Safety Alert

From the International Association of Drilling Contractors

ALERT 02 – 22

TOP DRIVE UNIT AND TRAVELING BLOCKS FALL TO RIG FLOOR

WHAT HAPPENED:

A small treble rig (127ft mast) was on its first well with a top drive unit installed. The rig had been operating with the top drive for 3-4 weeks. While tripping out of the hole, a stand was stood back in the mast and the traveling block and TDU lowered to the floor and the pipe elevators were made up to the pipe in the slips. Upon taking up the load to pull the stand, a noise was heard above the floor. The traveling block and TDU then started to free-fall. The driller attempted to halt the fall of the blocks with the brake but this had no effect. The blocks and TDU fell until the elevators struck the rotary table and stopped. Although no-one was injured in this event some damage was sustained to the Top Drive and the rig was shut down for 8 days while an investigation, equipment inspections and repairs were carried out.

WHAT CAUSED IT:

When raising the block and top-drive unit to its full height, the hammer union between the kelly hose and the TDU gooseneck interfered with the deadline running to the crown block. When the traveling block was lowered to the deck, the hammer union snagged the deadline and dragged a loop of drill-line down with it, effectively adding extra rope to the drill-line. When the rig took the weight of the string, the extra loop pulled free and the drill-line went slack, causing the blocks to fall.

Secondary causes that allowed this to occur are as follows…

- The location of the gooseneck on the TDU differed from that on the rigs normal swivel, placing it much closer to the deadline.
- Small clearances due to operating a TDU in a small treble derrick.
- No formalized systems were in place to checked the free operation of the traveling equipment prior to use.
- The extend function of the TDU may have been partially extended pushing the TDU out closer to the deadline than it had been previously.

CORRECTIVE ACTIONS: To address this incident, this company did the following:

- The gooseneck on the TDU was modified to move the hammer union closer to the back of the mast.
- A full travel assessment of the block and TDU was carried out to try and determine any other areas of interference.
- Crews were reminded to ensure that the extend function is used sparingly, and that it is always returned to neutral before moving the blocks.
- The drill-line was replaced and the traveling block, TDU and main brake were crack checked.
- A policy and document addition was made to make the driller responsible for checking the free movement of the traveling equipment in the mast.
- Contractor will include the checking of full and free travel of the blocks and hanging equipment in pre-spud and daily inspections.
- A recommendation will be made to the TDU company to change its pre-use list to a pre-use checklist with tick-off and sign-off for completion.
- Rig personnel were given a refresher course on hazard identification and reporting.

The Corrective Actions stated in this alert are one company's attempts to address the incident, and do not necessarily reflect the position of IADC or the IADC HSE Committee.

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