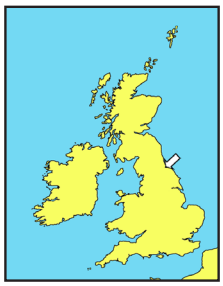

SYNOPSIS

On 6 May 2009 the chief officer and an AB on board the chemical tanker *Jo Eik* were overcome as they entered an area of the main deck which contained released cargo vapours. They were rescued and taken to hospital, where they made a full recovery.

Jo Eik loaded a cargo of MARPOL Category "X" Crude Sulphate Turpentine (CST) in Savannah, USA. Arrangements were made for a Ship to Ship (StS) transfer with the chemical tanker *Puccini* while alongside the Vopak Terminal at Teesside. Following the StS transfer, *Jo Eik* carried out a mandatory MARPOL pre-wash using portable washing equipment because the majority of the fixed washing systems were defective. The washing machine water supply hose was passed through P10 cargo tank inboard Butterworth hatch, which remained open. As the cargo tank was washed, water mist containing cargo vapours escaped through the open hatch as the tank's atmosphere was agitated. The vapours accumulated around the Butterworth hatch in what was an unidentified enclosed space. The on watch AB entered the area to isolate the cargo pump hydraulic motor valves. He was immediately overcome and lost consciousness. The chief officer and another AB attempted to rescue the unconscious AB. Neither was wearing breathing apparatus. The chief officer was rapidly overcome. The AB also suffered the effects of vapour inhalation/oxygen depletion, but managed to escape unaided.

There were two Material Safety Data Sheets (MSDS) in circulation for the CST. The cargo specific MSDS held by *Jo Eik* identified hydrogen sulphide (H_2S) as a constituent part. The other MSDS passed to the terminal staff and to *Puccini* did not. The CST cargo hazards were not recognised by the chief officer of *Jo Eik* because proper reference was not made to the MSDS and the crew were not informed because a Teesside pre-arrival conference was not carried out. This contributed to inadequate risk control measures being established.

Some areas on the deck of *Jo Eik* fell into the category of enclosed spaces as defined by the International Maritime Organization (IMO). This was not recognised by the crew, so the appropriate safety precautions were not taken. There was also a complacent attitude regarding the need for respiratory protection during cargo operations. The requirement was not enforced and this put the crew at risk.

Jo Tankers AS has established a range of measures to address its organisational shortcomings. These include instructions for management of unfamiliar cargoes, including those containing H_2S, surveying the deck to identify and label areas falling into the enclosed space category, the use of personal gas detectors and repair of the fixed tank washing systems.

A number of recommendations have also been made to Jo Tankers AS. These include actions to ensure pre-arrival conferences are carried out which identify the cargo risks and safety measures required, for the diligent completion of cargo operation checklists, and for enforcing the use of respiratory protection in accordance with the ship's Quality Management System (QMS).

An MAIB safety flyer covering the circumstances of the accident has been distributed to the chemical tanker and related industries.