



# Safety Alert

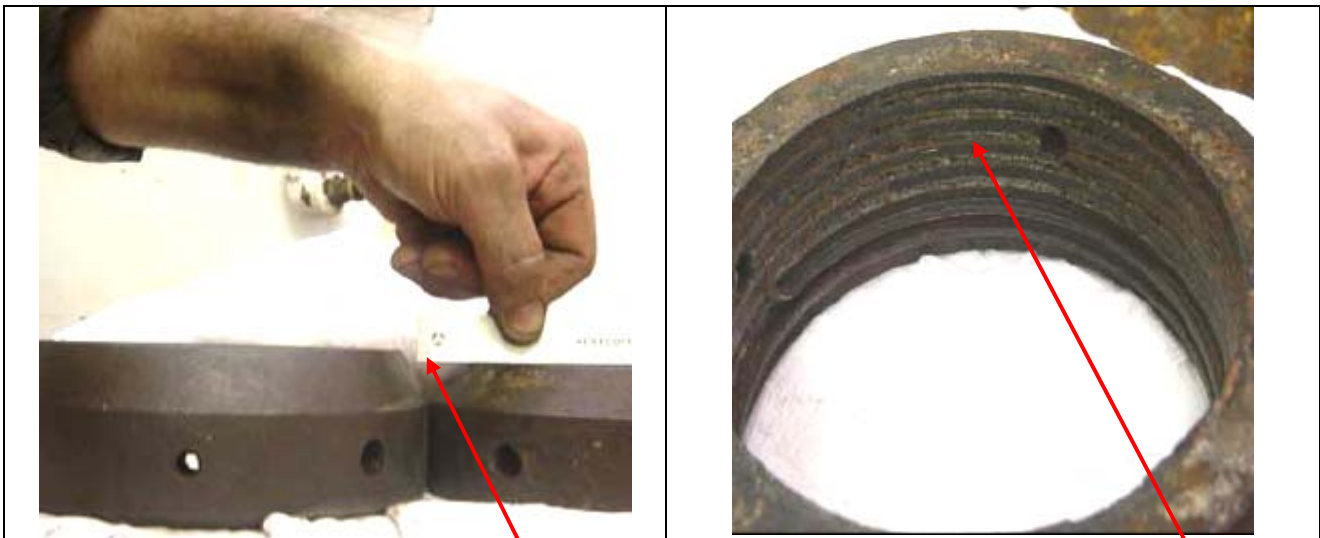
From the International Association of Drilling Contractors

ALERT 06 – 11

## NEAR MISS – EQUIPMENT FAILURE AT 14,000 PSI

### WHAT HAPPENED:

During a pressure test on the choke and kill line of a subsea stack, an incident occurred that resulted in property damage. When the test pressure reached 14,000 psi, the internal threads within the Kick Out Stab-lock ring stripped and failed to hold. Once the lock ring threads failed, the force was transferred to four  $\frac{3}{4}$ " studs located on the underside of the threaded locking ring. The  $\frac{3}{4}$ " studs failed and the high pressure hose was blown off the test cap. The design test pressure of the threaded lock ring was 22,000 psi. **Risk assessment was performed and implemented risk mitigation required the hazard area to be barricaded prior to the test.**



Note: Fitted ring is shallower than OEM ring.

Note: Stripped Threads on locking ring.

### WHAT CAUSED IT:

It was determined the immediate cause was due to the failure (stripping) of the alignment locking ring threads and when the threads failed, force was transferred to the four retaining studs which subsequently failed.

**Root Cause:** The threaded lock ring did not meet the specifications of the Original Equipment Manufacturer (OEM), and the size of the non-OEM lock ring was different from the OEM adapter ring. Investigation also determined the threaded locking ring and the studs that failed were not being periodically inspected or addressed within planned maintenance.

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

- Directed rig personnel that only OEM parts will be used for high pressure and critical well control applications. Annual Magnetic Particle Inspection (MPI) has been scheduled for the locking rings in preventative maintenance system inspection.

**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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**Summary:** This type of high pressure incident had the potential to cause severe injury or death and because of proper risk assessment the result of this failure was equipment damage only. The lesson learned is that only OEM parts should be used when replacing or maintaining critical well control components. Machine thread tolerance and design specifications of non-OEM parts incorporated into our well control system can expose us to potential injury, equipment damage and downtime.

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