



Safety Alert

From the International Association of Drilling Contractors

ALERT 00-19

FAILURE OF ANNULAR BOP ELEMENT

WHAT HAPPENED:

An Annular BOP was delivered to a rig with a new element installed. When the annular was tested, the new element cracked and failed. The annular BOP is a critical component of well control equipment. Its failure could lead to an extremely hazardous condition.

WHAT CAUSED IT:

By using the serial number of the element, it was determined that the element was over three years old. It had passed the Manufacturers Quality Control inspection that included testing it by installing the element in an annular and closed on pipe, open hole, reopened and tested to its rated working pressure (5000 psi). The investigation was unable to determine how long the element was stored in the annular before it was shipped to the rig. It may have been stored outside or in the annular, exposed to weather lacking the protective plastic wrapping for an extended period of time. It was also found that the element was "CR" type rubber compound (neoprene) and may not have been the best choice for the application.

CORRECTIVE ACTIONS:

- Choose the best element for the expected operating conditions.
 - NR-Natural Rubber is compounded for drilling with water base drilling mud in temperature ranges from 30F to 225F (-1C to 107C). These elements have a red patch molded into the rubber for identification.
 - NBR-Nitrile Rubber compound is for use with oil base or oil additive type drilling mud with a temperature rang of 32F to 190F (0C to 88C). These have a blue patch molded into the element for identification.
 - CR-Neoprene Rubber compound is for use with oil base of oil additive mud with a temperature range of 30F to 170F (-1C to 77C). These have a yellow patch molded into the element for identification.
- All annular elements should be delivered wrapped in black plastic material to protect them from sunlight and atmospheric deterioration.
- All elements and seals should be stored in a cool, dry, dark storage area until used.
- The elements should be stored and or shipped in an upright position, never on their side.
- When ordering elements ensure that you specify what mud type and hole temperature the element will be used in.
- Require vendors to provide the date of manufacturer and date of expiration for all annular packing elements.

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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Issued June 2000