



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

Report:	Gas Well Blowout and Fire at Pryor Trust Well 1H-9
Recommendation Number:	2018-01-I-OK-R8
Date Issued:	June 12, 2019
Recipient:	Patterson-UTI Drilling Company, LLC (Pat-UTI)
New Status:	Open – Acceptable Response or Alternate Response
Date of Status Change:	October 26, 2020

Recommendation Text:

Develop an alarm philosophy and alarm rationalization for rig operations. Based on the alarm philosophy and alarm rationalization, specify necessary alarms, at a minimum, for (1) drilling, (2) tripping, (3) circulating, and (4) rig floor activities (no drill pipe in well). Additionally, develop a policy implementing the alarm philosophy and rationalization.

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) examined the well drilling practices and procedures of the Patterson-UTI Drilling Company, LLC (Pat-UTI), a land-based drilling company that was contracted to conduct drilling and well control operations at the Pryor Trust well. The CSB identified issues with Pat-UTI's rig tripping procedures, alarm philosophy, well control practices, flow checks and the effectiveness of the company's safety management system. Consequently, the Board issued five recommendations (e.g., CSB Recommendation Nos. 2018-01-I-OK-R7 through R11) to Pat-UTI to address these issues. This status change summary only addresses the CSB recommendation pertaining to alarm philosophy (e.g., 2018-01-I-OK-R8).

B. Response to the Recommendation

In March of 2020, Pat-UTI responded to the CSB that it had taken some initial steps to ensure that existing alarms are not disabled or muted by reinforcing the existing provisions in its Well Control procedures. Pat-UTI then outlined how it began actively working with third-party

vendors of the Electronic Data Recorders used on its drilling rigs to develop computer software enhancements needed to ensure real-time detection of alarms. As current systems do not provide this capability, this functionality is needed before Pat-UTI can incorporate this aspect into its alarm philosophy. Once these computer software enhancements are available and installed, likely sometime later in 2021, Pat-UTI will finalize and implement its new alarm philosophy.

C. Board Analysis and Decision

As the Pat-UTI has agreed to implement this CSB recommendation and has provided an approximate timetable for completion, the Board voted to change the status of CSB Recommendation No. 2018-01-I-OK-R8 to: “Open—Acceptable Response or Alternate Response.”