Pryor Trust Well

Industry Address to Lessons Learned & the Process Safety Push Into Land Oil & Gas Operations
The Scenario

On January 22, 2018, a blowout and fire occurred killing five people at Pryor Trust 0718 gas well number 1H-9, located in Pittsburg County, Oklahoma.

Red Mountain Energy, LLC was the lease holder, and Red Mountain Operating, LLC (RMO) was the operator of the well.

Patterson-UTI Drilling Company, LLC (Patterson) was the drilling contractor, hired by RMO.
What Happened?

Well 1H-9 was a lateral well with a planned true vertical depth (TVD) of 7,615 feet and a planned measured depth (MD) of 17,799 feet.

Well 1H-9 targeted and was drilled through the Woodford formation.
At 3:36 pm on January 21, 2018, the Patterson drilling crew stopped drilling (drill bit depth at 13,435 feet MD) so that they could remove the drill pipe from the wellbore to change the drill bit.

Removing drill pipe from a wellbore is called “tripping.”

The tripping operation began at 6:48 pm.
Timeline

At 8:36 am, after the bottom hole assembly was removed from the wellbore, mud blew upwards out of the well.

The motor man and a floor hand, who were on the rig floor, entered the driller’s shack.

The gas and oil-based mud from the well subsequently ignited creating a large fire.
Timeline

It is unknown at this point if the driller attempted to activate the controls to close the blowout preventer after the blowout began.

Shortly after the blowout began, at least two personnel reportedly attempted to operate the accumulator that functions the blowout preventer.

The blowout preventer blind rams did not fully close.
A team of Boots & Coots responders (a well control services company) and RMO personnel manually closed the blowout preventer blind rams to shut in the well at about 4:00 pm on January 22, 2018.

Shutting in the well stopped the fire.
Outcome

All five personnel who were in the driller’s shack or ran into the driller’s shack during the blowout and fire were killed.

Those personnel included the Company Man (contracted by RMO), directional driller (Skyline Directional Drilling), driller (Patterson), floorhand (Patterson), and motor man (Patterson).
CSB Key Issues

Poor Barrier Management

Underbalanced Operations Performed Without Proper Planning, Procedures, or Needed Equipment

Signs of Influx Either Not Identified or Inadequately Responded To

Alarm System Off

Flow Checks Not Conducted

Gaps in Safety Management System

Driller’s Cabin Design

BOP Could Not Close Due to Burned Hydraulic Hoses
“Lack of Safety Requirements by Regulation”
CSB Regulatory Analysis

Lack of Federal Oversight of Onshore Drilling

CSB determined that there are minimal regulations governing the safety of onshore oil and gas drilling operations.

The OSHA PSM standard does not apply to drilling, no separate OSHA standard covers drilling, and no other federal regulatory body oversees the safety of onshore drilling operations.
Lack of Federal Oversight of Onshore Drilling

Historically, OSHA has long been interested in regulating oil and gas drilling and servicing operations. OSHA recognized the industry as having the potential need for specialized regulation because the oil and gas drilling and servicing industry “has some safety problems which are unique, and some which are common to all workplaces.”
Specifically, OSHA observed the unique and numerous dangers presented by oil and gas drilling operations to workers.

These dangers are self-evident and include hazards related to blowouts based on the pressures at which hydrocarbon reserves are sometimes found, fires and explosions, dropped objects, crush injuries, falls from heights,
CSB Regulatory Analysis

Lack of Federal Oversight of Onshore Drilling

dangers associated with rotary equipment, transportation-related accidents, slip and trip injuries, and myriad other hazards present at a typical drilling site.
CSB Regulatory Analysis

OSHA Timeline of Addressing Oilfield Safety

1973 - OSHA attempted to regulate the industry under its Construction Safety Standard, found at Title 29 Code of Federal Regulations Part 1926

Late 1970~Early 1980 - through the Occupational Safety and Health Review Commission (OSHRC) found that Construction Standards did not apply, and OSHA shifted to the General Industry Standards of 29 CFR 1910
Based on BLS data, OSHA discovered that the industry had a number of special safety and health problems demonstrated by a higher-than-average injury and illness incidence rate compared to employers covered by the general industry standards.
OSHA then determined that the general industry standards inadequately addressed unique hazards related to drilling and servicing.
CSB Regulatory Analysis

OSHA Timeline of Addressing Oilfield Safety

Significantly, the agency also claimed that applying the general industry standards possibly even contributed to the higher injury and illness incidence rates in the absence of specific regulatory coverage to guide the industry in a safer direction.
At this point, OSHA resigned itself for a time to issuing Section 5(a)(1) citations for general duty clause violations of the OSH Act, which requires employers to provide a place of employment “free from recognized hazards that are causing or are likely to cause death or serious physical harm to his employees.”
Throughout the 1980’s to Present, OSHA and Industry has attempted to develop an Oilfield Drilling Standard (and by extension an Oilfield Services Standard) with input from organizations like the IADC and AOSC (now the AESC) to develop real and meaningful regulations that make sense for the unique needs of this industry.

It didn’t work out...
CSB Regulatory Analysis

OSHA Timeline of Addressing Oilfield Safety

As of this date, there is no OSHA Drilling-specific Standard.

Now what?
Exemption from OSHA’s Process Safety Management Standard

In 1992, OSHA enacted a new regulatory standard called Process Safety Management of Highly Hazardous Chemicals (PSM). OSHA expressed about the standard:

Unexpected releases of toxic, reactive, or flammable liquids and gases in processes involving highly hazardous chemicals have been reported for many years.

Incidents continue to occur in various industries that use highly hazardous chemicals which may be toxic, reactive, flammable, or explosive, or may exhibit a combination of these properties.
Exemption from OSHA’s Process Safety Management Standard

In 1992, OSHA enacted a new regulatory standard called Process Safety Management of Highly Hazardous Chemicals (PSM). OSHA expressed about the standard:

Regardless of the industry that uses these highly hazardous chemicals, there is a potential for an accidental release any time they are not properly controlled...
Exemption from OSHA’s Process Safety Management Standard

In 1992, OSHA enacted a new regulatory standard called Process Safety Management of Highly Hazardous Chemicals (PSM). OSHA expressed about the standard:

... Hazardous chemical releases continue to pose a significant threat to employees and provide impetus, internationally and nationally, for authorities to develop or consider developing legislation and regulations to eliminate or minimize the potential for such events.
Exemption from OSHA’s Process Safety Management Standard

At the end of the day, even with the passage of PSM, and the opportunity PSM presented to cover the industry, there remained no specific OSHA regulation that governed onshore drilling.
What is Coming?

The Final CSB Report Released On June 12, 2019 makes clear that there is a definitive lack of regulatory control for what they believe, in my opinion, is clearly a PSM fix to the problem.

We have seen Industry apply PSM activities as a “fix” to the offshore safety environment following incidents and when followed diligently, appear to work fairly well.

Midstream and Downstream use PSM, why not Upstream?
My Conclusions...

Nonetheless, an Oilfield Standard, on the order of a Construction or General Industry Standard will eventually be developed.

Using PSM techniques with cooperative efforts with our Regulators, in my opinion, looks like Industry’s best future to develop regulations and processes that can work in our industry, in the “real” world and can become our “New Normal”
Finally...

As an industry, we need to embrace the inevitable evolution of safety, the management of risk in business and personal responsibility to our co-workers and family.

We all are involved, and we all benefit by giving our best efforts.

Let’s continue the work and...
Remember...