

COS SAFETY SHARE

WHAT WILL WE DO TO PREVENT THIS FROM HAPPENING HERE?

MISALIGNED 3-WAY VALVE LEADS TO ATMOSPHERIC RELEASE

What happened?

While shutting down the Recycle Gas Compressor (RGC), gas was intended to be directed to flare and was instead inadvertently released to the atmospheric vent via a 3-way valve. Shortly after the blow down valve opened, the control room received notification of a loud noise and visible gas cloud on the top of the cooler deck. Subsequent response by deck operators confirmed the RGC blowdown and relief header was aligned to a local vent via a 3-way valve instead of to the flare.

What went wrong?

A new gear operator was installed misaligned with the valve ball. What was believed to be alignment to flare was alignment to vent and what was believed to be alignment to vent was a blocked-in configuration.

Why did it happen?

[Two years earlier] the gear operator and position indicator were removed from the 3-way valve due to inoperability of the gear operator. The 3-way valve was operated for the next year and a half using a pipe wrench.

A factory marking that is only visible if the gear box is removed for maintenance was incorrect from the vendor leading to a repair reassembly that caused operations to believe the valve alignment was different than its actual state.

Multiple processes designed to both identify High Risk Hazard threats and barriers, and maintain those barriers in the field, had inconsistencies in execution. Those processes included an out-of-date locked open/locked closed (LOLC) valve register, and a lock out tag out (LOTO) process that did not identify valves as LO or LC.

Failure to execute a MOC (3-way valves and the associated actuator and position indicator were not flagged as safety critical elements (SCE) in the system) which influenced the decision to remove critical parts of the assembly and operate without a MOC.

The organization was unable to embed learnings from three tier 1 or 2 gas release events that occurred between 2014 and 2019 related to 3-way valves to avoid repeating similar gas releases via 3-way valves. The Learning from Incident system did not improve field personnel awareness of the previous incidents.

What areas were identified for improvement?

- Design or Layout of a Facility or Individual Piece of Equipment
- Risk Assessment and Management Process
- Operating Procedures or Safe Work Practices
- Management of Change Process

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