

Safety Alert

BOEMRE

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Compressor Fire Resulting from Separated Fuel Line Coupling

Recently a compressor fire occurred on a Clark VRA20 compressor, when the fuel gas line feeding the #5 L/B cylinder came apart, allowing the gas to ignite. The operators immediately activated the platform's ESD system and shut-in the platform. A 30-pound handheld fire extinguisher was used to extinguish the fire. Damage consisted of burned compressor spark plug wires and four feet of burned compressor building wall insulation.

A BOEMRE investigation revealed the following:

- The intake fuel valve may have stuck in the open position allowing hot exhaust gas to mix with the fresh fuel.
- The fuel line coupling separated at the union due to excessive heat and vibration, resulting in ignition of the fuel line contents.
- The fuel line consisted of hard piping in lieu of a flexible steel hose.
- The intake fuel line was not equipped with a high temperature shut-down for each cylinder.



Therefore, the BOEMRE recommends Lessees and its contractors:

- Consider designing piping such that induced heat and vibrations are damped out at the source and not transmitted through the piping system.
- Perform periodic maintenance inspections of piping systems for identifying and possibly eliminating piping vibrations that could result in piping and coupling separation.
- Consider replacing hard piping with a flexible hose to account for vibrations as appropriate.
- Consider installing a fuel valve temperature monitoring system that will shut down the compressor if the fuel valve's temperature reaches a designated temperature.
- Review Safety Alert No. 003 (vibration induced thread cracks of glycol return line) that also discusses the need to account for vibrations in piping design, performing periodic maintenance inspections of piping systems and eliminating piping vibrations when possible.

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