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A Confidence-Likelihood Matrix for Consistent Play and Prospect Risking

A novel approach is introduced for consistent calculation of play and prospect chance factors. The two key parameters describe data quality (CONFIDENCE LEVEL), and evaluation the chance factors (LIKELIHOOD). Four CONFIDENCE LEVELS are used to express data quality relative to the type of risk that is being evaluated. The LIKELIHOOD scale, ranging from 'Impossible' to 'Certain', is used to articulate the perceived chance that a specific risk factor is absent. Each confidence-likelihood pair has a unique probability value, also referred to as the "Probability of Success (POS) Perception".

Main features of the Confidence-Likelihood (C-L) Matrix are:

- * Lowering Confidence reduces the POS value for a given Likelihood Level,
- * Lowering Confidence reduces the dynamic range of the POS,
- * Separation of low- and high risk prospects,
- * All subsurface risks are included which enhances the audit trail,
- * POS values in line with the oil industry,
- * Consistency between assessors,
- * A colour legend for chance factor maps.

The C-L Matrix can also be used to de-risk hydrocarbon prospects in areas where DHIs (Direct Hydrocarbon Indications) are proven. The de-risking is internally consistent and symmetrical with the prospect risking. Even with good DHI data, seal failure (e.g. residual saturations) and reservoir impairment (low-K) cannot be de-risked.

The added value of this C-L Matrix lies in the use of unique POS values for each C-L pair and the fact that de-risking can be performed within the same evaluation model. These features enhance the repeatability and transparency of subsurface risk assessments.