MAIB

MARINE ACCIDENT INVESTIGATION BRANCH

FLYER TO THE SHIPPING INDUSTRY

BRO ARTHUR:

FATALITY OF A SHORE WORKER IN No 2 CARGO TANK

Bro Arthur

During the evening of 19 February 2010, a 3-man team of German shore workers entered No 2 cargo tank to "sweep" the remains of a cargo of stearin, a derivative of crude palm oil, into the cargo pump suction well to maximise the cargo discharge. On leaving the tank **(Figure 1)**, one of the workers was fatally injured when he fell about 18 metres onto the tank top.

Although a "sweeping" risk assessment had been carried out by the ship, no consideration had been given to the use of a safety harness or fall arrestor despite the extreme waxy nature of the cargo and the advice in the ship's safety management system regarding their use in large spaces. The supercargo, whose role was to advise the crew on optimal cargo operations, gave two of the shore workers a short brief on the "sweeping" task. However, no safety briefing or other information was passed on by the ship's officers.

The atmosphere of the cargo tank was tested correctly for oxygen levels but the equipment used to test for other gases only reached half way down the tank. The supercargo noticed that one of the "sweepers", who was the subsequent casualty, needed help to descend the angled ladders.

Following the accident, the casualty was removed from the tank by the local emergency services, who declined the use of the ship's recovery equipment because of its weight and lack of portability.

Figure 1

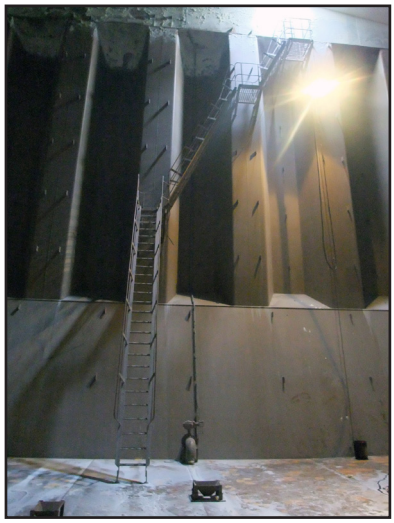

Figure 2

The postmortem toxicology report identified that the casualty had a variety of prescription and illegal drugs in his blood which would have caused severe impairment. All the evidence suggests that the casualty fell from the vertical ladder **(Figure 2)**. His heavily cargo-contaminated gloves could easily have caused him to lose his hand grip on the slippery surface and the risk of his falling would have been exacerbated by his impaired physical condition. The investigation also found that the mandatory two-monthly dangerous space casualty recovery drills had not been practised for a considerable time.

SAFETY LESSONS

- While there is a clear responsibility for a worker to take reasonable care of his own health and safety, there should be clear guidance in the ship's safety management system regarding ship's staff responsibilities for effectively controlling and managing contractors.
- If there is any doubt about the physical or professional ability of a person designated to carry out work, regardless of whether they are crew or a contractor, they should be confronted and, if necessary, the task should be aborted.
- Risk assessments need to be thorough if they are to be of use in identifying the most appropriate control measures. When working at height, including entering or exiting cargo tanks, due consideration should be given to the use of safety harnesses or fall arrestors.
- Crew should be equipped with correct atmosphere sampling equipment and be fully trained in its use and interpretation of results. Equipment needs to reach to the bottom of a tank.
- The crew had not been properly trained in rescue techniques and the ship's casualty recovery equipment was unsuitable for the task. Lightweight rapid-deployment tripods and quadpods are commercially available and should be considered.

This flyer and the MAIB's investigation report are posted on our website:

www.maib.gov.uk

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