

Near miss: Fire hazard arising from failed fuel pipe connection

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A Member has reported a near miss incident involving a failed fuel pipe connection.

What happened?

The incident occurred while the vessel was full ahead in transit. Smoke was observed near the port main engine. Shortly thereafter, the smoke detection system activated, indicating smoke in the engine room, and the General Alarm sounded.

All personnel mustered at their “At Sea” emergency muster stations and fire parties were prepared. The port engine was brought to a controlled stop and its fuel supply was isolated.

The engineers identified that a fuel pipe connection had failed, and reported to the bridge that although there was slight smoke present in the engine room, there was no fire and the situation was under control.

Repairs were made, the engine run up and tested satisfactorily, and the transit continued.

IOGP Life Saving Rules:



Bypassing safety controls



Energy isolation





location of failure at the fuel pipe coupling

Findings

Our member's investigation noted the following:

- The cause of the incident was a failed high pressure fuel pipe coupling between the fuel injector and delivery pipe. This caused fuel to run onto hot engine components which created smoke.
- The leak originated from the fuel coupling which contained an O-ring seal inside. Upon inspection the O-ring was not brittle or damaged.
- The pipe was inspected and showed no signs of visible damage. Further analysis would take place.

What went well?

- "Know your ship" – the on-watch engineer had good awareness and knowledge of the engine room and was able to swiftly and correctly identify the failed component and source of potential fire.
- There was swift and safe co-ordination between engine room and bridge to safely stop the port engine and isolate the fuel supply.
- The crew muster was swift and effective.
- Repair and return to operation was conducted in less than two hours after initial emergency.
- Using OEM parts, and not suspect/reconditioned parts, allowed the vessel to implement repairs quickly and effectively;

What could have gone better?

- The on-watch engineer, rather than **immediately** contacting the bridge and starting shut-down of the port engine, called the second engineer.
- Trends of failures – the vessel had noticed a trend developing with the failure of fuel supply piping – this was the third failure within four months.

Actions

Our Member recommends the following actions:

- Investigate similar systems to ensure no other latent failures or defects that may result in recurrence.
- Ensure main engine fuel pump overhaul to include fuel pipe pressure testing and seal renewals.

Members may wish to refer to:

- IMCA Safety Flash 10/14 which consists solely of fires in engine room spaces
- Fatalities: Engine room fire caused by fuel spray ignition *[having the exact same immediate cause of fuel supply lines leaking onto hot metal]*.

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