MAIB Safety Bulletin 3/2004

Accidental release of Vinyl Chloride Monomer from Gas Carrier *Coral Acropora* while alongside at Runcorn 10 August 2004

This document, containing Safety Recommendations, has been produced for marine safety purposes only, on the basis of information available to date.

The Merchant Shipping (Accident Reporting and Investigation) Regulations 1999 provide for the Chief Inspector of Marine Accidents to make recommendations at any time during the course of an investigation if, in his opinion, it is necessary or desirable to do so.

The Marine Accident Investigation Branch (MAIB) is carrying out an investigation into the accidental release of a hazardous substance onboard *Coral Acropora* that occurred on 10 August 2004. The MAIB will publish a full report on completion of the investigation.

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Chief Inspector of Marine Accidents

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Background

At about 1110 on 10 August 2004, 594 kilos of Vinyl Chloride Monomer (VCM) was accidentally released into the atmosphere from *Coral Acropora* a 3096grt Gas Carrier during a cargo sampling operation, prior to discharging cargo at the Runcorn Lay-By berth on the Manchester Ship Canal.

The vessel was loaded with 2829 Tonnes of Vinyl Chloride Monomer and securely moored starboard side alongside the Runcorn Lay-By berth on the Manchester Ship Canal. Shore personnel had boarded the vessel on arrival to connect the cargo manifold to the shore chicksan, and a Cargo Surveyor was trying to take samples from the vessels' cargo tanks. The vessel's Chief Officer was attempting single handedly to circulate cargo in the aft cargo tank by running the tank deepwell cargo pump at the request of the Cargo Surveyor. However, one valve on the full forward cargo tank had been opened and a second was inadvertently opened, with the effect that cargo was internally transferred into this tank. The pressure in the forward cargo tank rose as the tank filled, to such an extent that the tank pressure/vacuum valve lifted and cargo erupted from the forward tank mast riser.

The gas cloud directly affected all those on the ship and several persons in the terminal. A number of members of the public were also affected by the incident.

Safety Recommendations

Tanker operators demand and expect very high standards of safety. This accident suggests that, regardless of company procedures, practices onboard some vessels can deviate considerably from those expected. Thus all tanker owners and operators are recommended to ensure that good tanker practice takes place at all times on their vessels and that ship's personnel strictly adhere to company operating instructions and standing orders, and in particular the vessel's cargo operations manual.

In particular they should ensure that:

1. The vessels' Cargo Control Room is manned at all times when cargo pumps are running during any cargo operation.
2. During the operation of connecting the manifold to the shore chicksan or hoses, no other cargo operations are taking place, especially those involving operating cargo pumps.
3. During cargo operations good tanker practice is maintained, such as keeping double valve segregation, where fitted, and shutting all valves that are not required to be open.
4. When lining-up cargo systems a system of double-checking is implemented.
5. Safety features such as cargo tank 98% high volume alarms and interlocks are only overridden in exceptional circumstances when it is absolutely necessary, and then great care must be taken to continually monitor the situation.
6. If a ship's crew have any reservations with regard to the operational procedures adopted by a terminal or berth, such as lack of information, no direct communications with the terminal, or poor supervision or co-ordination, the crew make such reservations known to the terminal or berth operator and to the ship owner or operator. Operations must be suspended until safety concerns have been addressed.