

RISK ANALYSIS IN WELL PERFORMANCE

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Abstract

It is common to have missing data for filling in well model inputs. When evaluating a prospect, others fields information can be used, but usually presents a significant variation, making it difficult to find a representative value for a specific feature and becoming a limitation since the WPS (well performance analysis software) does not support the input of parameters probability distribution. On the other hand, there are tools in the market that, given a calculation model, permit the association of a distribution function to any of the input values and, thereafter, through a Montecarlo simulation, the verification of results variation based on the variation expressed in the inputs.

With the above mentioned, we approach to a solution for the model inputs “Non-unity” problem. In order to integrate these two products, a third one is used, permitting the values generated with the stochastic product to feed the WPS for performing the simulation and obtaining the results. When finished, the corresponding result for each group of generated inputs will be obtained.

Thus, the integrated application of calculation engines existing in the market will allow incorporating to the analysis the risks due to existing uncertainty in some variables of the well model. To conclude, and instead of showing a deterministic result when evaluating a well performance project, three significant scenarios can be shown from the group of the above mentioned results: a P10 case (or reasonable minimum), an average and other P90 (or reasonable maximum), with which the proposed analysis becomes a more efficient tool for decision making.