

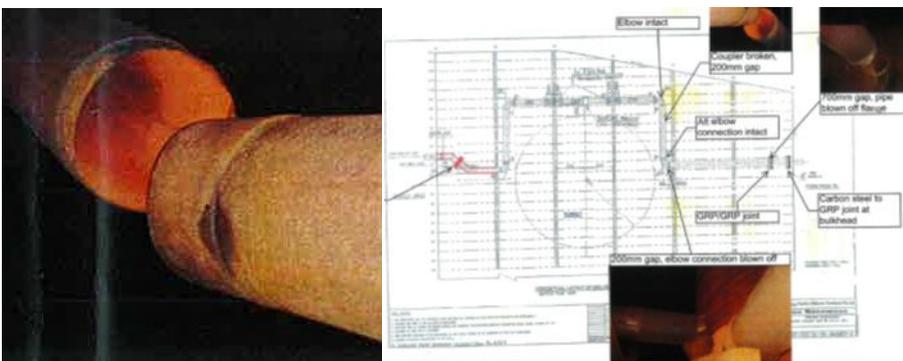
High Potential Incident Alert - 187

July 2015

Failed ballast line in FPSO crude oil tank

A ballast pump eductor test found that the glass-fibre reinforced pipe ballast line in one centre crude oil tank (COT) had failed. Crude oil entered the ballast system and accumulated in one of the ballast tanks.

An estimated 20 litres of crude oil was discharged overboard and an estimated 200 cubic metres of oil entered the four-port ballast tank.



CRITICAL FACTORS

- Adequate design of the ballast system piping to accommodate the turret when the tanker was converted to FPSO.
- Sufficiently detailed procedure for conducting the eductor test, in particular highlighting the hazard potential of water hammer and its impact on GRP.
- Adherence to operating procedures
- Quality of installation of the GRP piping

KEY LESSONS

- A detailed review and analysis of the ballast piping system was necessary.
- The GRP piping installed in 1C COT must be replaced and the integrity of GRP piping installed in 2C COT must be assessed.
- Procedures for the ballast system must be revised.