

SYNOPSIS



At about 1823 UTC on 31 October 2004, the 2159gt Isle of Man registered tanker *Border Heather* suffered an explosion and fire in her forecastle while in Grangemouth. Significant damage was caused to the vessel's structure and systems but no-one was injured and there was no pollution.

The explosion happened after the ship loaded a volatile cargo of motor spirit (ultra low sulphur petrol or ULSP), some of which migrated into the forward space, housing the gas freeing fans, from the interconnected cargo and gas freeing systems. A spectacle plate between these systems had not been fitted in the blanked position, the associated isolating valves had not been closed and a non-return valve leaked.

Motor spirit and vapour then drained into the spaces beneath the gas freeing room through the scuppers and an open hatch. Once in the lowest space, the bow thruster room, vapour was ignited by electrical equipment not intended for use in an explosive atmosphere.

The fire was tackled by the vessel's crew and finally extinguished by shore-based firefighters about 40 minutes after ignition.

Several issues of concern have been identified. These include:

- crew familiarisation arrangements;
- fatigue aggravated by unfamiliar technology, equipment and systems;
- the lack of ship specific operational procedures in the vessel's safety management system;
- the reluctance of the vessel's deck officers to report the spill of ULSP to the master;
- the reluctance of the vessel's deck officers to report the spill of ULSP to the vessel's designated person;
- the specification of isolating arrangements on the gas freeing system;
- the classification of dangerous spaces;
- application of the terminal's emergency procedures;
- liaison between the terminal and the Central Scotland Fire Brigade.

Following their own examinations and investigations into this accident, the vessel's managers, classification society, terminal managers and local fire brigade have taken action to address numerous issues. In addition, MAIB and the Isle of Man Marine Administration have made recommendations with the objective of improving safety.

A recommendation has been made to Lloyd's Register of Shipping to make proposals to the International Association of Classification Societies for the development of unified requirements for the classification of dangerous spaces.

Recommendations have been made to BP Grangemouth and Central Scotland Fire Brigade to co-operate on a review of their emergency procedures for the safe access of CSFB units to the Grangemouth site and the means of communications between BP Grangemouth and CSFB.

A recommendation has been made to The International Chamber of Shipping to highlight to its national ship owner associations the importance of having adequate procedures in place to safely introduce new, or newly acquired, vessels into commercial service.

Figure 1

