G3 – Document 1

The Amoco Cadiz was a very large crude carrier (VLCC) under the Liberian flag of convenience owned by Amoco. On 16 March 1978, she ran aground on Portsall Rocks, 5 km (3 mi) from the coast of Brittany, France; and ultimately split in three and sank, resulting in the largest oil spill of its kind in history to that date.

Severe weather resulted in the complete breakup of the ship before any oil could be pumped out of the wreck, resulting in her entire cargo of crude oil (belonging to Shell) and 4,000 tons of fuel oil being spilled into the sea.

The Amoco Cadiz

En route from the Persian Gulf to Rotterdam, Netherlands, via a scheduled stop at Lyme Bay, Great Britain, the ship encountered stormy weather with gale conditions and high seas while in the English Channel. At around 09:45, a heavy wave hit the ship's rudder and it was found that she was no longer responding to the helm.

This was due to the shearing of Whitworth thread studs in the Hastie four-ram steering gear, built under license in Spain, causing a loss of hydraulic fluid. Attempts to repair the damage were made but proved unsuccessful. While the message "no longer maneuverable" and asking other vessels to stand by was transmitted at 10:20, no call for tug assistance was issued until 11:20.

The German tug Pacific responded to Amoco Cadiz at 11:28, offering assistance under a Lloyd's Open Form. It arrived on the scene at 12:20, but because of the stormy sea, a tow line was not in place until 14:00, and broke off at 16:15. Several attempts were made to establish another tow line and *Amoco Cadiz* dropped its anchor trying to halt its drift. A successful tow line was in place at 20:55, but this measure proved incapable of preventing the supertanker from drifting towards the coast because of its huge mass and Force 10 storm winds.

At 21:04 Amoco Cadiz ran aground the first time, flooding its engines, and again at 21:39, this time ripping the hull and starting the oil spill. Her crew was rescued by French Naval Aviation helicopters at midnight, and her captain and one officer remained aboard until 05:00 the next morning.

At 10:00 on 17 March the vessel broke in two, releasing its entire cargo of 1.6 million barrels (250,000 m^3) of oil, and broke again eleven days later from the buffeting of high stormy seas. The wreckage was later completely destroyed with depth charges by the French Navy.

Amoco Cadiz spill was one of the most studied oil spills in history. Many studies remain in progress.

Repercussions

The Amoco Cadiz disaster focused attention of the fact that the failure of the common hydraulic pipe system of a four-ram steering gear (with duplicate power units), could result in the rapid discharge of oil from the circuit, and a loss of steering capability.

Four ram or double vane type gears with duplicated hydraulic circuits were developed as a result of this. This arrangement cannot be operated with both pumps running and the circuits isolated from each other.

Special SOLAS regulations now apply with relation to tankers, chemical tankers of gas carriers of 10,000 gross tonne and upwards. Two main power and servo power units draw from a two-compartment tank, with oil level switches arranged at three levels.

(1) Level 1 will give an alarm due to a loss of oil fro one system.

(2) Continued loss of oil operates one or both of the level 2 switches. these energize their respective solenoid operated servo valves (causing the combined isolating and bypass valves to operate), splitting the system so that each power unit supplies two rams only. At the same time, if any unit is stopped it is automatically started.

(3) Further loss of oil will operate one of the level 3 switches, which will close down the power supply on the faulty side. The steering then continues at half the designed maximum torque.