impact, buckling and subsequent partial sinking of the barge. The barge was carrying 9,983 barrels of fuel at the time of the collision.



At 0140 in the morning, the U.S. Coast Guard instituted a Safety Zone to close a one-mile section of the river as they dispatched a response boat and called for pollution investigators and marine casualty investigators to go to the scene. The Coast Guard's Vessel Traffic Center coordinated industry's response to the collision by directing other towing vessels and harbor tugs to respond to the tankship and the sinking barge.

By 0230, two Oil Spill Response Organizations (OSROs) were requesting information on where to dispatch response assets for spill mitigation.

By 0630, daylight, the leaking oil was 30 kilometers downriver and moving swiftly in the 7 km/hr current. As the oil moved downriver, the spill zone increased and the Safety Zone was enlarged to manage traffic in the spill's path. The barge, bent in half, yet still connected, was floating with the bow jutting up out of the water and the stern at a 45 degree angle slowly sinking.

By days end, the spill zone and Coast Guard Safety Zone would extend from the collision site to the Sea Buoy at the mouth of Southwest Pass.

Eventually, the adrift barge would come to rest against the Crescent City Connection Bridge pier at kilometer 154.2 on the Mississippi River. This location was directly in front of the Port of New Orleans Administration building, just above the Cruise Ship terminal. The barge continued to leak oil.

THE SPILL RESPONSE

The owner of the barge and the oil in the barge, American Commercial Lines (ACL), became the responsible party for the oil spill clean up (not the accident). They used Oil Mop Incorporated's (OMI) facility in Belle Chase, Louisiana as the incident command post. Federal, State and Parish emergency responders immediately gathered at the incident command post to organize a

massive response to the oil spill. In total, five OSROs, including OMI were hired by ACL to respond to the spill.

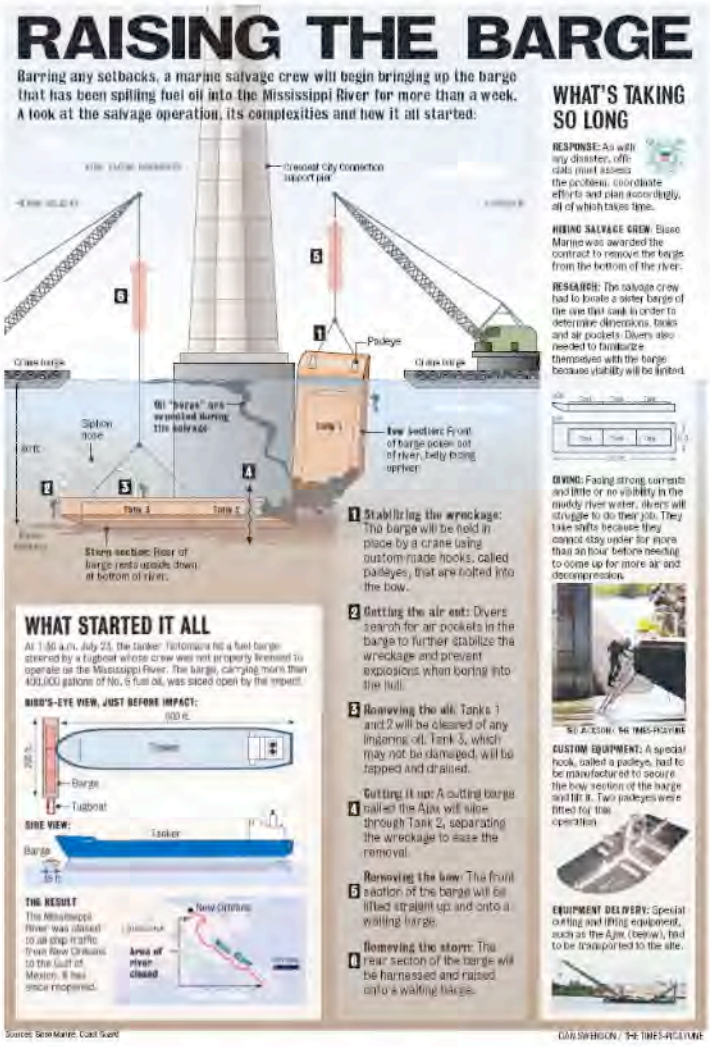
The Incident Command System was used to organize government, industry and public entities to respond to the oil spill. The Coast Guard's Captain Of The Port (COTP) for New Orleans became the Federal On Scene Coordinator (FOSC) and worked with the State of Louisiana On Scene Coordinator (SOSC) and the Responsible Party's Incident Commander to lead a Unified Command (UC) of responders. On a daily basis, the command post employed 150 to 250 personnel to manage the approximate 2000 responders in the field cleaning up the oil. At the height of this spill response and salvage, this organization managed a burn-rate of approximately 2-3 million dollars a day.

Given the fast current in the river, the turbulent nature of the waters and the multiple bends in the river, the floating oil was "banking" itself at the turns of the river and into the natural collection points along the length of the river. Two methods were deployed for oil clean up: vessel skimmers targeting streamers in the river and deflection booming to natural collection points where drum skimmers were used. At the height of the spill response, over 200 response boats were deployed, some skimmers and many boom tenders. Over 90 kilometers of boom was deployed.

The river was divided into 8 kilometer divisions for cleanup purposes. The Shoreline Cleanup Assessment Teams (SCATs) monitored progress of the cleanup crews and reported progress back to the Command Post. A color-coded chart was used to track the progress of cleanup in each division. This chart was also used to manage the Coast Guard Safety Zone (SZ) as lower divisions of the river were determined to be clean and spill response equipment was removed. The Safety Zone was in place to control traffic on the river and keep vessel speeds at a minimum to reduce wake and its detrimental effect on deflection booms.

One piece of response equipment stood out amongst the rest. The HOSS, or High-volume Open Sea Skimming system, was used for the first time in a fast current river environment. Although it took over a week to contract and get on scene, the HOSS proved invaluable in recovering a large percentage of the oil continuously leaking from the wreck. Its 1.7-meter skirts, held in place by two large tugs, corralled the oil and funneled it to a barge mounted, high-volume skimming system. Very little oil entrained past the HOSS, leaving mop-up duty for smaller skimmers downriver. As the spill response continued into the second and third weeks, the HOSS helped keep spill cleanup on the left descending bank of the river just below the wreck while ships and tows passed along the right descending bank of the river.

The turbulent waters of the river coupled with the sediment load in the river produced a sinking effect as the oil moved downriver; the slightly lighter-than-water oil would stick to the sediment in the river and eventually sink. One indicator of this was no floating oil was ever seen below kilometer 32 on the river; only sheening. The final proof of oil sinking came six days into the spill when hopper dredges at kilometer 0, Head of Passes, began dredging up oil.



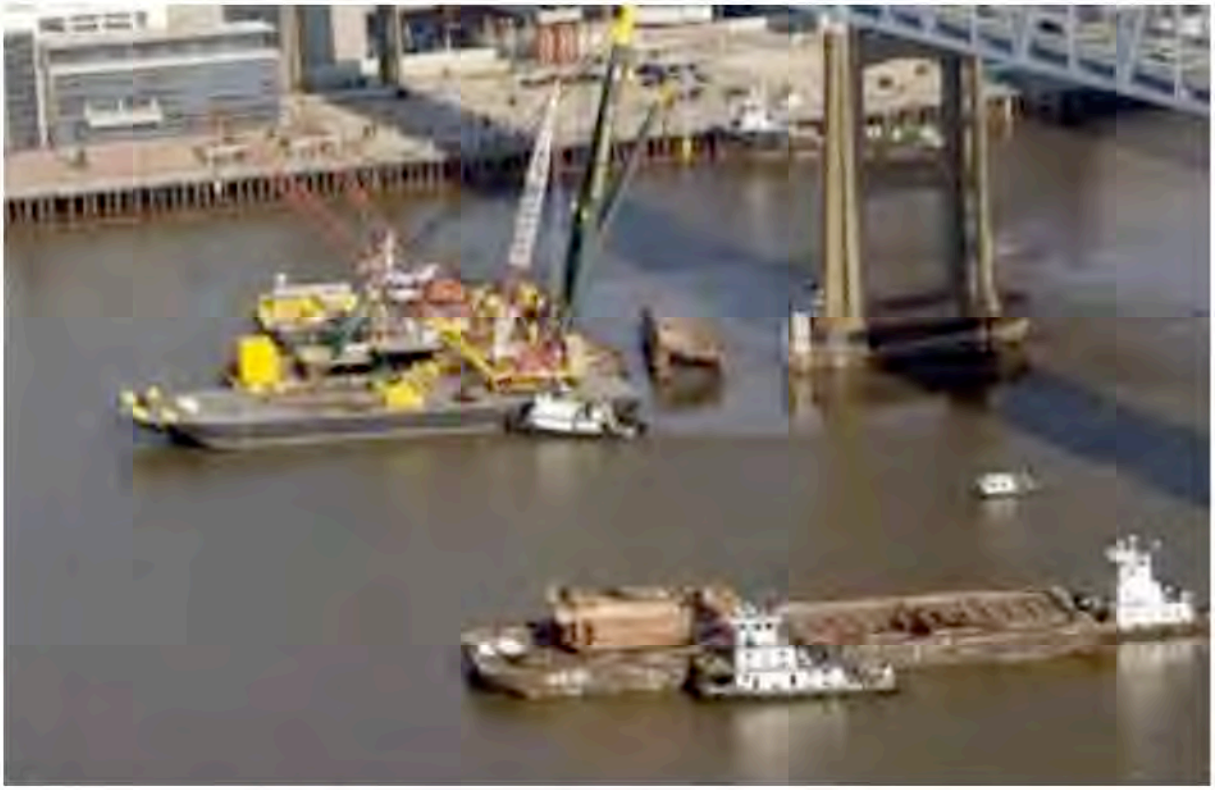
The oil spill garnered national attention for the first three days; concern grew daily about the impact on commerce as the ship channel remained closed. Over 24 press conferences were conducted to keep the public informed. Early in the spill response, two press conferences were required each day. The story was front-page news in New Orleans for two-weeks. Needless to say, the manner in which the Unified Command handled the press and managed expectations were critical to the spill response's success. From the first day of the spill, the Coast Guard marshaled public affair specialists to help the FOSC manage the press. A Public Information Assist Team (PIAT) was brought in to help set up a Joint Information Command (JIC) at the command post. The responsible party had public affairs expertise on their staff that joined the JIC. The JIC would prep the press conference participants before each conference.

The JIC also sponsored a critical piece on the barge salvage with the local newspaper reporter. The Times Picayune published a full page schematic on the complexity of the salvage which quieted critics of this time critical evolution.

Government liaisons were instrumental in Unified Command success. Liaison officers from the local parishes as well as other federal agencies provided a direct nexus to these partners in the oil spill response. The liaisons improved the efficiency with which decisions were made. Liaisons reduced the number of calls needed between the FOSC and local government officials. Liaisons helped the Unified Command efficiently create new clean-up protocols that affected their agencies (e.g., oil in hopper dredges and vessel cleaning techniques).

A major part of the spill response was the cleaning of ships, barges and towboats that were impacted by the spill. Three ports were affected by the oil: the Port of New Orleans, the Port of St. Bernard, and the Port of Plaquemines. At the time of the spill, each Port was fully employed with ships, tows and fleets in full operation. Over 106 ships, 80 towboats and 980 barges in these ports were oiled by the spill. In total, 1185 vessels were cleaned. In addition, two ports upriver, Baton Rouge and the Port of South Louisiana, were impacted by the spill in that ship traffic was stopped until the ship channel could be re-opened. A large queue of ships backed-up at the mouth of Southwest Pass. Over 150 ships were in line waiting for the river to re-open. The combined tonnage of cargo moved in and out of these 5 ports represents the largest port complex in the world.

The protocol developed to clean the vessels was high pressure water with boom and skimmers downriver to collect waste. River-temp water proved ineffective and took 12-hours to clean the first ship. High pressure, heated water/steam was then used to clean the vessels. This reduced ship cleaning time down to 2 hours. Cleaning stations were initially set up at the north and south ends of the spill zone. Ships were cleaned first to clear the anchorages and make room for more ships to move in and out of the river. After the ships were cleaned, the cleaning stations were turned into mobile stations that went to various barge fleeting areas to begin cleaning fleets and tows.



Another major part of the oil spill response was the lightering and salvage of the barge. Each end of the barge had to be secured before lightering. For the bow section, pad-eyes had to be fabricated and welded-on so a crane could partially lift the bow section, to keep it from moving, while divers tapped into the tanks. For the aft section, lifting straps had to be slung underneath

the hull and the aft section partially lifted before divers could tap into the tanks. In 25 meters of dark, murky water and a 7 km/hr current, divers could only work for an hour at a time. On some dives, the combination of darkness, leaking oil and current pushing them off the wreck prevented the divers from doing any work at all. After two weeks of non-stop work, both ends of the barge were secured in place and the hulls "hot-tapped" in preparation for lightering. Approximately 300 barrels of oil were removed from the damaged No. 1 tank. Approximately 500 barrels of oil were removed from the damaged No. 2 tank. Approximately 2,450 barrels of oil were removed from the No. 3 tank whose ullage openings and manhole covers were found open. In total, 3,250 barrels of oils were recovered by lightering; a huge success story for the salvage team. Once the barge was lightered, a crane was brought in place with a cutting chain to begin to cut the barge in half so each end could be lifted separately; three large cranes were employed at this point, one to hold the bow section, one to cut, and one to hold the stern section. The barge, in its mangled, bent condition, could not be lifted out as one piece. After three weeks of non-stop work, both ends of the barge were successfully lifted from the river and placed on a deck barge for the investigators to look at.

A unique aspect of this spill response was the dredging of oil and the Unified Command's response. Given the river level and the fast current at the time of the spill, there was a heavy sediment load in the river and this sediment naturally deposited itself near the Head of Passes (delta region) of the Mississippi River. When the river level was over 1.6 meters on the Carrolton Gage in downtown New Orleans, historically, dredging must be done at the Head of Passes and down Southwest Pass so as to keep the ship channel at its navigational depth. At the time of the spill, the Carrolton Gage was 3.0 meters and dredging was ongoing in this critical reach of the river. As previously mentioned, on day 6 of the spill, the hopper dredges at the Head of Passes and in Southwest Pass began dredging up oil. The oil was quickly tested and found to match the oil from the DM932 barge. All dredging at the Head of Passes and in the Southwest Pass stopped. By day 8, a protocol for cleaning the oil from the hopper water was developed. Initial tests results on the sediment in the hoppers were found safe. In essence, the dredging stirred up the oil off the bottom and it refloated in the hopper water. Essentially no oil was found in the sediment. The protocol provided a means to clean the water and get it back into the river while allowing the sediment to be placed in an acceptable location. Dredging started again with the OSROs cleaning the oily water in the hoppers. The State of Louisiana was instrumental in working with other State and Federal agencies to get the protocol in place and keep things moving forward. Eventually, no oil was found during dredging (one month later) and the dredge spoils could once again be deposited in their permitted site at Head of Passes (just above the wildlife refuges).

Two overriding concerns pressured the Unified Command during this oil spill response: mitigating the oil's impact on the environment and the how quickly the river could be reopened to traffic. Protection strategies and clean-up protocols were implemented with the environment in mind. Not until the environment could be protected and the leaking oil contained, could river traffic be allowed to resume. On day 5 of the spill, with the initial release of oil from the barge out of the river channel, and the oil streaming from the leaking barge being skimmed just below the barge, a test ship was brought in from the Gulf of Mexico to see if it could navigate the river without any oil residue or sheen sticking to it. The test ship was successful. Ship traffic steadily increased over the next two days until day 7 when transits were back to normal. The Port of

New Orleans estimated the spill cost the nation $275,000,000 dollars each day the ship channel was closed. With the river closed 4 days, the cost of the spill to the nation's economy clearly exceeded the cost of the cleanup – estimated at $130,000,000 (not including Natural Resource Damage Assessment costs).

A Marine Transportation System Recovery Unit (MTSRU) was brought in by the U.S. Coast Guard to assist in prioritizing cargo movements once the ship channel reopened. With over 150 ships waiting to get into the 5 ports, the MTSRU prioritized the key cargoes important to the nation and region. Cargoes such as crude oil, fuel and coal had to be moved first for energy needs.

The spill response unofficially ended when Hurricane Gustav made landfall bringing 3 meters of tidal surge and hurricane force winds. The combined effect of wind, waves and surge was like a washing machine cleaning the battures, oiled trees, rip rap and riverbanks thoroughly.

THE INVESTIGATION

Given the nature and type of accident, a Coast Guard one-man formal investigation was initiated by the Eighth Coast Guard District Commander. A one-man formal investigation includes a public hearing of witnesses and facts found during the investigation. It provides for complete disclosure of the issues. By raising the level of investigation, it took responsibility for the investigation from the local Captain of The Port, who was completely engaged with the spill response, and placed it higher in the Coast Guard organization. The National Transportation Safety Board initially worked with the Coast Guard on the investigation but later separated themselves to conduct their own investigation.

The investigation found an improperly licensed mariner at the helm of the towing vessel MEL OLIVER. The improperly licensed mariner lost maritime domain awareness, by falling asleep or becoming unconscious, allowing the vessel to move in front of the downbound tankship. The unconscious mariner did not heed the repeated callouts from the Vessel Traffic Center or the pilot of the tankship. The actual licensed Captain of the vessel had left the vessel days earlier. Testimony from other towing company employees indicated this practice occurred repeatedly before this incident; with extra pay being given to the improperly licensed mariner when he was navigating the towing vessel in the absence of the licensed Captain.

U.S. Congress held hearings in the aftermath of this casualty demanding uninspected towing vessels be "inspected" by the Coast Guard and criminal penalties be developed for mariners operating commercial vessels without proper licenses. The Coast Guard is working to develop towing vessel inspection regulations.

THE LESSONS LEARNED

The U.S. Coast Guard Vessel Traffic Center (VTC) located downtown New Orleans and overlooking the Mississippi River was actively communicating with the tankship TINTOMARA before the collision and engaged in the accident and spill response after the collision. They passed critical information about the collision to the U.S. Coast Guard Sector Command Center

(SCC) located miles away at the Sector Command offices in Metairie, Louisiana. The Command Center dispatched pollution investigators and marine casualty investigators and kept the Captain Of The Port informed of ongoing issues during the early hours of the collision and spill. Having the VTC co-located with SCC would improve maritime domain awareness of both centers. The Coast Guard is building a new Sector Command office where both these centers will be co-located next to each other to facilitate the best possible exchange of information as well as the sharing of different sensor packages.

Whenever there is a spill that impacts a region's marine transportation system (in this case, five Louisiana ports and a river that feeds 33 midwest States), a Marine Transportation System Recovery Unit (MTSRU) is a valuable tool to assist local port exchanges or port coordination teams in re-establishing commerce. The MTSRU should work with the local exchanges or port coordination teams to ensure transparency of regional and national needs. MTSRUs should exercise with local exchanges and coordination teams before "the big one" occurs. The protocols used by the MTSRU should be transparent and available now to port exchanges and coordination teams.

The size of this spill response, in terms of the organization needed at the Incident Command Post, required a large conference room setting at a major venue. The OSRO's facilities were small and numerous trailers and add-ons were needed to house all of the Command Post members. In hindsight, pre-established venues should be identified in responder's plans and activated during a major response.

Two key, early decisions helped the Coast Guard overcome perceived issues from the COSCO BUSAN spill. The Vessel Traffic Center tried repeatedly to engage the errant towing vessel MEL OLIVER and tell the Captain he was in extremis and needed to change course. The Coast Guard assumed a total loss of cargo from the DM932 given the type of accident and damage to the barge. This position helped manage the public's and press' expectations of environmental impact.

The DM932 Oil Spill was the largest maritime oil spill in the United States in 2008.