



U. S. Chemical Safety and Hazard Investigation Board RECOMMENDATION STATUS CHANGE SUMMARY

Report:	Gas Well Blowout and Fire at Pryor Trust Well 1H-9
Recommendation Number:	2018-01-I-OK-R18
Date Issued:	June 12, 2019
Recipient:	National Oilwell Varco (NOV)
New Status:	Closed – Acceptable Action
Date of Status Change:	April 8, 2022

Recommendation Text:

Design the M/D Totco electronic drilling data system so that alarm information, including alarm set points, alarm activation log, alarm horn status (on or off), and alarm system status (on or off) is provided to customers.

Board Status Change Decision:

A. Rationale for Recommendation

On January 22, 2018, a blowout and rig fire occurred at Pryor Trust 0718 gas well number 1H-9, located in Pittsburg County, Oklahoma. The fire resulted in the fatalities of five workers, who were inside the driller’s cabin on the rig floor. They died from thermal burn injuries and smoke and soot inhalation. The blowout occurred approximately three-and-a-half hours after removing drill pipe (“tripping”) out of the well. The cause of the blowout and rig fire was the failure of both the primary barrier (hydrostatic pressure produced by drilling mud) and the secondary barrier (human detection of influx and activation of the blowout preventer) which were intended to be in place to prevent a blowout.

As a part of its investigation, the U.S. Chemical Safety and Hazard Investigation Board (CSB) determined by reviewing data that the entire alarm system for the electronic drilling data system for the Pryor Trust well drilling rig was turned off at the time of the incident. While it is unknown why both drillers might have elected to turn off the alarm system. A plausible reason to turn off an alarm system—and to keep it off for tripping, circulating, and surface operations—is that the alarms set for the drilling operation are perceived as irrelevant or a nuisance for other operations. The data indicates that had the alarm system been on, most of the alarms that would have activated from 6:45 pm on January 21 through the incident would have been irrelevant to detecting the well control event. In addition, no alarm data was included as part of the data package supplied to the driller.

Consequently, the CSB determined there is a need for alarm system providers to design the user interface to allow for easy navigation between the state-based alarm operations and thus the Board issued recommendations (e.g., 2018-01-I-OK-R15 and R17) to Pason Systems Corp. (Pason) and National Oilwell Varco (NOV), two major suppliers of electronic drilling data systems, to redesign their user interfaces to preset different alarms for different operations. Moreover, as alarm data could provide valuable insight into alarm performance, providing the

basis for improving alarm management for drilling contractors, the Board also issued recommendations (e.g., 2018-01-I-OK-R16 and R18) to Pason and NOV to include alarm information with their electronic data drilling systems. This status change summary only addresses the recommendation issued to NOV for including alarm information to customers (e.g., R18).

B. Response to the Recommendation

In January 2022, NOV created a new application program interface to download alarm configuration changes and the alarm events to other user applications along with a new page within their *WellData* 4.0 application to provide users with a method to review this data on the drilling rig. NOV provided a demonstration and documentation of these changes to the CSB for review.

C. Board Analysis and Decision

As the above actions taken by NOV meet the intent of the CSB Recommendation, the Board voted to change the status of CSB Recommendation No. 2018-01-I-OK-R18 to: “Closed—Acceptable Action.”