

API 16RCD Task Group Meeting 25th-27th August 2015 IADC Offices Houston, Texas

Attendance

Name	Company
George Michaud	MPO
Jeff Robbie	MPO
Kaydree Uzelman	Elite-Weatherford
Andrew Barabas	Elite-Weatherford
James Chambers	Weatherford
Guilherme Vanni	Petrobras
Stewart Wilson	Strate Energy
Charlie Kamps	Schlumberger
Jaye Shelton	Schlumberger
Joe Karrigan	Halliburton
Shantur Tapar	NOV
Thomas Askeland	SiemWIS
Martin Culen – Meeting Chairman	Blade Energy

Meeting Agenda

1. Review minutes from last meeting
2. Review comments from API regarding 16RCDe2 comment resolution and close
3. Review progress of Operational Testing Standard for RCDs and continue development work

08.2015 Meeting Minute Review

Discussion

All in attendance reviewed the minutes of last meeting.

Actions

The proposed changes to 16RCD 4.5.4 were challenged and reopened for discussion.

Review of Proposed Changes to e2 Section 4.5.4

Discussion

The changes proposed to section 4.5.4 discussed in the Q2 meeting were revisited as the wording could be misinterpreted and cause problems. The TG did feel that although the section needed to be added to the document, the wording should be as follows:

“ 4.5.4 Annular Packer Units

Tests on annular packing units shall conform to 4.7.

Design temperature validation on annular packing units shall conform to 4.7.

Manufacturer shall maintain documentation which identifies the essential variables related to manufacture of elastomer components and molded seals.

Note - RCD manufacturers that do not manufacture their own sealing elements shall ensure that the sealing element provider/vendor maintains relevant documentation pertaining to their product and/or process.

The minimum essential variables evaluated for inclusion in the documentation are:

- Seal geometry
- Physical properties (durometer, modulus, etc)
- Compound (**reference table 7, Elastomer marking codes**)
- Metallic insert design
- Mold design (if applicable)
- Manufacturing method (for example, cast, injection, transfer or compression molding, etc.)
- Bonding agents and application
- Compound vendors

Changes to essential variables in excess of manufacturer specified tolerances shall require re-validation testing according to this specification.

The manufacturer shall determine and document the impact of the change to an essential variable and the extent of re-validation testing required. "

Elaboration on the proposed changes to the wording of the section are as follows:

Proposed Change:

Note - RCD manufacturers that do not manufacture their own sealing elements shall ensure that the sealing element provider/vendor maintains relevant documentation pertaining to their product and/or process.

Discussion:

Many RCD suppliers do not build their own sealing elements, and as such, would not have access to the documentation pertaining to the details of the fabrication. The element manufacturer would therefore be advised by the license holder as to what essential variables need to be tracked and maintain the appropriate documentation.

Proposed Change:

Changes to essential variables in excess of manufacturer specified tolerances shall require re-validation testing according to this specification.

Discussion:

The previous wording only mentioned 'changes to essential variables' with no reference to tolerances, therefore the definition of 'change' was felt to be too loose.

Proposed Change:

The manufacturer shall determine and document the impact of the change to an essential variable and the extent of re-validation testing required.

Discussion:

Some changes to essential variables may be validated by a representative test, rather than performing full range testing. For example, RCD manufacturers currently perform validation testing for the range of element sizes required for different drillpipe sizes. A change to the manufacturing method of the element would require re-testing, however, the change could be re-validated by testing

just one element size, instead of the entire range. The license holder would determine the extent to which re-validation testing should be applied.

Actions

Follow up with API on how to affect this change – Martin.

Operational Testing Standard

Discussion

Discussion continued around the structure of the testing standard, and it was felt by the group that in addition to developing the testing structure, recommendation of the test variables should also be included such that proactive testing could be conducted. Three test types were developed:

Test A – Test with WBM at temperature with fixed variables

Test B - Test with OBM at temperature with fixed variables

Test C – All test variables are specified

Details of the tests are as follows. The notes in italics are not meant to be included as part of the standard, merely as guidance as to how the values were developed.

Test Types

Test A – WBM @ elevated temperature

Density - 12 ppg / ~1.44 SG

Temp (Range) (40F – 180F) – OEM specifies and records the actual test temperature

Notes: 12 ppg (1.44 sg) was chosen as an average mud weight of MPD wells drilled in 2015.

RIH Test

RIH speed – 1 ft (0.3 m)/sec

(RIH time – 3 hours)

360 tooljoints

Stripping Pressure – OEM specified

stroke frequency – 0.75m TJ x 0.75 pipebody, 1 stroke TJ for every 5 strokes pipe body

Notes – The RIH speed is the current standard from API 16RCD. The RIH length is an approximate distance to strip in to the shoe of a typical well. The stroke frequency is to approximate actual drillpipe and tooljoint geometry.

Drill Ahead Test

Dynamic Pressure – OEM specified

Static Pressure – OEM specified (influx circulation pressure)

ROP – 30 ft (10 m)/hr

RPM – OEM specified

Test time – 100 hours

of tooljoints - *variable*

stroke frequency – 0.75m TJ x 0.75 pipebody, 1 stroke TJ for every 5 strokes pipe body

POOH Test

Stripping Pressure – OEM specified

POOH speed – 1 ft (0.3 m)/sec

(POOH time – 3 hours)

360 tooljoints

Test 'B' – OBM @ elevated temperature

Same as test 'A' but with with OBM

Test 'C' – User specified variables

All variables are specified.

