



# Engine Room Fire Caused by Crack in Fuel Oil Pipe

During a routine ballast passage in open waters, a 12 year old product tanker was operating under normal conditions with both main engines running. At the time of the incident, there were no abnormal machinery readings, alarms, or operational restrictions.

In the early afternoon, the engine room fire detection system activated simultaneously on the bridge and in the engine control room. The alarm indicated a fire on the starboard side of the engine room, in way of the starboard main engine. Engine room personnel responded immediately and confirmed the presence of fire and dense smoke in the vicinity of the engine room stairway adjacent to the main engine.

The bridge team stopped the main engines without delay, and emergency response procedures were initiated in accordance with the vessel's Safety Management System. Fire parties were mustered, boundary cooling was established, and local firefighting actions were taken using portable firefighting equipment. Access to the affected

area was restricted to limit air supply and slow the development of the fire.

Despite the prompt response, the fire escalated rapidly and could not be controlled locally. Given the location of the fire near the main engine, fuel oil pipework, and hot exhaust components, the risk of further escalation was assessed as significant. The Master therefore made the decision to release the fixed CO firefighting system protecting the engine room.

The CO system was released within a short time of the initial alarm and successfully extinguished the fire. The engine room was sealed, and re entry was carried out only after conditions were confirmed safe. No injuries were reported, and there was no reignition.

Following extinguishment, the crew concentrated on restoring essential shipboard functions. Electrical power was progressively re established, and systems required for navigation and vessel control were brought back into operation. Through sustained effort





under demanding conditions, the crew succeeded in restoring limited propulsion capability within a short period, allowing the vessel to proceed under its own power and avoid the need for towage.

The fire was caused by a crack in a pressurised fuel oil pipe located in the vicinity of the starboard main engine. The crack allowed fuel oil to escape under pressure as a fine spray, which subsequently came into contact with a hot surface and ignited, resulting in a rapidly developing engine room fire.

The failure was the result of fatigue cracking caused by long term vibration and cyclic stress, a mechanism particularly relevant on vessels that have been in service for more than a decade.

Throughout the incident, the crew demonstrated effective communication, disciplined emergency response, and strong technical competence under pressure.

## Questions

When discussing this case please consider that the actions taken at the time made sense for all involved. Do not only judge but also ask why you think these actions were taken and could this happen on your vessel?

- Does our SMS address these risks?
- What sections of our SMS would have been breached if any?
- Do we inspect the insulation in the engine room?
- How do we ensure that insulation is adequate in the engine room?
- When maintenance has been completed do we inspect that the insulation is in place and not contaminated?
- What signs of vibration or fatigue damage on fuel pipes might we overlook or underestimate?
- Do we have thermographic measurement cameras to ensure insulation is put back in order and to be able to verify that the machinery surfaces are below 220 deg C?
- How does vessel age influence our approach to machinery inspections, particularly for fuel systems exposed to long term vibration and cyclic stress?
- What lessons can be learned from this incident to reinforce safety culture onboard?
- What additional training or practical drills could help the crew be better prepared for real-life scenarios?
- What support do we need from management (additional training, updated procedures, more resources) to strengthen our procedures?
- What immediate, actionable steps can we take from today's discussion?