



Safety Alert

From the International Association of Drilling Contractors

ALERT 08 – 40

FAILURE OF BACK FLOW VALVE DURING NITROGEN FOAM FRAC RESULTS IN A FATALITY

WHAT HAPPENED:

A fatality occurred when a service company was performing a two stage nitrogen foam frac treatment. The rig-up required four nitrogen pumps manifolded together. In the process of beginning the second stage, a nitrogen pump failed to maintain prime on the boost pump. While attempting to regain prime, gas from the remaining pumps back-flowed into the nitrogen pump's storage vessel. The relief system on the vessel was not capable of venting the volume of gas entering the vessel resulting in a catastrophic failure due to over-pressurization.

WHAT CAUSED IT:

- A high pressure dart style check valve in the gas discharge line was modified for other than its intended use and did not prevent the back-flow of gas from three trucks online
- The pre-operation job site pressure test procedure utilized did not ensure integrity of the dart style check valve.

CORRECTIVE ACTIONS: To address this incident, this company instructed frac personnel on the following:

- Ensure only engineered and inspected high pressure components are utilized for pressure pumping operations.
- Ensure equipment is in proper working condition prior to dispatching to job site.
- Install redundant dart style check valve in gas discharge line.
- Ensure pre-job pressure test procedure verifies the integrity of check valves.



Post Incident – Storage Vessel Missing From Nitrogen Unit

The Corrective Actions stated in this alert are one company's attempts to address the incident, and do not necessarily reflect the position of IADC or the IADC HSE Committee.

This material is presented for information purposes only. Managers & Supervisors should evaluate this information to determine if it can be applied to their own situations and practices

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