

NOAA/HMRAD OIL SPILL CASE HISTORY

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|-------------|---------------------------|-----------------|----------------------------|
| Name | IXTOC I | Spill Date | 06/03/79 to 03/23/80 |
| Location | Bahia de Campeche, Mexico | | |
| Latitude | 19 24.5 N | Longitude | 092 19.5 W |
| Oil Product | IXTOC I crude oil | | |
| Oil Type | Type 3 | Barrels | 3522400 |
| Dispersants | Yes | Bioremediation | No |
| | | In-situ Burning | Yes |
| | | Last Edit | 9/18/92 |

Incident Summary

On June 3, 1979, the 2 mile deep exploratory well, IXTOC I, blew out in the Bahia de Campeche, 600 miles south of Texas in the Gulf of Mexico. The IXTOC I was being drilled by the SEDCO 135, a semi-submersible platform on lease to Petroleos Mexicanos (PEMEX). A loss of drilling mud circulation caused the blowout to occur. The oil and gas blowing out of the well ignited, causing the platform to catch fire. The burning platform collapsed into the wellhead area hindering any immediate attempts to control the blowout.

PEMEX hired blowout control experts and other spill control experts including Red Adair, Martech International of Houston, and the Mexican diving company, Daivaz. The Martech response included 50 personnel on site, the remotely operated vehicle TREC, and the submersible Pioneer I. The TREC attempted to find a safe approach to the Blowout Preventer (BOP). The approach was complicated by poor visibility and debris on the seafloor including derrick wreckage and 3000 meters of drilling pipe. Divers were eventually able to reach and activate the BOP, but the pressure of the oil and gas caused the valves to begin rupturing. The BOP was reopened to prevent destroying it. Two relief wells were drilled to relieve pressure from the well to allow response personnel to cap it. Norwegian experts were contracted to bring in skimming equipment and containment booms, and to begin cleanup of the spilled oil. The IXTOC I well continued to spill oil at a rate of 10,000 - 30,000 barrels per day until it was finally capped on March 23, 1980.

Behavior of Oil

Prevailing northerly currents in the western Gulf of Mexico carried spilled oil toward the U.S. A 60-mile by 70-mile patch of sheen containing a 300 foot by 500 foot patch of heavy crude moved toward the Texas coast. On August 6, 1979, tarballs from the spill impacted a 17 mile stretch of Texas beach. Mousse patches impacted the shoreline north of Port Mansfield Channel on August 15 and again on August 18. On August 24, mousse impacted shoreline south of Aransas Pass. By August 26, most of North Padre Island was covered with moderate amounts of oil.

As of September 1, all of the south Texas coast had been impacted by oil. A storm lasting from September 13-15 removed the majority of the oil. For the remainder of the response and subsequent study period (through August 1980) only tarmats were observed on the beaches. Some oil escaped around boom barriers protecting the three major inlets. During the September storm, there was washing of oil over the Barrier Islands. Impacts to the estuaries were minor.

Countermeasures and Mitigation

In the initial stages of the spill, an estimated 30,000 barrels of oil per day were flowing from the well. In July 1979 the pumping of mud into the well reduced the flow to 20,000 barrels per day, and early in August the pumping of nearly 100,000 steel, iron, and lead balls into the well reduced the flow to 10,000 barrels per day. Mexican authorities also drilled two relief wells into the main well to lower the pressure of the blowout. PEMEX claimed that half of the released oil burned when it reached the surface, a third of it evaporated, and the rest was contained or dispersed.

PEMEX contracted Conair Aviation to spray the chemical dispersant Corexit 9527 on the oil. A total of 493 aerial missions were flown, treating 1,100 square miles of oil slick. Dispersants were not used in the U.S. area of the spill because of the dispersant's inability to treat weathered oil. Eventually the OSC requested that Mexico stop using dispersants north of 25°N.

In Texas, an emphasis was placed on coastal countermeasures protecting the bays and lagoons formed by the Barrier Islands. Impacts of oil to the Barrier Island beaches were ranked as second in importance to protecting inlets to the bays and lagoons. This was done with the placement of skimmers and booms. Efforts were concentrated on the Brazos-Santiago Pass, Port Mansfield Channel, Aransas Pass, and Cedar Bayou (which during the course of the spill was sealed with sand). Economically and environmentally sensitive barrier island beaches were cleaned daily. Laborers used rakes and shovels to clean beaches rather than heavier equipment which removed too much sand. Ultimately, 71,500 barrels of oil impacted 162 miles of U.S. beaches, and over 10,000 cubic yards of oiled material were removed.

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On August 8, the United States Fish and Wildlife Service (USFWS) began training volunteers for the handling of oiled birds and implemented beach patrols on South Padre Island. Bird cleaning stations were set up by the USFWS on Mustang and South Padre Islands. An overall decrease in bird population densities due to movement from their regular habitats along the oiled shoreline may account for the fact that only a few dead, oiled birds were ever found. After the beaches were cleaned, population densities increased, but not to expected levels. Contamination of food supplies caused many birds to leave their habitats for the duration of the spill. One thousand four hundred twenty one birds were recovered with oiled feathers or feet. The species suffering the most incidents of oiling were the Royal Terns, Blue-faced Boobies, Sanderlings, Willets, Piping Plovers, Black-bellied Plovers, and Snowy Plovers suffered oiling to their feathers while Great Blue Herons, Black-Crowned Night Herons, Noddy Terns, Cattle Egrets and Snowy Egrets had tarred feet.

Other Special Interest Issues

The U.S. government had two months to prepare for the expected impact of the IXTOC I oil on the Texas shoreline. During this time the government realized the importance of coastline mapping in regards to oil sensitivity. This led to a mapping project which resulted in the first Environmental Sensitivity Index (ESI) prepared by Research Planning, Inc. (RPI) under contract to The National Oceanic and Atmospheric Administration (NOAA). Placement of containment boom and other response equipment was done after study of the environmental sensitivity as reported in the ESI.

The IXTOC I well blowout was an unusual situation with regard to responsibility for, coordination of, and control and cleanup of the spilled oil. The U.S. government publicly requested compensation from Mexico for damages associated with the spill without first entering into negotiations with the Mexican Government. Mexico denied being financially responsible for damages incurred, and refused to help pay cleanup expenses to the U.S.

Officials reported that tourism along the Texas beaches dropped by 60% during the course of the spill.

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Keywords

Boom, Corexit 9527, skimmer, manual removal, volunteers, blowout, fire, evaporation, blowout preventer, relief well, submersible.