



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-R11
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:

Update the Patterson metrics program to track leading and lagging indicators to measure the effectiveness of the overall safety management system. Specifically focus on measuring the effectiveness of the following safety management system components:

- a) The effectiveness of the flow check policy, including the frequency that flow checks are performed when required by Patterson policy;*
- b) The frequency that flow checks are documented and approved as recommended in 2018-01-OK-R10;*
- c) The effectiveness of the management of change program, for both equipment and procedural changes, including real-time procedure changes;*
- d) The frequency that alarms are set at the required set points;*
- e) The frequency that drilling rig alarm horns or the entire alarm system is turned off; and*
- f) The frequency that trip sheets are filled out properly.*

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 the effectiveness of the company's safety management system (e.g., 2018-01-I-OK-R11).

B. Response to the Recommendation

In March of 2020, Pat-UTI reported to the CSB that they have established auditing and inspection programs for monitoring and tracking the effectiveness of flow checks; management of change and the completion of trip sheets. Metrics pertaining to the above were also developed and are being reported on a regular basis (e.g., weekly to monthly) to Pat-UTI management. Relevant documents related to the above were provided for the CSB to review.

C. Board Analysis and Decision

As Pat-UTI has accepted this CSB recommendation and has made substantial progress in monitoring and establishing metrics for tracking the effectiveness of flow checks; management of change; and the completion of trip sheets, but still needs to establish monitoring and metrics pertaining to alarm frequencies, the Board voted to change the status of CSB Recommendation No. 2018-01-I-OK-R11 to: "Open – Acceptable Response or Alternate Response."