

[REDACTED]

Van: [REDACTED]@bahri.sa>

Verzonden: donderdag 7 december 2023 5:18

Aan: [REDACTED]

CC: [REDACTED]

Onderwerp: [24.0000664] MIDEAST/Accident Investigation on board the NCC SAFA (IMO 9411329)/ RECOMMENDATION AND LESSONS

Bijlagen: Recommendation and lessons 'Fatal accident in cargo tank of chemical tanker NCC SAFA'.pdf; NCC SAFA Incident Preventive Measures Report-Updates DSB.pdf; fatal_accident_in_cargo_tank_of_chemical_tanker_ncc_safa.pdf

Good day ,

Further to our previous communication on NCC Safa fatality investigation , we once again want to take the opportunity to appreciate and acknowledge to your recommendation and lessons learned from your investigation report to ensure the safety on our chemical tanker vessels during operations, particularly concerning the Nitrogen/inert gas system. The safety of our crew is paramount, and we are committed to meeting and always strive to exceeding industry standards in this regard.

We want to affirm that the recommendations and lessons learned highlighted by the Dutch Safety Board were already identified within our own investigation report. We are pleased to share that corrective and preventive actions have been diligently implemented to address these issues. For your convenience, we have attached an update on the progress of these preventive actions.

Furthermore, we conducted an extensive review of our safety protocols and procedures in response to your report's recommendations. As a result, we have fortified the effectiveness and safety of our crew during cargo and Nitrogen/inert gas system operations.

Our Nitrogen/inert gas system has been meticulously designed with multiple safety barriers. These encompass design and approved construction, safe handling procedures, risk assessments for cargo tank purging and enclosed spaces, enclosed space procedures and permits, blanking of branch lines when not in use, tank inerting/purging plans, padlocking of branch lines on the IG system, safety warnings, crew training, and rigorous maintenance and planned maintenance system (PMS) of the IG system and branch valves.

Below are the summary of multiple safety barriers to highlight our review addressing your recommendation **(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.)** and lessons learned:

1. Design/Approved construction

- a) Our inert gas and Nitrogen generator system has been designed, constructed, and approved in full compliance with IMO/SOLAS regulations. Information on capacity and design of IG system are available to ship staff through IG manual and also by mimic diagram and capacity information displayed in CCR.
- b) In order to isolate any cargo tank form IG main system, there are 2 existing barriers in place and these are IG Valve and spectacle blank. (This can be seen in picture below too).
- c) Inert Gas branch valve for cargo tank No.1 starboard, which did not shut fully despite the spindle moving to the closed position. This valve failure compromised the integrity of the barrier. To rectify this, we have enhanced our Preventive Maintenance System (PMS) by introducing a Cargo Tank Inert Gas valve maintenance and tracking sheet. The updated PMS now mandates regular gearbox top cover inspections, grease application to the gears, fracture checks on pinions and racks, and manual valve operation checks. We have grouped the Inert Gas valves for maintenance every three months to ensure the system's reliability.

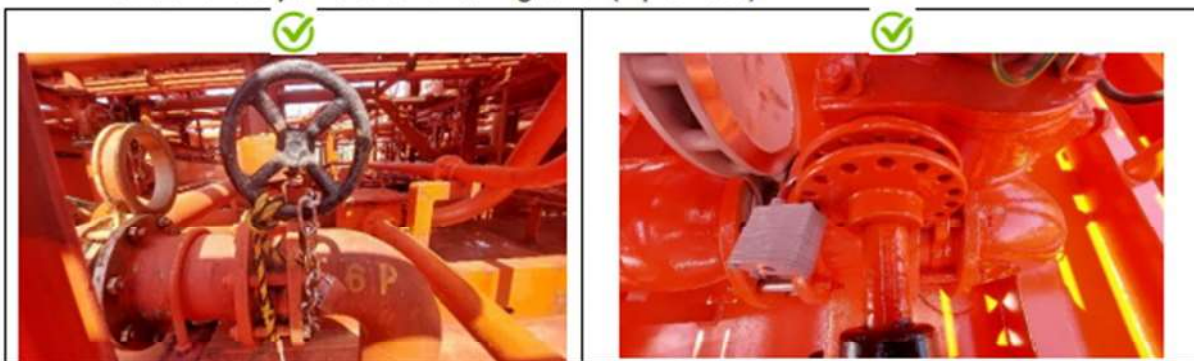
- d) During our investigation, we found that a critical spectacle blank flange, the second barrier, which ensures complete isolation between the cargo tank and the inert gas line was not used. This lapse allowed pure nitrogen from the inert gas line (used for inerting first set of tanks) to enter cargo tank No.1 starboard through the defective inert gas branch valve. To prevent such incidents, we have now reinforced our procedures. Crew members must use a spectacle blank on the branch line to positively isolate the cargo tank from the inert gas line before entering, thereby preventing unintended gas flow.

2. Safe handling procedure:

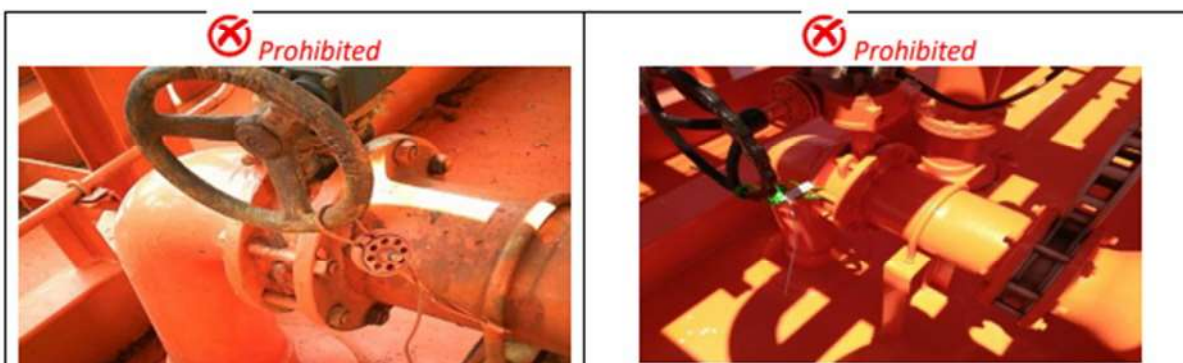
- a) We have strict safety procedures for handling Inert gas and Nitrogen systems in cargo tanks. Our SMS prohibits entry into a cargo tank during N2 purging or inerting.
- b) Our company's SIMOP procedures and risk assessments for enclosed space entry have been improved to prevent simultaneous operations. No tank entry is allowed when cargo loading, discharging, transfer, tank inerting, nitrogen padding, or purging operations are ongoing.
- c) Entry into cargo tanks (enclosed spaces) is strictly controlled through a Master-approved permit to Entry, in full compliance with IMO Assembly resolution A1050 (27), ISGOTT 6 Chapter 10, and industry best practices. Recently we also improved our generic Risk assessment for enclosed space.
- d) We reiterated and strictly implemented our independent double monitoring for tank entry, maintaining an enclosed space entry log overseen by the OOW. Linkmen report all entry and exit activities, gas readings, permit numbers, etc. to the OOW, ensuring continuous monitoring and an added layer of safety.

2. Safety Warnings:

- a) A Enclosed space is always kept secured/closed unless entry is required. Any Entry in the tank is restricted by the Enclosed space entry Permit System which is authorized only by Master. Entry permit must be displayed outside the space, once authorized safe for entry by master. Permit checks ensure that enclosed space entry is secured/closed out after completion of work .
- b) We require to post N2 warning at gangway, exits to accommodation and on the tank entry opening domes during N2 operation.
- c) Chief officer ensures to always keep IG tank inlet valves locked, whether in open or shut position for keeping his control over its operational condition as per permit to entry.



Warning!
Do not use seals or similar methods instead of padlocks.



d. After this incident we have also introduced additional measures in compliance with industry best practices. We are supplying “Confined Space Covers” to all our vessels to physically warn and prevent unauthorized access to enclosed space if tank is left open for/during gas freeing for the preparation to entry.



4. Crew Training:

We have Enclosed Spaces Entry drills repeated every 2 months on board each vessel. Our Ship training officers and Mideast Superintendents during audit visits are also conducting the extensive training of Enclosed space entry and rescue drill during their visit to vessels. We included additional following few training measures.

- a) Safety culture by appointing 5 in-house Roving Safety Training Officers (existing masters with company), in addition to company Superintendents sailing with the vessels to carry out training onboard. Trainings involves actual drills – at least one enclosed spaces entry drill, exercises, and training sessions. This high level training is also to reiterate that any crew should be able to speak up and stop work if another crew member (including the captain) does not follow a procedure. Provide a working environment where crew feel safe to do so.
- b) Computer Based Training with successful completion of test paper for all elements of the Safety Management System.
- c) Introduction of 1-day targeted training course for all crew (Especially for chemical tankers), dealing with Enclosed Space Entry, Tank Cleaning Plan and Procedures, and hazards of Nitrogen. The capabilities and limitations of the inert gas system are now an integral part of our crew training program. We have conducted extensive training sessions to ensure that the entire crew is well-informed about the system's operation, emergency procedures, and safety protocols.
- d) Implemented Behavioural Based Safety(BBS) Training onboard. BBS Is already a well-known industry concept. It can influence crew members towards safer behaviours and attitudes by identifying at risk behaviour, using education on site, thus reducing accidents and incident in the workplace, and promoting safer work climates.

5. Regular Audits and Inspections:

- a) We have well established regular audit and inspection schedule to monitor the condition and functionality of the inert gas system, Crew awareness with procedure and enclosed space entry system onboard . This proactive approach helps us identify and address any issues promptly.

6. Documentation:

- a) All relevant documentation related to the inert gas system, including its specifications, maintenance records, and safety procedures, is readily available to the crew for reference and compliance.

We value your input and will continue to monitor and enhance our safety measures to uphold the highest standards in the industry. Your feedback is invaluable in helping us maintain the safety and integrity of our operations.

If you have any further recommendations or concerns, please do not hesitate to communicate with our safety and compliance team.

Thank you once again for your collaboration and commitment to safety.

Regards

Health Safety Environment Quality Manager

E. [REDACTED]@bahri.sa

T. +971 [REDACTED]

M. +971 [REDACTED]

One JLT, Level 10 Jumeirah Lakes Towers
Dubai, United Arab Emirates

www.bahri.sa | [@onebahri](https://twitter.com/onebahri)

 **Bahri Ship Mgmt.**
البحري لإدارة السفن



The banner features the Bahri logo on the left and the Saudi Maritime Congress logo on the right. The main text reads: "Visit us at SAUDI MARITIME CONGRESS Dammam - Dhahran Expo". On the right side, there are three icons with corresponding text: a calendar icon for "20 - 21 Sep 2023", a clock icon for "08:00 am - 05:00 pm", and a location pin icon for "Stand C10".

This e-mail and any attachments are confidential and may also be privileged. If you are not the designated recipient, please notify the sender immediately by reply e-mail and destroy all copies (digital and paper). Any unauthorised disclosure, distribution, copying, storage or use of this message or any attachment is strictly prohibited and may be unlawful. The contents of this email are the sole responsibility of its author.

There are risks in communicating by e-mail, such as data corruption, delay, interception and unauthorized amendment for which we do not accept liability. Anyone who communicates with us by e-mail assumes such risks.