



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

<b>Report:</b>	Gas Well Blowout and Fire at Pryor Trust Well 1H-9
<b>Recommendation Number:</b>	2018-01-I-OK-R8
<b>Date Issued:</b>	June 12, 2019
<b>Recipient:</b>	Patterson-UTI Drilling Company, LLC (Pat-UTI)
<b>New Status:</b>	Closed – Acceptable Alternative Action
<b>Date of Status Change:</b>	April 8, 2022

### 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 killed 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 about 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 to Pat-UTI to address these issues. This status change summary only addresses CSB Recommendation No. 2018-01-I-OK-R8 pertaining to alarm philosophy.

#### B. Response to the Recommendation

In December 2021, Pat-UTI communicated to the CSB that rather than developing a single document describing its alarm philosophy and rationalization that it had:

- Adopted the International Association of Drilling Contractors (IADC) *Alarm Management Guidelines*;
- Began using new Electronic Drilling Recording (EDR) system features to reduce alarm floods; and
- Developed various policies, procedures and training curriculums as part of its safety management system that incorporate the critical components of an alarm philosophy and rationalization.

Pat-UTI also submitted documentation in support of the above information for the CSB to review.

### C. Board Analysis and Decision

Based upon the information provided, the Board concurred that Pat-UTI had met the intent of CSB Recommendation No. 2018-01-I-OK-R8 and voted to change its status to: “Closed – Acceptable Alternative Action.”