

Subject Memorandum regarding follow-up to recommendations: '*Fatal accident in cargo tank of chemical tanker. Lessons learned from the occurrence on board the NCC SAFA*'

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1. About the report

On 20 April 2022, a fatal accident took place on board the chemical tanker NCC SAFA, which was lying off the coast of IJmuiden. To prevent an explosive mixture from forming in the cargo tanks, nitrogen is pumped into the tanks. This process – referred to as ‘inerting’ – expels the oxygen from the tanks. During an inspection of a cargo tank on board the NCC SAFA, an able-bodied seaman (AB) lost consciousness and fell into the tank. The first officer went to see what was the matter with the AB. He too became unwell and fell into the tank. Both were recovered from the tank by a rescue team. The AB was taken to hospital with serious injuries. The first officer did not survive.

The Dutch Safety Board's investigation found that while a cargo tank was being made inert, a leaking valve – the only safety barrier in use in this system – had allowed nitrogen to flow into another tank, namely the tank being checked by the AB at the time. This inadvertently lowered the oxygen level in the tank, causing the AB to lose consciousness when he entered the tank. When he went to assist the AB, the first officer also lost consciousness when he entered the tank. Despite awareness of the safety rules and the safety information available on board, the procedures for entering an enclosed space were not adhered to. Moreover, although the AB and the first officer were wearing their helmet, overalls and safety shoes, neither was carrying a personal gas meter when they entered the tank.

In its report, the Dutch Safety Board issued a recommendation to the shipping company. That recommendation concerned the safety barriers surrounding the inert gas system. Bahri Ship Management (formerly Mideast Ship Management) responded to the recommendation on 7 December 2023. The full text of the response is available on the Dutch Safety Board's website.

2. Follow-up to recommendation

The recommendation to Mideast Ship Management (now: Bahri Ship Management) was as follows:

Provide an inert gas system constructed so that there are multiple safety barriers. This should include a control system for the use of inert gas, whose capabilities and limitations are known to the entire crew.

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Response of Bahri Ship Management (formerly Mideast Ship Management)

In its response, Bahri Ship Management stated that its safety protocols and procedures had been revised in the light of the Dutch Safety Board's findings and the recommendation addressed to the company. The inert gas system and the various safety barriers are described in detail in the response. Bahri Ship Management also enclosed an overview that included an update on the progress of the various actions taken.

To prevent a leaking valve from again jeopardising the integrity of the safety barrier, Bahri Ship Management has improved the Preventive Maintenance System (PMS). The PMS incorporates maintenance of the valve (the Cargo Tank Inert Gas valve) and its visibility. The PMS currently prescribes regular inspections by opening the cover of the gearbox, application of grease to the gears, fracture checks, and manual checks on operation of the valve. To ensure that the system is reliable, maintenance of the valves is carried out every three months (groupwise).

Bahri Ship Management's internal investigation also revealed that a second valve – intended to ensure that the cargo tank and the inert gas line are completely isolated from one another – was not in use. The procedure has been tightened up to prevent this happening in the future.

Bahri Ship Management also stated that it has strict safety procedures for dealing with the inert gas and nitrogen systems on board. The procedures and risk assessments for entering confined spaces have been improved to prevent activities taking place simultaneously. It is not permitted, for example, to enter a cargo tank during loading, unloading, inerting, or cleaning of one or more other tanks. Entering cargo tanks (confined spaces) is permitted only after an Entry Permit has been issued; this is strictly monitored by the captain. Warnings about nitrogen are also displayed during inerting of cargo tanks.

There are two-monthly drills on board the vessels for entering a confined space. In the light of the incident, the drills have been extended to include, for example, a targeted training course for all crew members (specifically for chemical tankers). The course covers entering confined spaces, the plan and procedure for tank cleaning, and the dangers of nitrogen. Greater attention is also being paid to creating a safety culture that enables the crew to call one another (and the captain) to account and to stop work if the procedure is not followed.

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Conclusion regarding follow-up

The Dutch Safety Board concludes that Bahri Ship Management has complied with the recommendation. As recommended, the procedure described in the response includes multiple safety barriers. The summary that was submitted (as an annex) with the response also shows that numerous actions have already been implemented. Although the prescribed procedure, on paper, leaves no room for error, successful implementation will still depend on the crew on board the vessel. Investment by Bahri Ship Management in training the crew and in improving their training – including as regards correct implementation of procedures – will play an important role in this.