

**CASE STUDY – OIL SPILL RESPONSE OPERATIONS**  
**FOR MV MIRACH**

**Background**

MV Mirach, IMO No. 81168841, call sign 3EEH8, 1982 built, Panamanian registered bulk carrier, carrying 25000 tons of iron ore from Vizag and heading towards Karachi ran aground on a shallow patch off crocodile rock near Colachel (South West) Tamil Nadu coast on 29 March 2011. The information on grounding was intimated to Coast Guard by local marine police. The master of the vessel was immediately contacted, who stated that the vessel's bow has touched bottom and the ship will be able to refloat during the next high tide and required no Coast Guard assistance.

Further investigation made by the Coast Guard ships on patrol revealed that the ship had 149 tons of fuel oil and all underwater compartments are intact and there was no flooding inside any compartments. The ship also reported that there was no oil spill. The crew was also reported to be safe. The master thereafter realized that the ship cannot retrieve itself and requested the shipowner's, M/s Pina Shipping Company, Panama to arrange for salvors on 30 Mar 11. The owners intimated that a salvage contract was made with M/s Orient Blossom Pvt. Ltd Singapore and the salvage experts arrived onboard the ship on 31 Mar 11 to carry out the damage assessment.



The Coast Guard ships were deployed in the area to maintain surveillance for likely oil spill from the ship and to respond to such spill if required. In view of the presence of 149 tons of FFO, a notice to master/ship owners was served under section 356 J of the Merchant Shipping Act 1958 on 30 Mar 11, to take appropriate measures to prevent the escape of oil from the grounded vessel and to prevent damage to the marine environment from possible oil pollution.

### **Oil Spill Incident**

On 04 Apr 11, at about 0700 hrs, the local agent of the ship M/s JM Baxi, Tuticorin, intimated Coast Guard that the grounded vessel's forward portion has gone down due to ingress of water in hold no. 2 and 3. The crew embarked the life boat and abandoned the ship. However, the salvage team continued to remain onboard. A Coast Guard Dornier sortie was launched on 04 Apr and it reported that the forward two holds were submerged and there was no oil spill in the area. The Coast Guard advised the salvage team to transfer all fuel oil from the wing tanks to centre tank and seal them as preventive measure. The

salvage team accordingly transferred all fuel oil to tanks No. 2 and 4 (centre tanks) which were located in higher position and had double bottom protection.



A second aircraft sortie was launched in the afternoon and the aircraft observed iron ore contamination with water near the ship. However, the aircraft also observed intermittent patches of oil sheen on sea surface in the vicinity of the vessel which were attributed to escape of engine room bilges. The sheen was also found dissipating naturally, due to rough sea conditions.

By around 05 Apr, 50 percent of the ship sank by the bow and a fresh slick of 100 m in length was reported by the ICG ship. The shipowner in the interim, arranged a salvage vessel SMIT Nicobar from the salvor and it was expected to reach the area by 09 Apr 11. The owners also arranged hot tap fuel removal equipment from Rotterdam. By 06 Apr 11, thin windrows of oil sheen extending 8 to 10 miles and moving in 130 degrees direction was observed by the Coast Guard aircraft. The aerial monitoring was regularly undertaken and the leakage of fuel oil was reported in the sea area for the next four days.

The salvage team reported that the leakage of oil from the ship is due to the crack in No 4 cargo hold. The fuel oil was found oozing out at a regular rate and the salvage team could not contain the oil leakage. The salvage team as last resort applied OSD on the oozing out area so as to disintegrate the thick fuel oil at the source of release. By 11 Apr 11, the grounded vessel's hull cracked into two separate position from hold no. 3 and by 12 Apr 11, the ship sank completely and minor sheen of oil was found continuously seeping out from the wreck.



## **Coast Guard efforts**

The Coast Guard launched **Operation Crocodile** on 30 Mar 11, to keep a monitoring watch on the stranded ship, as no oil spill was found from 30 Mar – 04 Apr 11. In addition, it was also appreciated that the local prevailing current is likely to take the oil spill away from the shore.

However, due to the proximity of local tourist spots such as Vivekanand Rock and Kanyakumari beach/temple, the Coast Guard launched operation '**Samudra Swachchata**' on 05 April and five Coast Guard ships and Coast Guard Dornier aircraft were deployed for monitoring and response roles. In addition, the Coast Guard pollution response team for shoreline protection were mobilized from Chennai alongwith booms, skimmers and other accessories to Colachel area. Certain vital areas were kept under close observation for laying the booms as preventive measure. The Coast Guard ships and Dornier applied oil spill dispersant in the area to disperse the oil in rough sea as the containment option was ruled out. The ships boarding team in difficult sea condition boarded the wreck and monitored the situation closely.

## **Investigation**

The preliminary inquiry revealed that the grounding of MV Mirach is attributabed to navigational errors on the part of ship's crew, wherein, the waypoint coordination were wrongly fed by the duty officer. In addition, it was found that the ship steered very close to the shore to try to take short cut and went straight on crocodile rock.

The crocodile rock consists of series of pinnacle rocks which are generally submerged and form a unique eco system. When MV Mirach ran aground, the ship was actually resting on top of few needle like rocks. By 04 Apr, the forward portion to ship dipped due to ingress of water. By 11 Apr 11, the mid section broke into two, as it was not supported by any rock. By 12 Apr 11, due to heavy sea action, the aft portion slipped from the rock support and sank to the bottom.



The ship had a total of 05 tanks. The forward tank had 16 MT of FFO which got damaged totally and all oil escaped into the sea. The two mid section tanks had 133 tons of FFO. By 06 Apr, the mid section developed a crack and it is estimated about 33 MT of FFO escaped from the tanks. One tank located below machinery compartment containing 34 MT of diesel oil was found safe and one lube oil tank having 20 MT of lube oil located below accommodation area was also found safe.

### **Salvage operations.**

By 30 Mar 11, the salvage team arrived on scene for assessment and survey of the vessel for removing the trapped oil. By 09 Apr 11, the salvage tug SMIT NICOBAR arrived on scene to render necessary assistance to the salvage team. By 14 Apr, the diving equipment, air compressors, hot top equipment and

other accessories were brought to the area. By 15 Apr 11, the salvage team alongwith divers assessed the underwater area and commenced the oil transfer operations to salvage tug. From 16 Apr – 20 Apr, a total of 80 MT of FFO was transferred from the ship. Two hopper barges MV Sreekrishna and MV Subhtram were hired for transferring the recovered oil to the port.

By 20 Apr 11, all the oil which were removable from the ship was taken out and the operation was terminated.

The vital lesson learnt from the operations is that there is no professional salvage company available in India to remove oil from the stranded/sunken ship. The shipowners are totally dependent on foreign salvage company which entails a time delay. Requirement exists to establish such salvage service within India to tackle similar situation in future.