



SAFETY ALERT No. 19-02

Serious Crew Injuries on a Passenger Vessel

1. Introduction

- 1.1. A new Safety Alert has been issued by the Bahamas Maritime Authority concerning the incident involving serious crew injuries on a Passenger vessel.
- 1.2. The Bahamas Maritime Authority wishes to bring the information referenced in Paragraph 2 to the attention of interested parties¹.

2. Description of incident

- 2.1. A leak was observed in the area around the insulated hot potable water pipe in the Engine room on deck 2. In the vicinity of the leak, the Hot Potable Water pipeline section had 2 Straub couplings.

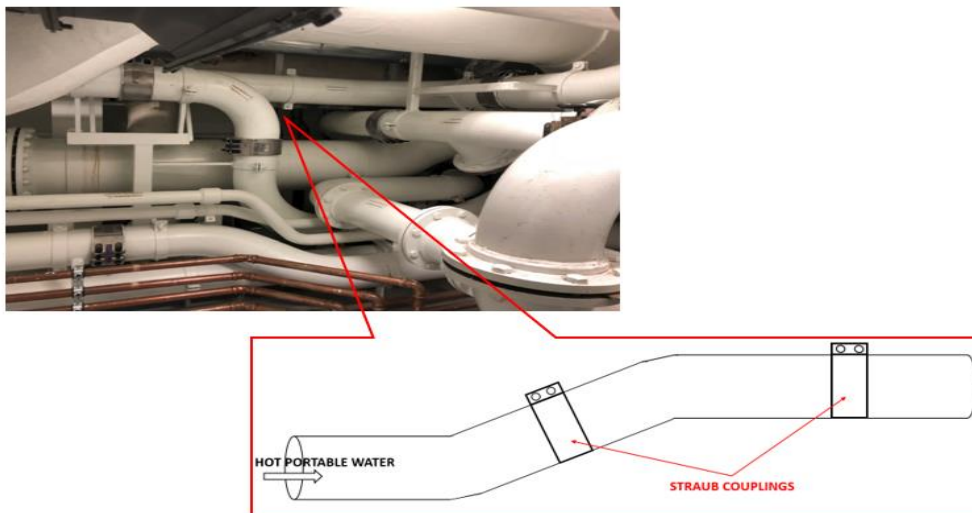


Figure 1: Location of Straub couplings² on deck 2

¹ This Safety Alert is provided by the Bahamas Maritime Authority with the aim of highlighting incidents, lessons learnt and to increase awareness, which may help avoid similar incidents occurring elsewhere. Any queries on the content of the information provided should be referred to the party providing the information

² Image is only for illustration purpose and not as per scale

- 2.2. The Motorman and Oiler were tasked to remove the insulation material and tighten the Straub coupling while the system was under operation with water at a pressure of 8 to 9 Bars and with a temperature of around 65°C.
- 2.3. The crew members tightened one Straub coupling on the forward side. However, the leak was still observed from the aft section of pipe, the Motorman tried to tighten the aft Straub coupling and found that the bolt on the Straub coupling was loose. Subsequently, the Straub coupling failed, resulting in the pressurized release of hot water and steam.
- 2.4. Both personnel experienced severe burn injuries due to the exposure to hot water (65°C) and steam.

3. Casual Factors

- 3.1. The causal factors are not conclusive as the investigation remains ongoing, however, the factors identified below should serve as a useful reminder to crew members undertaking maintenance of any system under pressure or with potential of exposure to high-temperature liquid/gas.
- 3.2. The work activity involved restricted access in the vicinity of the leak and pressurized (8-9 bars) hot (65°C) potable water pipeline. However, no risk assessment or "toolbox meeting" was conducted before commencing the work activity and the procedure for lockout and tagout was not considered to be implemented before commencing the work activity.
- 3.3. The installation guide of the Straub coupling's product brochure available on the manufacturer's website states: *'The couplings do not require any maintenance and must not be retightened once the torque has been reached'*. Neither the manufacturer's installation guide nor company specific guidelines or procedures related to the Straub coupling were available on board and therefore could not be used by the crew in case of leakage from the Straub coupling. It was also determined that there was no maintenance schedule available onboard related to the checks or inspection of the couplings on the hot potable water system. The maintenance schedule of the hot potable water system consisted of the inspection and maintenance of the hot potable water pump, motor and the heat exchangers.
- 3.4. From the forensic evaluation conducted into the failed Straub coupling, it was determined that the Straub coupling failed due to stress corrosion cracking due to exposure of chlorinated water. The likely source of chlorinated water is the leakage through the gasket to the pipe interface.

However, it could not be determined if the leakage occurred as a result of a deteriorating gasket or due to faulty installation of the coupling.

4. Actions Taken

- 4.1. This incident is currently being investigated by The Bahamas Maritime Authority. The recommendations and lessons learned will be forthcoming on completion of the investigation and will be made publicly available on the Bahamas Maritime Authority website under the link-
<https://www.bahamasmaritime.com/maritime/investigations-department/reports-of-investigations/casualty-reports-2001-to-date/>

5. Validity

- 5.1. This alert is valid until further notice.

6. Revision History

Rev.0 (22 May 2019) – First issue