



QUANTITATIVE RISK ASSESSMENT IN WELLBORE STABILITY ANALYSIS

DATE, TIME 29.05.2013, 06.00 PM – 08.00 PM

LOCATION AAA Building (1st floor conference room)
Rua R.de Fern. de Magalhaes, Luanda, Angola

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ABSTRACT

Wellbore stability can cause problems in any drilling operations, and millions of dollars are spent daily for wellbore stability-related issues.

Wellbore stability analyses are widely used as tools for predicting the mechanical response of the rock during drilling operations. The technical and scientific literature reports different types of wellbore stability analysis that differ in the constitutive law: from the simple linear elastic solution to poroelastic models and to complex elasto-plastic models for both the 2D and 3D field. In general, complex models need a set of input parameters that are often unavailable. This justifies the wide use of simple models that are based on a few parameters: the in situ state of stress and the strength of the rock. However the determination of these data is still a problem in the oil and gas fields.

Drilling engineers are requested to design stable wellbores on the basis of the available data that are often determined by means of indirect measurements and empirical correlations. The uncertainties related to the assessed value of each parameter are sometimes very high and consequently unplanned and unaccounted geomechanical problems can arise, that lead to many wellbore instability.

The wellbore stability analysis can be improved by using approaches based on Quantitative Risk Assessment (QRA). This technique takes into account the variability of the input parameters and their relative importance on the stability of the wellbore, yielding a probability of success as a function of fluid density.

This talk will report the post-drill stability analysis of NN and SS fields located in Angola South-Western part of Africa. The analysis is performed with both the classical deterministic method and the QRA technique. The results of the two different types of analysis shows the power of the QRA technique to account for both expected and unexpected situations, when the right mud window is obtained, saving time and consequently reducing operational costs.

SPEAKER

António Cabuço

Well Engineering Coordinator
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Born in 1976 here in Luanda António Cabuço is a petroleum engineer.

Since 1998 has been working in the oil industry, starting on a drilling supervisor developing program as assistant driller for the former Schlumberger SedcoForex then merged with Transocean, later in 2003 joined ESSO Angola as Production Technician. In 2007 started with eni Angola as Drilling Engineer for block 15/06 where is currently the Well Engineering Coordinator.

Antonio holds a MSc. in Petroleum Engineering degree from Politecnico di Torino.