



Safety Alert

From the International Association of Drilling Contractors

ALERT 00-03

MULTIPLE ROTARY HOSE FAILURES – HOSE SEPARATION FROM STEEL END COUPLERS

WHAT HAPPENED:

On two separate rigs operated by the same contractor, identical failures occurred on rotary hoses that had both been in routine service for less than one year. During routine connection operations while picking up the kelly from the rat hole, the hose bodies separated from the swivel end steel connectors. Fortunately, both were caught and retained by the safety chain assemblies. No injuries or additional rig damages were incurred. Both of these were identical 4,000 psi 3" API Spec hoses. Both hoses were new when placed in service.

WHAT CAUSED IT:

For yet undetermined reasons, based upon the drilling company's investigation, drilling fluids penetrated the hose/connector sleeve interface area at the internal base of the sleeve/hose upset, resulting in corrosion and deterioration of the internal rubber, steel sleeve, and steel hose windings adjacent to the sleeve. As this deterioration progressed, the sheath and structure of the hose was compromised by the increased pressure and hose weight loads no longer being properly supported at the sleeve/hose interface. This resulted in accelerated internal and external hose bending fatigue damage. When the kelly was picked up out of the rat hole and the swivel connector hanging weight load of the hose was at a maximum, the hose and connector eventually separated.

Examination of the non-failed riser end connector areas of the failed hoses indicated similar internal and external deterioration, though not as severe as the failed swivel ends. This deterioration was evident when the internal connector area was visually examined, and by the obvious advanced external hose sheath bending fatigue cracks at the base of the sleeve/hose upset. The drilling contractor and the manufacturer are still investigating the failure.

CORRECTIVE ACTIONS:

1. Rotary hoses should be thoroughly examined for internal connector area deterioration and for premature external sheath fatigue cracks.
2. Deteriorated or fatigued hoses should be replaced.
3. Continue to ensure that the rotary hoses are secured by the safety chain assemblies.

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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