AWES

Advanced Well Equipment
Standards Group

AWES Recommended Practice For the Qualification of Tubing Encased Fiber (TEF) Cable

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Abstract

This Recommended Practice (RP) has been developed by users and suppliers of Tubing Encased Fiber (TEF). TEF is generally intended for use downhole by the petroleum and natural gas industries. Outlined within this document are the qualification tests and acceptance testing regimes for each of the individual TEF components from the core to encapsulation. The tests are divided into type tests (qualification) and routine tests/factory acceptance tests (FAT) (production).

The RP should be used as a guide and has been organised so that the recommended individual tests for each component are outlined in a coherent way. The supplier and customer must agree beforehand on what the acceptance criteria for given tests should be. This enables suppliers and customers alike to be able to easily understand the testing regime that will be undertaken.

Users of this RP should be aware that requirements outlined in this RP may be needed for individual applications. This RP is not intended to inhibit a supplier/manufacturer from offering, or the user/purchaser from accepting, alternative equipment or engineering solutions. This may be particularly applicable where there is innovative or developing technology.

There are 6 sections covering test regimes for components:

Sections 4, 5, and 6 cover the tests required for the individual components that make up the TEF cable. Section 4 details the optical and fiber in metal tube (FIMT) tests on the core. Section 5 explains the five tests applied to the tube. Section 6 explains the testing of encapsulation that may be placed over the armour layer. Additional quality and testing requirements are specified when required.

Section 7 states the range of qualification tests that should be conducted on a completed cable.

Section 8 recommends the packaging and preservation required.

Section 9 outlines the recommended minimum requirements for FAT of the final product.

Annex A provides guidance on application of the AWES RP AWESTEF_01 and AWESTEC_01 RP to TEC/TEF Hybrid cables having optical fibers and electrical conductors within the same armor tube.