

Top Drive damage – drilling operations

Description of Process:

Drill floor operations – Top Drive

Immediately prior to back reaming a stand of drill pipe that had just been drilled down, the torque tube of the PH85 pipe handler caught on the splines of the upper IBOP causing catastrophic damage to the pipe handler.

Description of Incident:

Immediately prior to back reaming a stand of drill pipe that had just been drilled down, the torque tube of the PH85 pipe handler caught on the splines of the upper IBOP causing catastrophic damage to the pipe handler.

For ongoing drilling operations the drilling control system (Electronic Drilling System - EDS) is set to drill down mode. When EDS in this mode, a Lower Set Point prevents the blocks from being lowered below a safe working height.

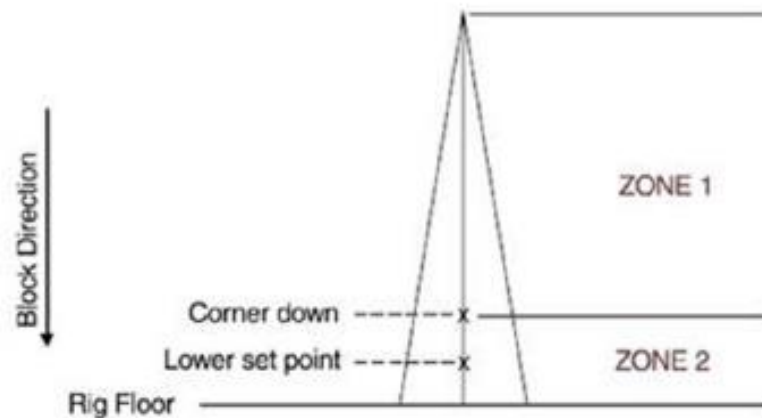


Fig. 1: Drilling down braking zones

Due to the Lower Set Point being set incorrectly, the drill string was lowered until the elevators made contact on the drill floor. The drill string continued to move down until the rotating splines on the IBOP came into contact with the stationary splines on the torque tube of the PH85 pipe handler.

SAFETY ALERT

What went wrong?

- The Lower Set Point was set incorrectly; therefore it did not prevent contact between the torque wrench and elevators
- The OEM Operating Manual and Work Guideline did not provide clear instruction on how and when to set the Lower Set Point
- The Operator failed to notice contact between the torque wrench and elevators
- The Supplementary Equipment Check sheets do not adequately address working with drilling control systems on partially mechanised rigs
- The operator on the brake at the time of incident became distracted at a critical part of the drilling operation. A lack of awareness by the operator of the risks of being distracted was evident.

Consequences:

- The initial damage required 99.5 hours rig repair
- The subsequent stuck BHA resulting in a re-drill of 8 ½" section

Good Practice Guidance:

Recommendations:

- Review and update work guidelines to provide defined and clear instruction on setting working parameters on drilling control systems
- Review and update competence system to provide robust assurance on setting working parameters on drilling control systems

Lessons Learned:

Historically, low point settings in drill down mode have been left to the sole discretion of the driller to alter depending on drilling. More defined parameters and management of change (MOC) process required.

SAFETY ALERT

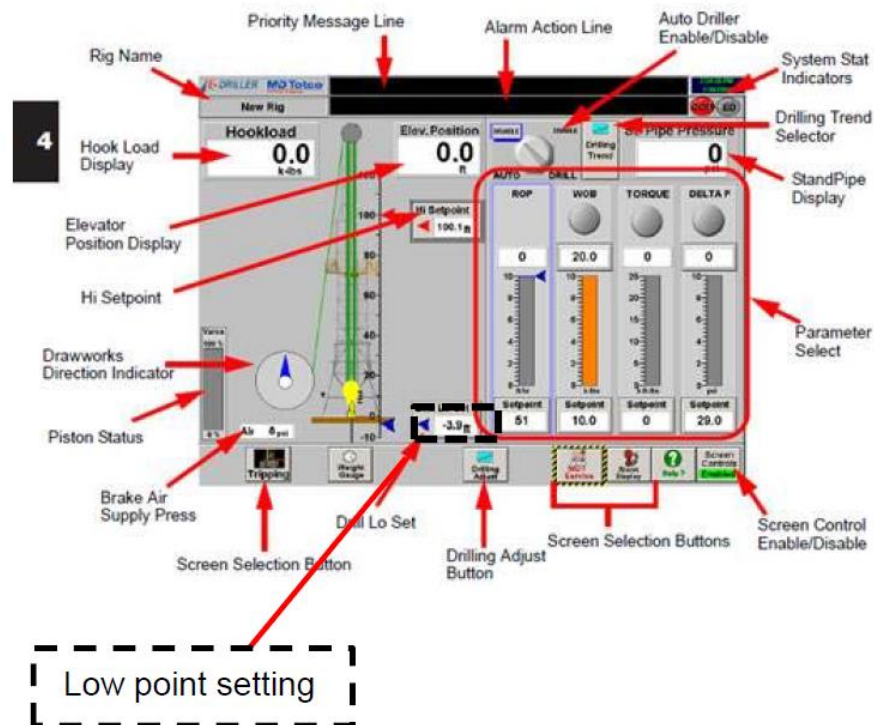


Figure 2: EDS Drill Down Screen showing low height set point