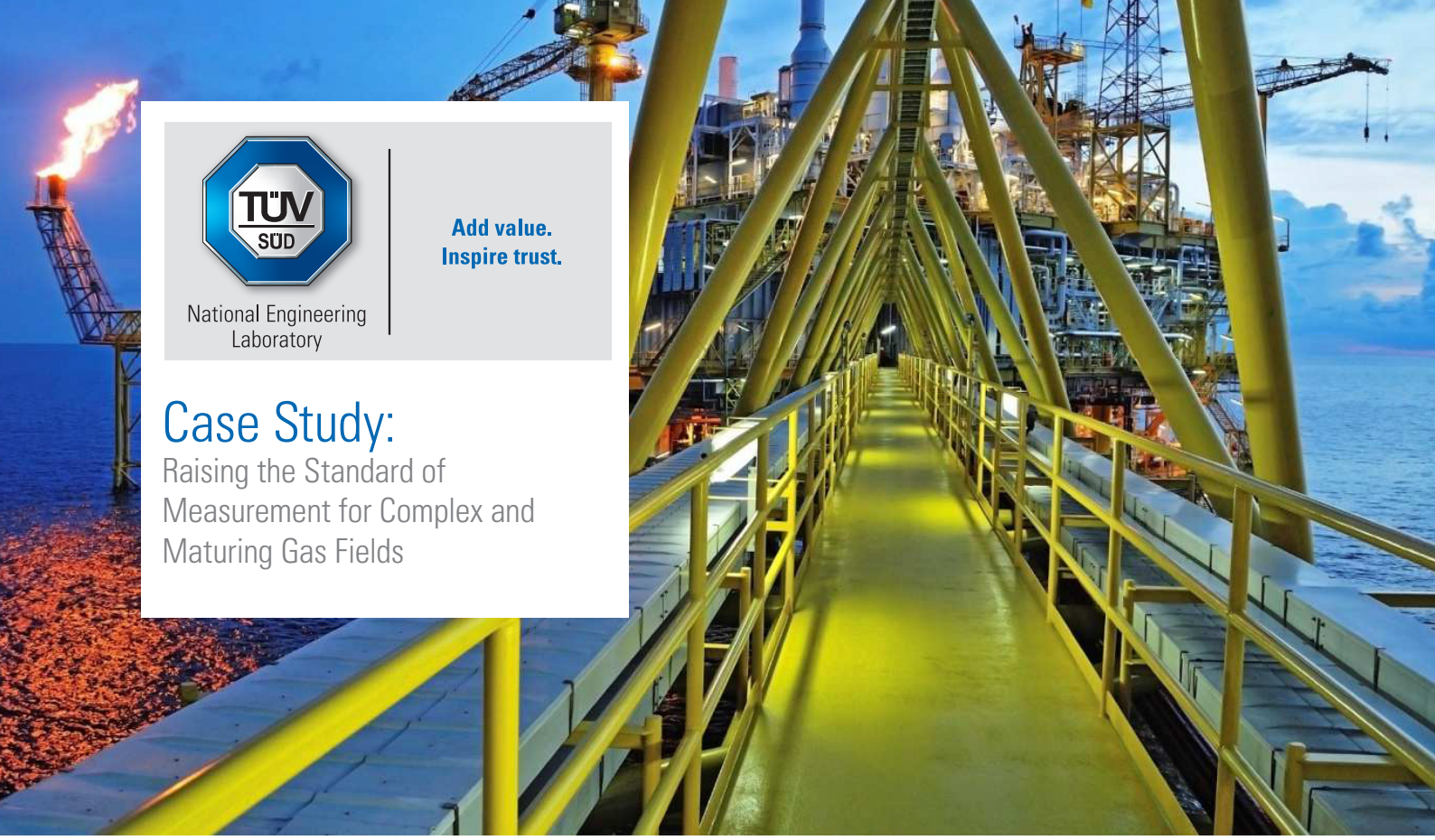

National Engineering Laboratory

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Case Study:

Raising the Standard of Measurement for Complex and Maturing Gas Fields

Review of AGA-8 Methodology when Used Outside its Gas Quality Specification

AGA-8, used to calculate gas production data in the oil and gas sector, no longer caters for today's changing field conditions. As more fields mature, and complex fields come on line, industry is seeing constituents that fall outside AGA-8's specification. TÜV SÜD National Engineering Laboratory carried out a review of a North Sea operator's production data against AGA-8 and found measurement uncertainties 10 times higher than the 0.1% specified in the standard.

OVERVIEW	
Client name	Confidential
Industry	Oil & Gas

Issue

The American Gas Association AGA-8 standard has been adopted worldwide to calculate fluid properties. These are required to quantify the amount of gas produced. By using the standard, operators can claim measurement uncertainty within ±0.1%. AGA-8 covers 21 different constituents that were typical of oil and gas fields at the time the standard was written.

New constituents are being found which are not included in AGA-8. This is largely due to changes in the reservoir production fluids as fields near completion, and the push to exploit more complex fields. As a result, substantial measurement errors can occur when AGA-8 is used as the basis for calculations.

Approach

Using information supplied by an oil & gas operator, TÜV SÜD National Engineering Laboratory carried out an in-depth review of gas field production data.

The data were analysed by combining TÜV SÜD National Engineering Laboratory's bespoke thermophysical properties software (PPDS) with other industry software to provide an independent assessment of the limitations of the AGA-8 method.

Solutions

TÜV SÜD National Engineering Laboratory discovered that using AGA-8 outside its specification would return measurement uncertainties up to 10 times higher than the stipulated 0.1%.

These findings have been presented to the UK and Norwegian regulators, both of whom accept the need for improved calculation methods.

Until AGA-8 is revised to include the production fluids of current fields, alternative approaches are required. Based on gas composition and field conditions, TÜV SÜD National Engineering Laboratory can advise operators of the most appropriate calculation method for gas properties, to minimise the impact when calculating gas production figures.

Benefits

Given the scale of maturing and complex oil and gas fields, the gaps in AGA-8 present a major problem for industry worldwide.

Taking North Sea fields alone, the bulk of which are in depletion, financial exposure could exceed £700m per year. This is based on current gas prices. From carrying out a gap analysis on the existing standard, TÜV SÜD National Engineering Laboratory has been able to quantify the scale of the problem and identify solutions to meet the requirements of today's production fluids.

TÜV SÜD National Engineering Laboratory East Kilbride, Glasgow, G75 0QF, United Kingdom
+44 (0)1355 593700 info@tuv-sud.co.uk www.tuv-sud.co.uk/NEL