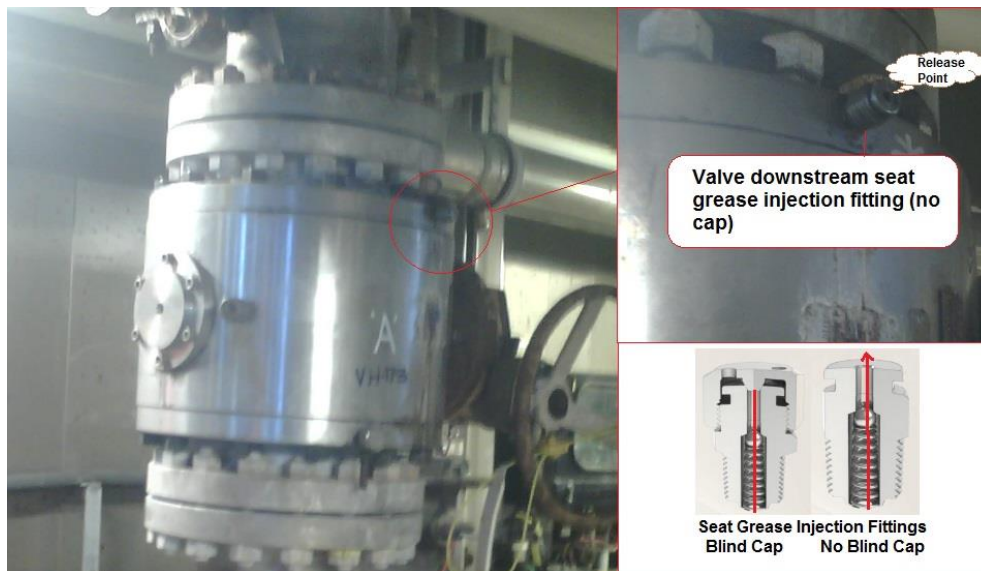


Gas Release from Ball Valve Grease Injection Fitting



Description of Process:

The release occurred from a ball valve grease injection fitting. The ball valve is the manual inlet isolation valve to a PSV, used to isolate the PSV from the platform first stage separator.

Description of Incident:

During routine operation, an audible gas release was detected by a platform operator. The release was investigated and the source was identified as a grease injection fitting on a ball valve. The grease injection fitting was a screwed fitting in the ball valve, for grease injection into the downstream seat of the valve. The ball valve is the manual isolation valve fitted upstream of a PSV, and is used to isolate the PSV from the first stage separator. The valve was open when the release was discovered.

Platform personnel isolated the release. Initial inspection of the valve revealed that there were two grease injection fittings on the valve body. One fitting for the "upstream" seat and one on the "downstream" seat. The fitting for the upstream seat had a blind cap installed, but the downstream fitting (and source of release) had no cap fitted.

The source of the release was verified by nitrogen testing as the downstream grease injection fitting grease channel. The fitting was subsequently removed and inspected. It was observed that there was an internal check valve within the grease fitting. With no blind cap installed on the fitting, the internal check valve was the only containment

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barrier. The passing check valve (verified by leak testing) and absence of a blind cap allowed a path for the release of gas.

A subsequent review of all valves on the plant was carried out to determine if there were any valves with seat grease injection fittings which did not have a blind cap fitted, either by design or by removal and a failure to re-instate. This survey revealed several fittings where remedial action was taken to install blind caps on valve seat grease injection fittings.

Good Practice Guidance:

- Review / inspect valves to determine if any injections fittings rely solely on check valves for containment, or if blind caps have not been installed or replaced following valve maintenance.
- Communicate the hazards associated with grease injection fitting designs with operations and maintenance personnel to ensure that a positive isolation standard (by fitting blind caps on grease fittings) is maintained.

Other Useful Resources

- Asset Integrity Toolkit <https://www.stepchangeinsafety.net/safety-resources/publications/asset-integrity-toolkit>
- Hydrocarbon Release Prevention guidance <https://www.stepchangeinsafety.net/safety-resources/publications/hydrocarbon-release-prevention-guidance>