Drill Line Clamp Failure

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For more information on this event, please contact: safety@enform.ca

Description of Incident:

While tripping tubing into the hole, the Driller heard loud bangs from the drawworks. He saw that the end of the drill line had become unsecured, and was spinning around loose in the drawworks causing the noise. The Driller immediately stopped operations and secured the rig, then cleared the floor. Figure 1 below, shows the drawworks with the frayed end of the drill line. The fraying was determined to have occurred after the clamp let go, and was a result of the line rotating freely. The blocks did not fall, and only minor equipment damage occurred, but the potential for possible serious injury was HIGH.

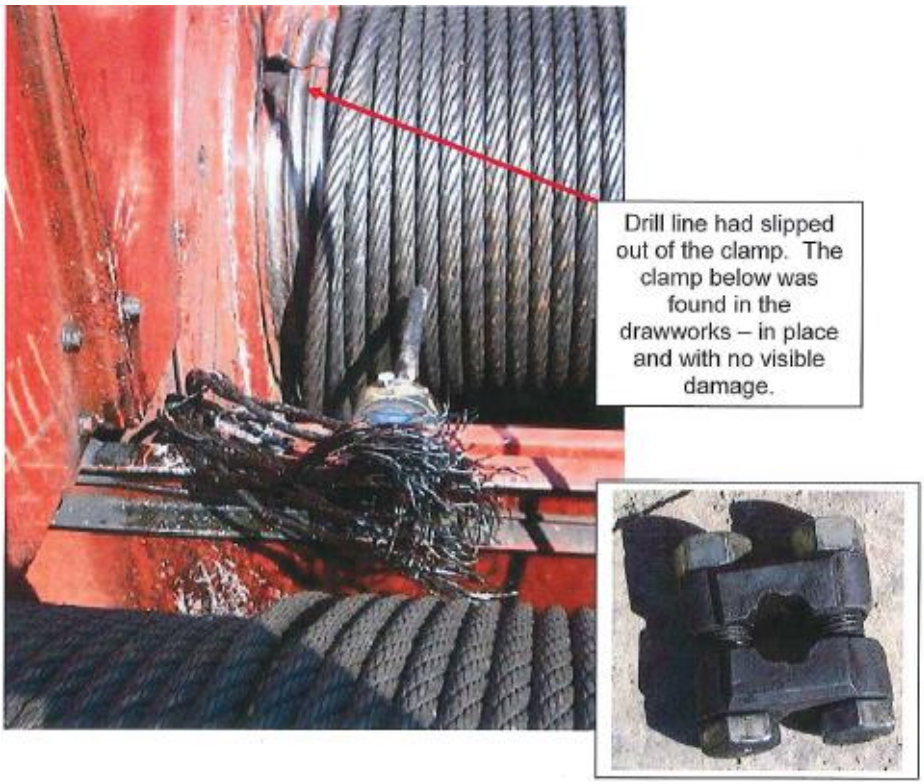

Figure 1 Drawworks, End Line and Inset Clamp

Figure 2 Drill Line Clamp In Place Position

What Caused It

Investigative Findings:

- A Slip and Cut had been performed prior to tripping out, and the incident occurred during the trip back in.
- Adequate wraps (7+) were on the drum after the slip and cut, and approximately 28 wraps were on the drum at failure.
- A pull-test with the actual line and clamp only caused failure at over 30,000 lbs and caused severe damage to the clamp. An additional test with another set also failed at over 30,000 lbs pull.
- Excessive pull did not appear to be a contributing factor.

Direct Cause:

- Inadequate or improper tightening of the drill line clamp.

Basic/Root Causes:

- The requirement for TORQUE specifications on the clamp was not known. Our TRA #49 – Slip and Cut procedure is to ensure line clamp is tight and installed correctly but does not give the manufacturers TORQUE specifications of 150 foot-pounds,
- The TORQUE requirement was not communicated from the drawworks manufacturer, through the rig carrier builder, to the company.

Corrective/Preventive Actions

The investigating company provided the following internal recommendations:

- All drill line clamps of this type must be removed, inspected and re-installed using the 150 foot-pound torque requirement. Discard the clamp and replace it if any damage is seen or suspected. Obtain any replacement clamps ONLY through the Company, so we can ensure that a clamp acceptable to the manufacturer is provided.
- These clamps are direction-specific. There is a line on the side of the clamp (both saddle parts) that goes to the “live” side of the drill line, not the tail end.
- The grooving in the clamp ensures good grip. As the clamp is installed and tightened, the grooves must have good contact.
- During a Slip and Cut, some tape should be left on the line to secure strands, and when installing the clamp, at least 1.5 to 2 inches of line much be left sticking out on the “dead” side of the clamp.