

1. SUMMARY

Whilst berthed at Esso Fawley Oil Terminal the Bermuda-Registered MOBIL PETREL, a 16 year old very large crude oil tanker, suffered major structural failure in two adjacent cargo tanks as a simultaneous cargo and ballast operation was under way.

A large quantity of ballast water and crude oil contained in the tanks flowed through the breached structure and flooded into the pipe tunnel, the main and auxiliary pump rooms and the engine-room. Dangerously high concentrations of hydro-carbon gas were released into the spaces and into the atmosphere.

A major incident was declared by the emergency services who co-ordinated successfully to prevent an explosion, loss of life and serious pollution to the environment.

The investigation established that structural failure was caused by over pressurisation of one of the cargo tanks as ballast water was loaded into it. An inert gas (I.G.) branch valve leading to the tank had been unintentionally operated preventing adequate venting of the tank atmosphere. The valve was in a poor state of repair causing confusion over its open and closed position.

The MAIB investigated the accident under the terms of the Merchant Shipping (Accident Investigation) Regulations 1989 and at the request of the Bermudian Administration.

A number of lessons have been learned from the investigation which relate to over pressurisation of cargo tanks and the operation and maintenance of I.G. systems. Recommendations in the report aim to prevent recurrence of a similar incident in the future.

The Inspector found malpractice in the operation of the I.G. system despite there being first class standing orders and operational manuals on board the ship, and officers with long experience of tanker operation.

The report discusses the need for more concise records of inspection, of defects found and of repairs carried out which affect the safe and efficient operation of the I.G. system so that Port State Inspectors, Surveyors and Shore Management can easily ascertain that its state of performance is in accordance with national, international and company regulations.

The catastrophic failure of the structure occurred in cargo tanks which were over one hundred and forty yards from the engine room, yet high concentrations of flammable gas, crude oil and ballast water from these tanks were able to penetrate into the engine-room. The report questions the adequacy of requirements which allow a pipe tunnel of the kind installed in MOBIL PETREL to connect into the cargo pump room without any need for the spaces to be isolated from each other during operation of the ship. If the pump room access to the pipe tunnel had been closed and watertight at the time of the incident the extent of flooding and the potential danger of explosion and fire would have been significantly reduced.