

SAFETY ALERT

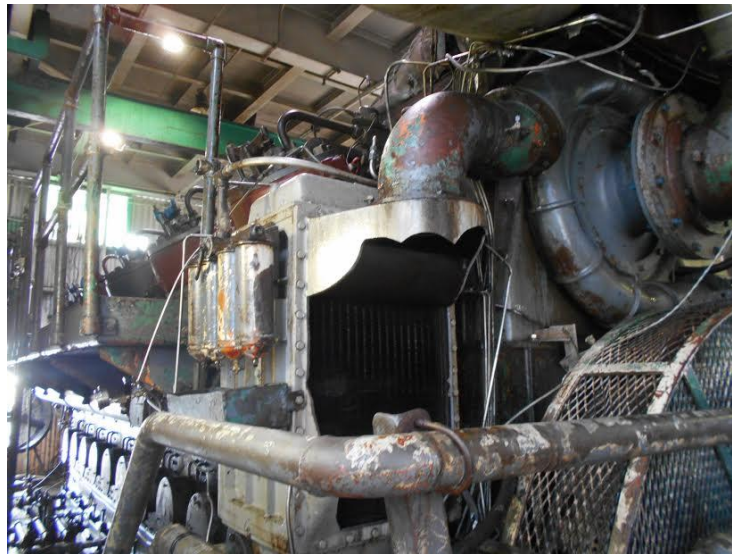


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Failure to Properly Purge Compressors Leads to Explosions

Recently, two safety incidents have occurred relating to compressors not being purged properly prior to start-up. These incidents involved inadequate Job Safety Analysis' (JSAs) and improper purging procedures.



Compressor Scavenger Box after Explosion

- 10 June 2017: During normal startup operations, the gas compressor ran for approximately twenty minutes before shutting down due to a platform air compressor problem. After the air compressor was back on line there were two failed attempts to restart the gas compressor. The mechanic then made adjustments to the magnetic pickup and the flywheel. Two attempts later, the gas compressor appeared to be starting, but after 2-3 seconds, the engine backfired. The subsequent explosion sent the scavenger box and debris airborne and ignited the paper filters in the filter housing. The fire was immediately extinguished; however, the mechanic standing next to the air box was injured by flying debris that contacted his chin and upper body.

The initial investigation indicates that failure to properly purge the gas compressor is the probable cause of the backfire because the compressor panel logic allows the purging process to occur with the starters engaged. After engagement, the panel logic allowed ignition causing the backfire and subsequent explosion.

- 16 July 2017: During normal start-up operations, the reciprocating compressor ran for approximately five minutes without being loaded. The engine then shut down due to low fuel supply. Once corrected, the compressor was restarted without being purged or loaded. The engine ran in idle for about ten minutes with the blowdown valve in the open

position. During that time, an explosion occurred causing damage to the 3rd stage cooler and associated piping.

Initial investigation showed that a lack of understanding of the proper purging technique and an insufficient JSA with respect to listing and job steps are probable causes of the failure to purge the compressor.

Therefore, BSEE recommends the following:

- Review JSAs involving compressors to confirm that they include the steps associated with properly purging equipment before start-up.
- Review operating procedures to ensure purging operations are stated in compressor start-up procedures.
- Review training program and work instructions to ensure personnel are aware of, and trained, in proper purging procedures.
- Review compressor panel logic permissives to ensure the proper sequence of events in compressor start up.
- Follow manufacturer's recommendations for compressor maintenance.

A **Safety Alert** is a tool used by BSEE to inform the offshore oil and gas industry of the circumstances surrounding an accident or near miss. It also contains recommendations that should help prevent the recurrence of such an incident on the Outer Continental Shelf.