



Safety Alert

From the International Association of Drilling Contractors

ALERT 11 – 31

PRESSURE RELIEF VALVE SPRAYS DILUTE ACID ACROSS LOCATION ON A FRAC JOB

WHAT HAPPENED:

During a frac job, a hydraulically-activated pressure relief valve, which was protecting the iron between the pumps and the wellhead, opened unexpectedly and sprayed about 6 bbls of a diluted mixture of 15% HCL and gel across the wellhead, crane and open top tanks. There were no injuries and the spill was cleaned up.

The emergency response went well. The diluted acid was further neutralized by spraying it down with soda ash and washed into the cellar where it was vacuumed up. Material Safety Data Sheets for the chemicals were onsite. A post-incident safety stand down was held to discuss the lessons learned and an investigation was conducted.

WHAT CAUSED IT:

The pressure relief valve that was used during this incident had been used in the past, but had been replaced with a newer design because the newer design relieves into a tank instead of to the atmosphere. However, the new design was unavailable at this location so the contractor used the older valve that relieves to atmosphere. The hazards associated with potential atmospheric release by this older pressure relief valve were recognized during the Job Safety Analysis; and injuries were avoided by restricting worker access to the area in which the relief valve might affect if it were to release.

The pressure relief valve activated unexpectedly because the diesel engine that provides the hydraulic pressure ran out of fuel. The diesel engine ran out of fuel because the crew changed in mid-stage and during the handover the fuel status was not communicated. This failure would have caused either the old or new pressure relief valves to release. The difference between the old and new pressure relief valve is that the newer design would have relieved into a tank whereas the older valve relieved to atmosphere.

CORRECTIVE ACTIONS: To address this incident, this company did the following:

- 1) Pre-Job Safety Analyses should continue to be standard operating procedure.
- 2) In the future, shift changes will not take place mid-stage of a frac without extraordinary consideration and handover discussion.

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.

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