
US QUARTERLY VIRTUAL DROPS FORUM

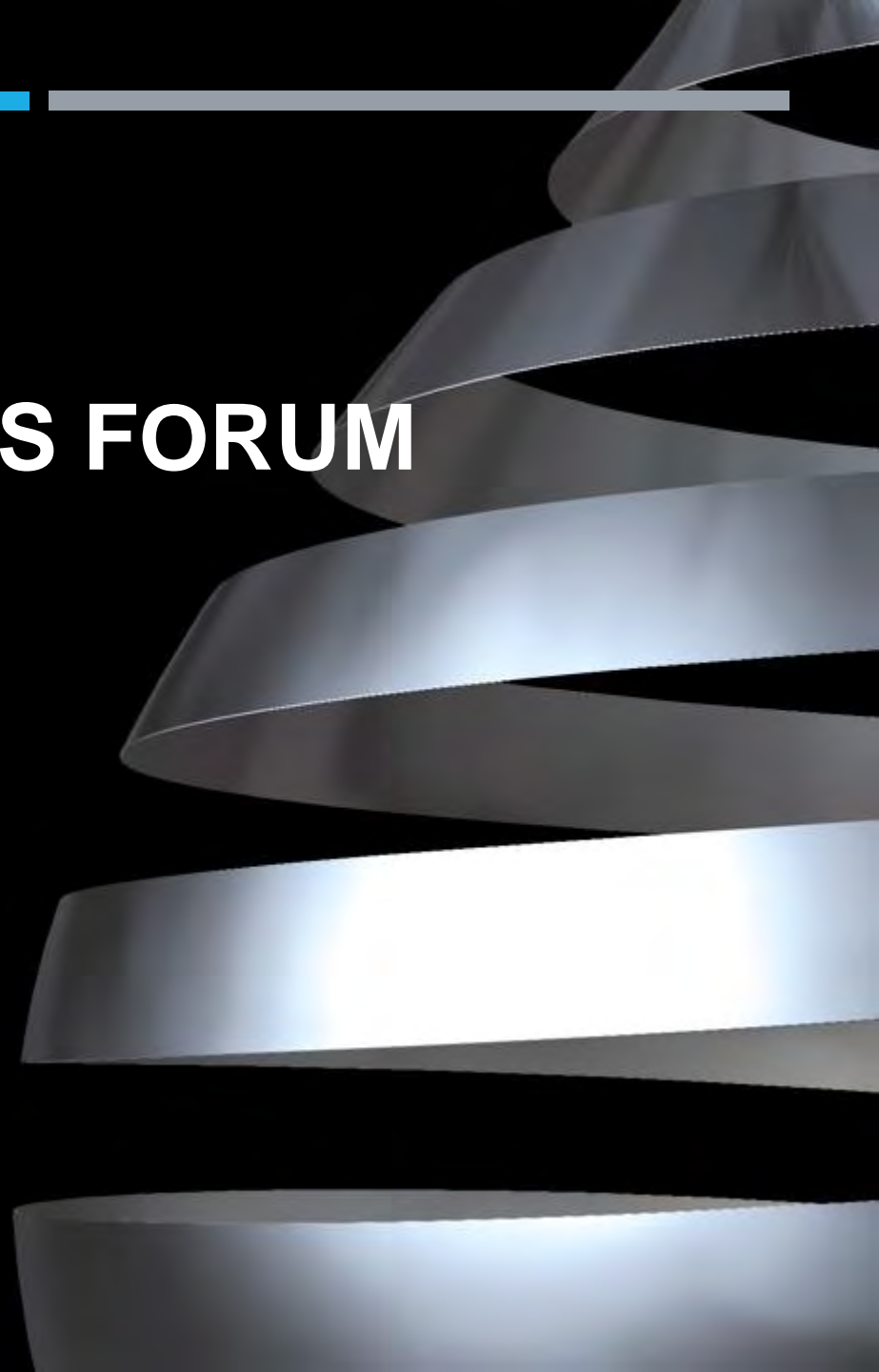
DROPS NORTH AMERICA

AUGUST 2022



DROPS

DROPPED OBJECTS
PREVENTION SCHEME



AGENDA

- Introduction
- Brief Anti-trust Guidelines
- Safety moment
- History of DROPS – Ross Jambon
- Guest speaker – The Shackle Story (Allen Smith)
- Technology – H&P “Rough Drilling” app (Douglas Bay / Zackary Whitlow)
- Close



ANTI-TRUST GUIDELINES

- No promotional remarks or discussion of purchase, sale, or pricing for goods and services.
- No sharing or discussion of confidential or proprietary information.
- No discussion of mergers, acquisitions, and divestment plans.
- No sharing or discussion of compliance costs.
- No discussion about how companies intend to respond to potential or actual government action.
- No disparaging remarks.



SAFETY MOMENT

- Bureau of Labor Statistics (BLS), 2016
 - >50,000 “struck by falling object” OSHA recordable incidents every year
 - 237 workplace fatalities (2017)
 - Top 3 cause of injuries
 - 1 injury caused by a dropped object every 10 minutes
- U.S. Upstream Oil and Gas Industry – 2003-2014 (OTC-28419-MS)
 - 14% of fatalities



HISTORY OF DROPS

ROSS JAMBON, CSP – BAKER HUGHES



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HISTORY OF DROPS

Began as part of a UK Oil and Gas safety initiative known as “Step Change in Safety”.

1997

Statistics showed significant improvements in the drilling sector. DROPS recognized that the focus had to change from Drilling only to cover all operations.

1998

The DROPS Workgroup was duly established with a mission “to ultimately deliver a permanent and ‘second nature’ dropped objects prevention strategy within the Drilling sector”.

2003-2006

The DROPS Training course was launched, delivered and cascaded throughout the membership and beyond. The focus turned to globalizing DROPS across all regions of the world. DROPS Forums were hosted in USA and in Asia.

2007-2009



HISTORY OF DROPS

DROPS (Global) focus on Common Inspection Standards and Seasonal DROPS Campaigns. Several Associate members mark the stronger ties with other industry bodies and related industries, e.g. construction, lifting, logistics etc.

Publication of DROPS Recommended Practice, a concise guide to establishing Dropped Object Prevention schemes. Forums and meetings held in the US.

2010-2011

2015-2016

2017

Current

DROPS website overhaul and relaunch. DROPS Train the Trainer course updated, enhanced and extended. DROPS North America reinvigorated with an Operator-led Steering Committee, focusing on the development of a DROPS Standard Reference document.

Creating a DROPS Awareness eLearning based on the published recommended practice. Relaunching meetings and forums in the post COVID era.



THE SHACKLE STORY

ALLEN SMITH – DROPSONLINE.ORG



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DROPS Community Teamwork The Shackle Story



The Challenge: Working Conditions

Shackle components dropping whilst personnel are assembling / disassembling at height (e.g. *hanging completion sheaves, twice per well x campaign*)

Handling shackle components in awkward body positions whilst man-riding at height (*typically alone and sometimes in a challenging environment*)

Potential Major Injury / Fatality if shackle nut or bolt were to drop and strike a worker below (*with due consideration for deflections and further drop to levels below rig floor*)

Limited securing methods for shackle bolts and nuts that meets DROPS functional recommendations (*i.e. as per DROPS Reliable Securing*)



Controls: Seeking Improvements

Work Practice / Procedure (*addressing task steps, securement of personnel and tools at height, communications, verification of equipment... but perhaps procedures have less clarity [HPOG] on how to secure individual equipment components*)

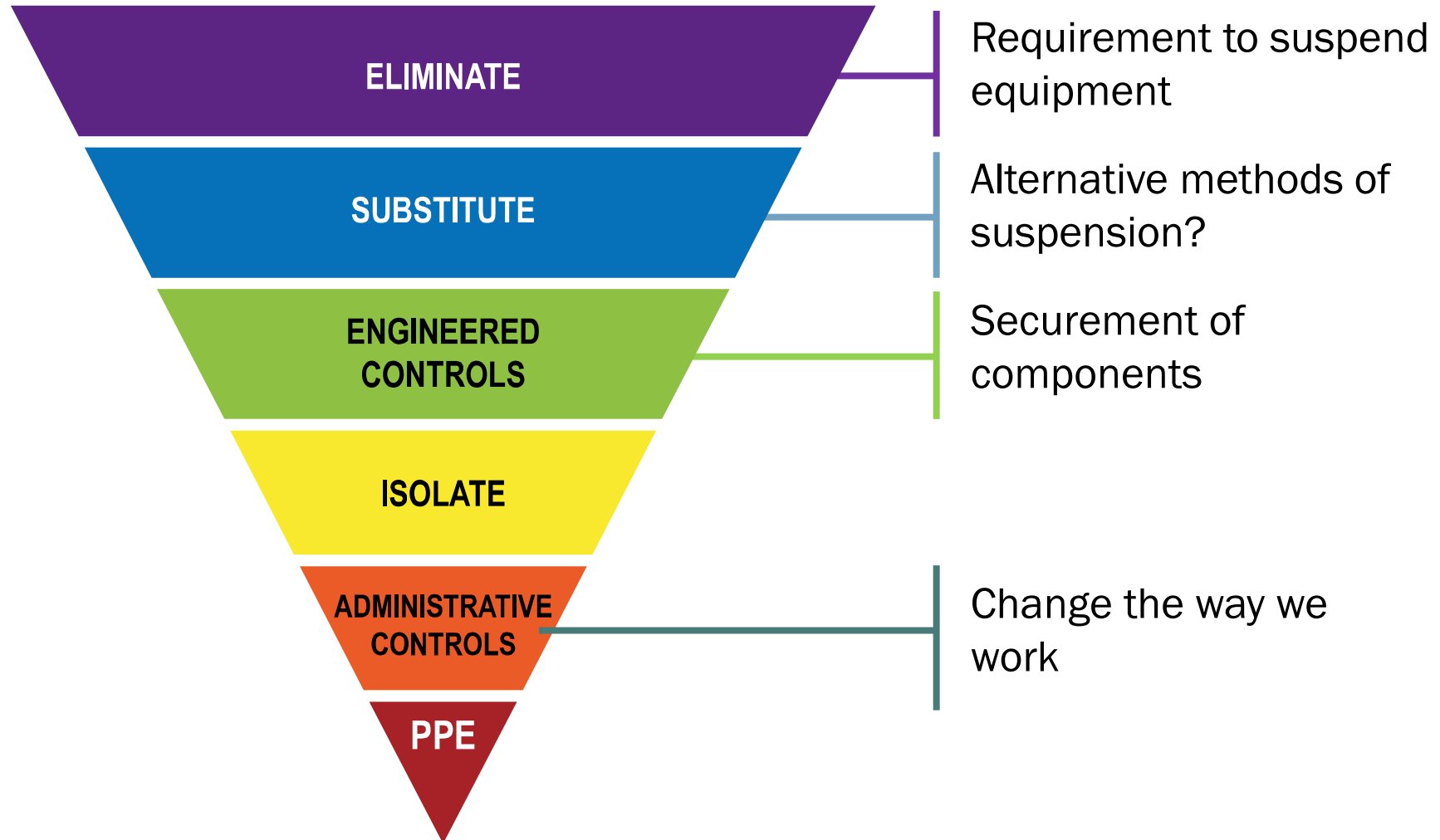
Risk Assessment [PDOs] (*work at height, high potential, addressing available engineered controls such as tool lanyards and bags... any potential for adaptations in task steps [HPOG] when assembling / disassembling equipment parts?*)

Red Zone / Drop Zone (*cone of exposure considerations, catch nets, additional barricades and comms etc*)

Hierarchy of Control! (*do we take the opportunity to retrace our steps and seek improvements that remove the hazard and/or reduce the risk?*)



Revisiting Hierarchy of Control:



ENGINEERED CONTROLS

Securement of individual shackle
components
(during assembly / disassembly)

Review existing manufacturer options

Crosby 'TDS Lanyard' shackle pin bolt modification

Shackles featuring retention eyes

Dropsafe Net Trisafe Carabiner

Support the development new equipment and tools

Van Beest Green Pin 'Catch' Shackle

Dropsafe 'Trisafe' Carabiner and Tether



Lanyard Attachment for Small Bolt Type Shackles

The following is to serve as a guideline for modifying Crosby bolt type shackles to have a lanyard attachment. These modifications do not affect the capacity of the shackle. Two recommendations are given for the customer to choose from when field drilling the shackle bolt. Both options allow for a 1/16" diameter cable to pass through the bolt head.

Option 1 – Across the Flats

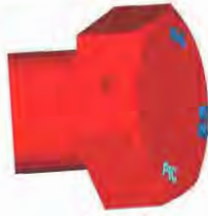


Figure 1

A 1/8" diameter hole may be drilled through the head of the bolt (perpendicular to the bolt axis) through two opposing flats. See FIGURE 1.

Option 2 – Flat to Face



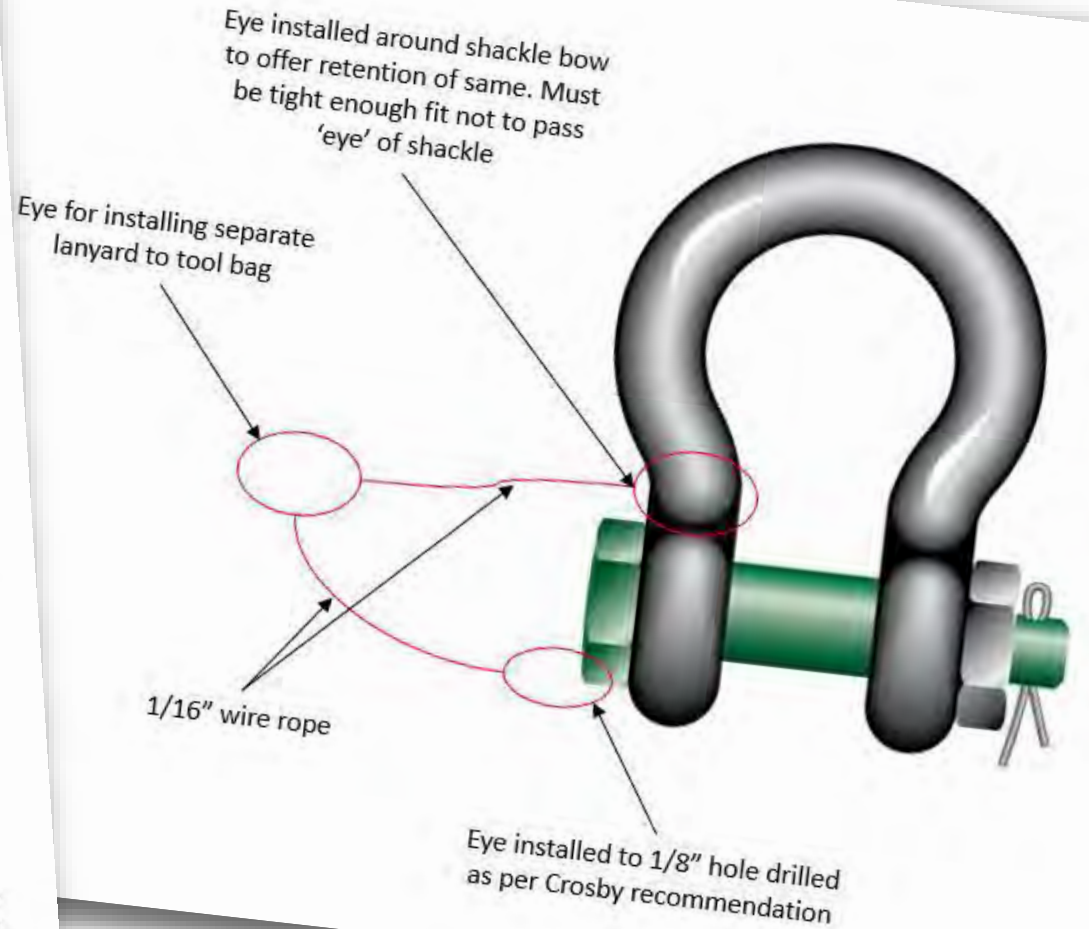
Figure 2

A 1/8" diameter hole may be drilled through the head of the bolt at an angle from the end of the bolt head to an adjacent flat. See FIGURE 2.

Warning

The use of a lanyard to retain the shackle bolt should never be considered a substitution for the proper standard method of bolt retention using a hex nut and cotter pin. Crosby assumes no responsibility for the use of the lanyard, which the user intends to attach to the shackle bolt. It is foreseeable that a lanyard may become entangled with other objects. Training should be provided for the proper use and application of the bolt with lanyard.

Classification	Catalog No.	Document No.	Revision No.	File Name
SHACKLES	2130/2140/2150	TDSLANYARD	0	tdslanyard.doc



Crosby modification and considerations for field application



Heavy Duty and ROV ranges incorporate attachment points

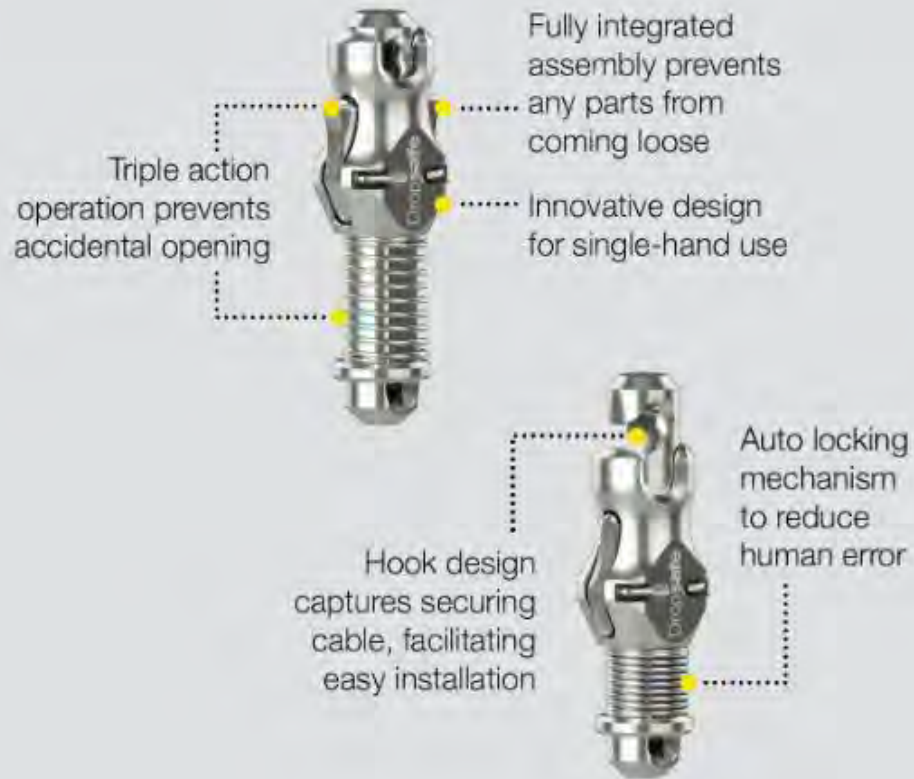


Various Mooring shackles with eyes, but typically two part.



Enhanced Safety Features

The Trisafe™ Carabiner is a revolutionary design that significantly reduces human error and eliminates the shortcomings of traditional carabiners. Advancing best practice, the Trisafe™ triple action opening, auto locking mechanism is easy to use with one hand, making the Net installation safer, faster, and more intuitive.



Availability of suitably flexible ‘multi-use’ safety device that could be operated with one gloved hand?

Existing Dropsafe product is a key component on the safety net device.

The single action to open allowed easy one-handed operation and the auto locking feature is robust.

What if this could be further developed as a multi-purpose ‘equipment lanyard’ and used as a securing device for shackle components with pre-formed attachment points?





DROPS Community support the trials and offer feedback.

New Trisafe product in final stages of development.



*And what if Green Pin
could expand the range
to incorporate
attachment points on
pin bolts... and the nut!*





And what if Green Pin could expand the range to incorporate attachment points on pin bolts... and the nut!



**ADMINISTRATIVE
CONTROLS**

Change the way we work

Designated equipment (*secure loft and logs for new shackles*)

Procedure integration (*specific reference to new equipment and task steps in procedures, JSAs and work practices*)

Training and Familiarisation (*use of each new device, inspection requirements etc*)

Equipment selection and approval (*highlighting opportunities to review all equipment against the principles of DROPS Reliable Securing functional recommendations*).



DROPS Community Teamwork The Shackle Story

With thanks to all DROPS members and subscribers.

For further details on any products shown, please contact the manufacturers directly. All other queries please write to admin@dropsonline.org



H&P ROUGH DRILLING APP

ALLEN SMITH – DROPSONLINE.ORG



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ROUGH DRILLING MONITOR

US DROPS VIRTUAL FORUM - AUGUST 3, 2022

- DOUGLAS BAY
- ZACKARY WHITLOW

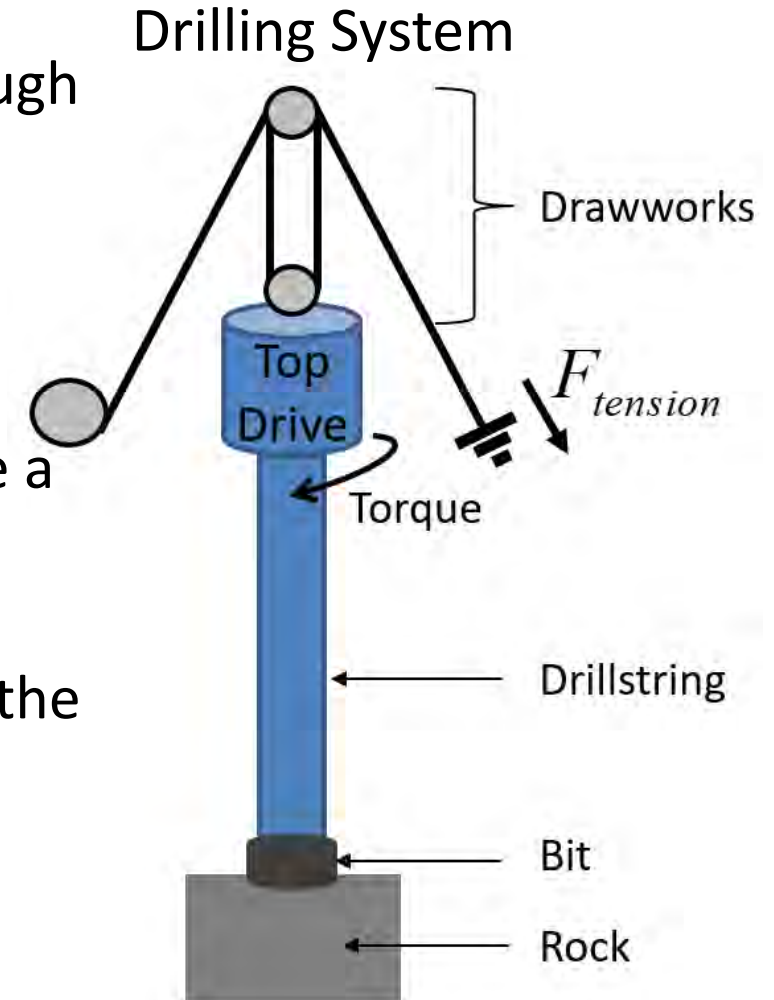


- Rig based drilling & tripping operations day-to-day create multiple sources of vibration at varying levels.
- Our Rig Crews work in the direct vicinity of equipment that is subjected to these vibrations.
- It's no mystery that DROPS is a top threat to rig crews – At H&P we ACTIVELY C.A.R.E.
Control And Remove Exposures
- We have identified the need to inspect specific equipment to make sure items remain secure, and keep the area barricaded to manage people when the threat is elevated....



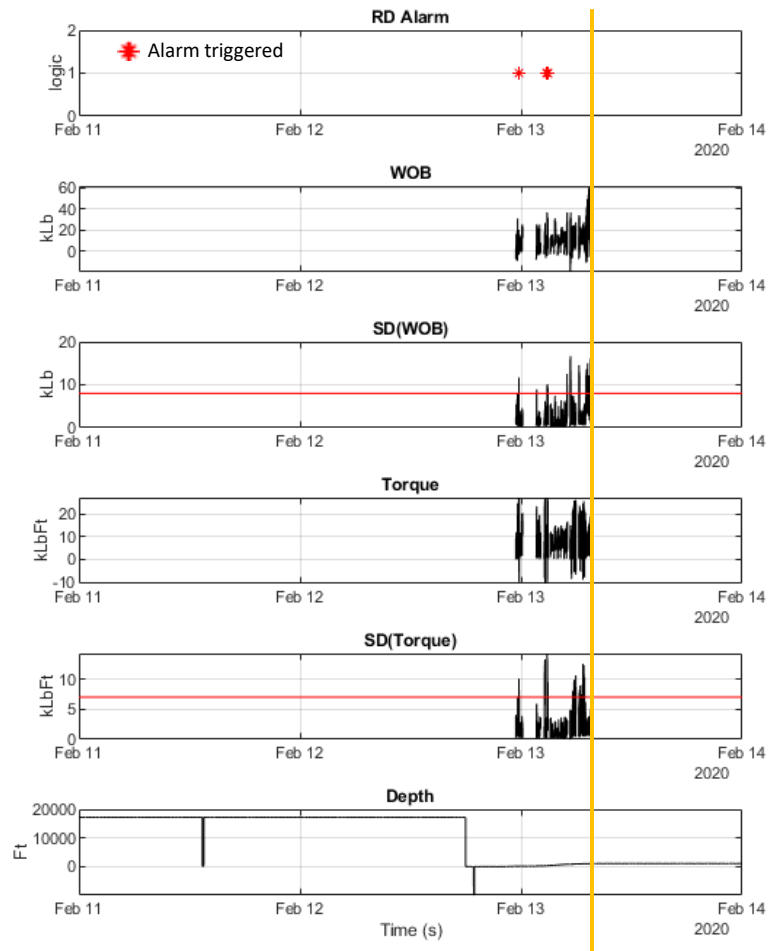
- **Actively C.A.R.E. involves inspections and barricades in response to large amplitude vibrations, i.e., “rough drilling”**
 - DROPS inspections are completed at intervals during and after severe vibrations i.e. jarring and rough drilling.
 - Barricades are set in place to keep high risk areas like the rig floor clear during jarring or rough drilling operations. Keep the people out and fail safely if a DROP occurs.
- **Is there a consistent set of conditions associated with dropped objects?**
 - “Rough drilling” has traditionally been subjective. Relying on drillers to identify what is rough was always based on the driller and their perception of what they considered rough. What’s Rough to you? 1-10 scale...
 - **Use three sources of information to identify data consistency and tune the system.**
 1. Events where objects were dropped
 2. Perception: Conditions that led to inspection
 3. Perception: Rating scale from 1 (safe) to 10 (severe rough drilling hazard)

- Noticed that two measurements seem to correlate with rough drilling conditions:
 1. Top Drive Torque
 2. Hookload
- Use standard deviation of torque and hookload to generate a meaningful indicator of rough drilling conditions
- Can we recognize these conditions automatically and alert the crews on the rigs? **ABSOLUTELY!!**
- Automated alerts on HMI's/Weight indicator to perform inspections and barricade high risk DROP areas.



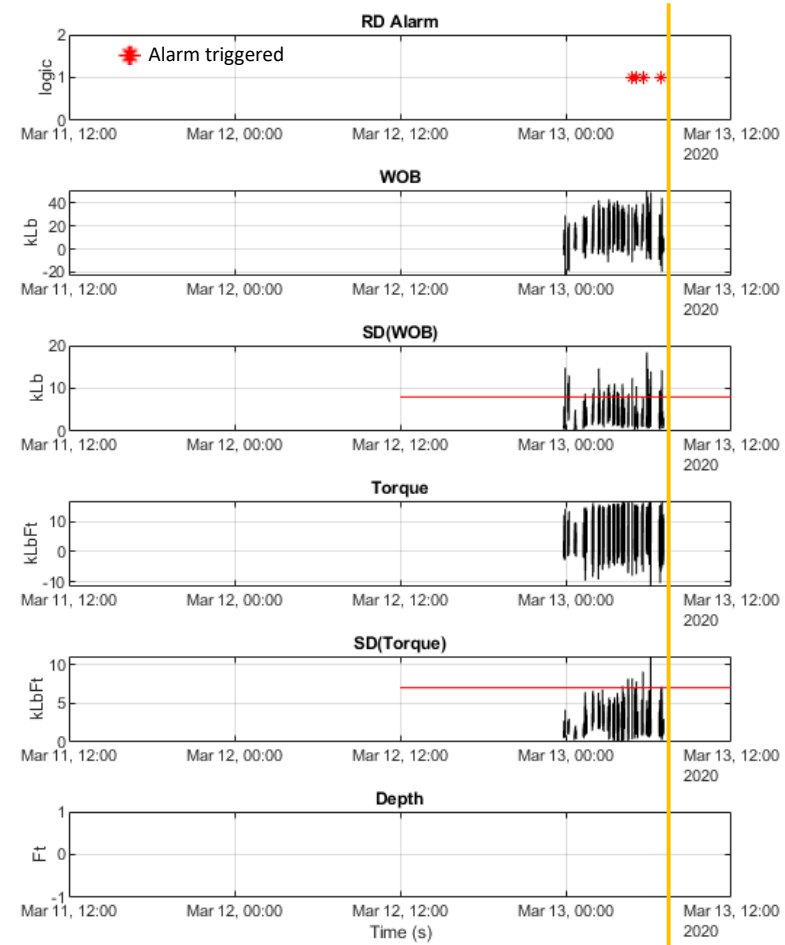
Rig 451 Link tilt pin

Dropped object reported 7:34

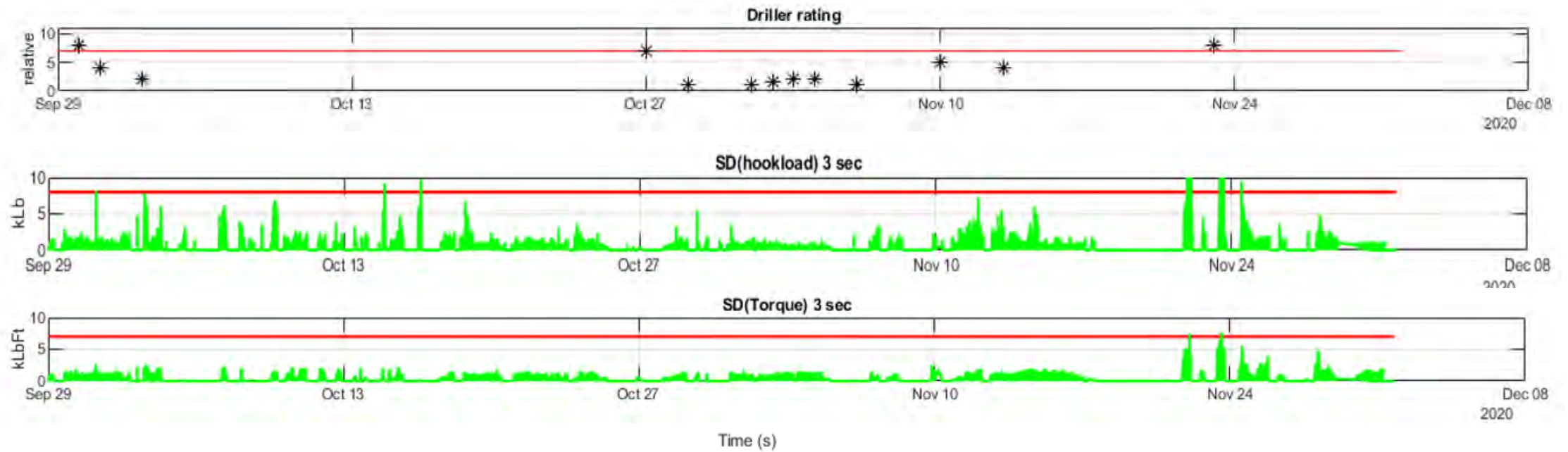


Rig 543 Stabbing guide

Dropped object reported 7:11



Human perception of conditions





- Drilling vibrations generate hazardous working conditions on drilling rigs across the board.
- Needed consistent definition of rough drilling to eliminate the guesswork and alert crews when conditions arise.
- Monitor standard deviation of torque and hookload over a three second moving window and alert crew at the determined threshold rather than relying on what we think is rough.
- Continuously monitor events and drilling data to revise alarm criteria. Currently working on adaptations related to air drilling to push our DROPS effectiveness further!

Questions:

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CLOSING

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