

Safety Bulletin No. 2/2008, published July 2008

Fatalities in Enclosed Spaces

BACKGROUND

Since September 2007 the MAIB has started three investigations into accidents in which a total of six seafarers have died in enclosed/confined spaces:

- On 23 September 2007, three experienced seamen died inside the chain locker on board the emergency response and rescue vessel *Viking Islay*. The first two were overcome while tying off an anchor chain to prevent it from rattling in the spurling pipe. The third to die was the first rescuer who entered the chain locker wearing an Emergency Escape Breathing Device (EEBD). He was soon constrained by the device and removed its hood. All three men died as a result of the lack of oxygen inside the chain locker caused by the on-going corrosion of its steel structure and anchor chain.
- On 18 January 2008, two seamen collapsed in a store on board the general cargo ship *Sava Lake*. The chief officer entered the store to try and rescue the men but was soon forced to leave when he became short of breath and his vision narrowed. The two seamen had been asphyxiated. The store was adjacent to the vessel's forward cargo hold containing 'steel turnings'. To allow for the drainage of sea water and the removal of cargo residue, the bellows pieces on the cargo vent trunk either side of the cargo ventilation fan motor, located in the store, had been cut. This allowed a path for the air from the self-heating cargo, to enter the store. When tested, the air in the cargo hold contained only 6% oxygen.
- On 11 June 2008, an experienced seaman died on board the passenger cruise ship *Saga Rose* after he entered an almost empty ballast tank. The tank's manhole cover, which was inside a small cofferdam accessed from within the engine room, had been removed and the seaman had been instructed to confirm the tank's contents. As it was not intended for the seaman to enter the tank, no permit to work was issued. When the seaman was found to be missing, an experienced motorman was sent into the cofferdam to check on his wellbeing. He found the seaman lying at the bottom of the empty tank and raised the alarm. The motorman then entered the tank but collapsed when trying to recover the seaman. After the ship's emergency response team provided air to the stricken crew via in-line breathing apparatus, the motorman recovered and was able to leave the tank. However, the seaman never regained consciousness. He had been asphyxiated in the oxygen depleted atmosphere of the tank, which had not been inspected for several years and was heavily corroded. It is not certain why the seaman entered the tank but it is likely it was to determine whether a small amount of water in the tank bottom was salt or fresh water.

The MAIB report of its investigation of the fatalities on board *Viking Islay* was published on 9 July 2008. The MAIB will publish reports on the fatalities on board *Saga Rose* and *Sava Lake* on completion of its investigations.

Co-incident with the MAIB investigations, the Marine Accident Investigators International Forum (MAIIF) identified the large number of fatalities in the shipping industry worldwide which were related to work in confined or enclosed spaces and considered that the occurrence of such accidents was increasing. Accordingly, in October 2007, MAIIF tasked its representative

from Vanuatu to research the incidence of this type of accident with a view to the submission of a paper to the International Maritime Organization (IMO). To date, responses from 18 administrations identify 120 fatalities and 123 injuries resulting from entry into confined spaces since 1991. These statistics do not include the fatalities from Sava Lake or Saga Rose.

SAFETY LESSONS

There can be few aspects of personal safety on board ships that have received more attention than the importance of following the correct procedures before entering a dangerous enclosed/confined space. Tragically, it is clear that the measures which have been put into place have failed to prevent the death of many seafarers. Indeed, the data collected on behalf of MAIB indicates that accidents in enclosed/confined spaces continues to be one of the most common causes of work-related fatalities on board ships today. This is due to:

- Complacency leading to lapses in procedure;
- Lack of knowledge;
- Potentially dangerous spaces not being identified; and,
- Would-be rescuers acting on instinct and emotion rather than knowledge and training.

It is essential that the IMO recognises the unacceptably large fatality rate in this area and takes the lead in identifying initiatives to improve this very poor safety record. It is also vital that all shipping industry bodies raise the awareness of the continuing and increasing number of deaths in enclosed spaces to show that no-one is immune to the physical effects of the lack of oxygen or harmful gases. While the holding of breath might seem a logical step to a person entering a tank 'for a few seconds' or to a would-be rescuer, it is all too frequently the last life sustaining breath he or she ever takes.

RECOMMENDATIONS

Ship owners and managers, and industry bodies and organisations are recommended to:

- **Identify and implement measures aimed at improving the identification of all dangerous and potentially dangerous spaces and increasing compliance with the safe working practices required when working in such compartments.**
- **Individually and collectively raise the awareness of the continuing high incidence of fatalities of seafarers working in enclosed spaces.**

The Maritime and Coastguard Agency is recommended to:

Co-sponsor with the Maritime Administration of Vanuatu and other concerned administrations a submission to the IMO aimed at raising the awareness of the number of fatalities on ships which have occurred in enclosed spaces, and highlighting the need for measures to be identified which will reduce this unnecessary loss of life, such as the identification and marking of all potentially dangerous spaces.

APPENDIX A

Preliminary examinations started in the period 01/07/08 – 31/10/08

A preliminary examination identifies the causes and circumstances of an accident to see if it meets the criteria required to warrant a full investigation, which will culminate in a publicly available report.

Date of Accident	Name of Vessel	Type of Vessel	Flag	Size	Type of Accident
03/07/08	<i>Svitzer Waterston</i>	Tug	UK	686	Grounding
08/07/08	<i>West Express</i>	Ro-ro/lo-lo	Jamaica	9368	Contact
10/07/08	<i>Barbara</i> <i>Maersk Borneo</i>	Bulk Carrier Dry Cargo	Bahamas Singapore	22147 19758	Hazardous Incident
23/07/08	<i>Levan Mor of Looe</i>	Fishing vessel	UK	11.58	Foundering
30/07/08	<i>Isle of Inishmore</i>	Ro-ro vehicle/ passenger ferry	Cyprus	34031	Fire
09/08/08	<i>18ft dory</i>	Angling vessel	UK	Unknown	Foundering (1 fatality)
09/08/08	<i>Ark Forwarder</i>	Ro-ro/lo-lo	UK	21104	Accident to person (1 fatality)
13/08/08	<i>New Dawn</i>	Fishing vessel	UK	36.14	Accident to person(s)
23/08/08	<i>Monsoon</i>	Liquid Gas Carrier	Cyprus	3219	Contact
29/08/08	<i>European</i> <i>Endeavour</i>	Ro-ro vehicle/ passenger ferry	UK	22152	Contact
10/09/08	<i>Caledonian Victory</i>	Offshore supply vessel	Cayman Islands	5729	Contact
13/09/08	<i>Scot Venture</i> <i>Golden Promise</i>	General cargo Fishing vessel	UK UK	2594 22.80	Collision
18/09/08	<i>Nantewas</i> <i>Herm</i>	Fishing vessel Dry cargo	UK Antigua & Barbuda	9.68 7660	Collision
29/10/08	<i>Scot Isles</i> <i>Wadi Halfa</i>	General cargo Bulk carrier	UK Egypt	2594 22895	Collision
29/10/08	<i>Pau Casals</i>	Ro-ro vehicle/ passenger vessel	UK	22152	Hull failure

Investigations started in the period 01/07/08 – 31/10/08

Date of Accident	Name of Vessel	Type of Vessel	Flag	Size	Type of Accident
01/07/08	<i>Plas Menai</i>	Pleasure craft	Unknown	Unknown	Capsize/ listing
30/07/08	<i>Pacific Sun</i>	Cruise ship	UK	47546	Heavy weather damage
01/08/08	<i>Vision II</i>	Fishing vessel	UK	163	Fire (3 fatalities)
17/08/08	<i>Hurlingham</i>	Passenger vessel	UK	113.99	Accident to person (1 fatality)
26/08/08	<i>Celtic Pioneer</i>	Pleasure craft	Unknown	Unknown	Accident to person
23/09/08	<i>Maersk Kithira</i>	Container	UK	80654	Accident to person (1 fatality)

Reports issued in 2008

Audacity/Leonis – collision at the entrance to the River Humber on 14 April 2007
Published 25 January

Dublin Viking – parting of a mooring line alongside at Berth 52 in the Port of Dublin, Ireland, resulting in one fatality on 7 August 2007
Published 31 March

Figaro – inadvertent release of carbon dioxide and the disabling of the vessel off Wolf Rock on 6 December 2007
Published 14 August

Flying Phantom – loss of the tug while towing *Red Jasmine* on the River Clyde on 19 December 2007 resulting in 3 fatalities and 1 injury
Published 30 September

Lady Candida – fire and subsequent sinking off Corsica on 28 July 2007
Published 18 February

Lady Hamilton/Blithe Spirit – collision between fishing vessels in Falmouth Bay, Cornwall on 3 October 2007
Published 15 April

Last Call – foundering of the motor cruiser at Whitby on 23 November 2007 with the loss of three lives
Published 30 June

Logos II – two accidents during berthing and unberthing, St Helier, Jersey on 20 and 26 June 2007
Published 22 January

MSC Napoli – structural failure in the English Channel on 18 January 2007
Published 22 April

Pacific Star – heavy weather damage sustained by passenger cruise ship while on passage in the South Pacific Ocean on 10 July 2007
Published 29 February

Partner 1 – console detachment of the rigid inflatable boat, Studland Bay, Poole on 20 April 2008
Published 30 October

Rigid Raider (Army Cadet Force Rigid Raiding Landing Craft) – capsizing of craft in Loch Carnan, South Uist in the Western Isles of Scotland on 3 August 2007, resulting in one fatality
Published 18 March

Sava Lake – dual investigation of the deaths by asphyxiation of two crewmen while the vessel was approaching the Dover Strait on 18 January 2008
Published 23 September

Sea Mithril – grounding of the cargo vessel on the River Trent on 18 February 2008
Published 26 September 2008

Shark/Royalist – dual investigation report into fire on board *Shark* on 19 January 2008 and foundering of *Royalist* on 23 January 2008
Published 12 August

Sichem Melbourne – product carrier making heavy contact with mooring structures at Coryton Oil Refinery Terminal on 25 February 2008
Published 17 October

Ursine & Pride of Bruges – contact between two vessels, King George Dock, Hull on 13 November 2007
Published 30 May

Viking Islay – loss of three lives, 25 miles off the East Yorkshire coast on 23 September 2007
Published 9 July

Young Lady – vessel dragging anchor 5 miles east of Teesport and snagging the CATS pipeline, resulting in material damage to the pipe on 25 June 2007
Published 1 February

Annual Report 2007 Published July 2008

Safety Digest 1/2008 Published 1 April

Safety Digest 2/2008 Published 1 August

Leisure Safety Digest (2nd edition)
Published March

