

SAFETY ALERT

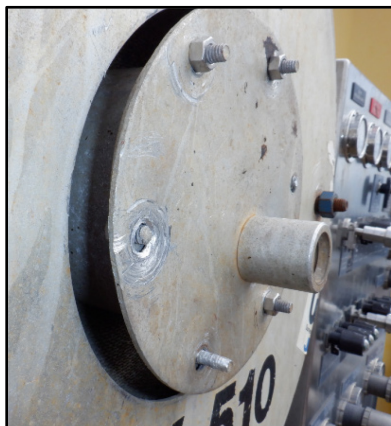


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Fire Tube Hazards Increase Risk of Flame Migration

In October 2019, BSEE inspectors identified deficiencies associated with the fire tubes of multiple vessels during an annual inspection of a production platform. The problem resulted in the issuance of Incidents of Noncompliance.



Improper bolts on a Glycol Reboiler



A warped Reboiler flange



A gap in a Heater Treater flange is shown with no Gasket

The failures occurred because the flange faces of the flame arrestor housings were not flush, which is essential to its function. The resulting gap allowed the potential for flame migration to occur from the firing chamber to the Class I Division 2 Hazardous environment directly outside the process component.

The fire tubes for both the Heater Treater and Glycol Reboiler units were removed, inspected, and reinstalled a month prior to the arrival of BSEE inspectors. The fasteners (i.e. nuts and bolts) used for the reinstallation in September 2019 were not Original Equipment Manufacturer (OEM) parts and therefore, not compatible with the vessels. Despite the improper reinstallation, the vessels were brought back online and production continued.

At the time of BSEE's inspection, the flange faces were visibly warped and a gap in the flange created a path for flame migration due to the insufficient fastener assembly.

Therefore, BSEE recommends that operators and contractors consider the following:

- Create a fit for purpose Pre-Startup Review when disassembling equipment for routine maintenance to verify that proper reinstallation procedures are implemented

appropriately prior to returning equipment online;

- Ensure only OEM recommended parts are applied to their associated equipment rated for a specific service;
- Increase visual inspection frequencies of flame arrestors to ensure an adequate flange face seal is intact;
- Examine the fit and make-up of all parts around the flame arrestor housing during any maintenance that disturbs OEM connections in order to eliminate any flow path around the fired component that would negate its efficacy; and,
- Review this Safety Alert in conjunction with [Safety Bulletin No. 012](#) to prevent gaps in a flange face.

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A **Safety Alert** is a tool used by BSEE to inform the offshore oil and gas industry of the circumstances surrounding a potential safety issue. It also contains recommendations that could assist avoiding potential incidents on the Outer Continental Shelf.