

MAIB

MARINE ACCIDENT INVESTIGATION BRANCH

SAFETY FLYER TO THE SHIPPING INDUSTRY

Explosion of gas released from cargo of unprocessed incinerator bottom ash on *Nortrader*, 13 January 2017



Nortrader at Victoria Wharf, Plymouth

Narrative

At 1447 on 13 January 2017, the dry cargo vessel *Nortrader* suffered two explosions in quick succession. The vessel was anchored in Plymouth Sound and had loaded unprocessed incinerator bottom ash (U-IBA) the day before at Plymouth. The first explosion was in the forecastle store and the second in the cargo hold. The force of the explosion in the cargo hold dislodged all the heavy steel hatch covers and all but one of the holding down cleats were broken. Many of the hatch covers and sections of the hold coaming were distorted.

The chief engineer was in the forecastle store at the time, testing the emergency fire pump. He suffered second degree burns and had to be airlifted to a nearby hospital. His recovery was prolonged and he was only declared fit for work again 4 months later. The vessel was out of service until 20 April.

The MAIB investigation established the following:

- *Nortrader's* master had received an email from the vessel's charterer that the intended cargo of U-IBA was a 'non dangerous' cargo.
- Hydrogen gas released from the cargo seeped into the forecastle store through a slack cargo light access cover. The hold was unventilated at the time.
- All the natural ventilation outlets in the forward compartment, including the forecastle store, were closed in preparation for imminent heavy weather. This allowed hydrogen to accumulate in the forecastle store.
- The starter panel for the emergency fire pump had a broken fixing lug at its door and was therefore not sealed.
- The first explosion was likely to have been triggered by the arcing between the contact terminals of the emergency fire pump starter panel when it was switched off.
- There had been 34 similar shipments of U-IBA from Plymouth to the Netherlands. Despite U-IBA not being listed in the International Maritime Solid Bulk Cargoes (IMSBC) Code, no steps had been taken to seek approval from the competent authorities for its carriage by sea.

Safety lessons

- The only approved means of ensuring safe carriage of solid bulk cargoes is through the application of the IMSBC Code. The schedules included in Appendix 1 of the Code clearly classify cargoes and identify the necessary requirements for safe carriage. Where no schedule is listed for a specific cargo, the required classification procedure is stated at Section 4 of the Code, with further guidance provided by MSC Circ.1453, Marine Guidance Note (MGN) 512 and the guidance document *Carrying solid bulk cargoes safely* published by Lloyd's Register, UK P&I Club and INTERCARGO.
- The application of the IMSBC Code has been mandatory since 2011. It replaced the Code of Safe Practice for Solid Bulk Cargoes (BC Code), which was for guidance only.
- The IMSBC Code requires the shipper to provide the vessel's master with a comprehensive list of information about the intended cargo.

This flyer and the MAIB's investigation report are posted on our website: www.gov.uk/maib

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