

## CERAMAH TEKNIK TECHNICAL TALK

### A play-based evaluation of a deepwater Sabah exploration area: Prospect maturation and implications for remaining prospectivity

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**Abstract:** This study presents a play-based evaluation of the southern part of the deepwater NW Sabah fold-thrust belt, a key exploration area in Malaysia. The key objective was adding value to the existing database through an integrated approach. This goal was achieved by analysing four critical geological risk elements: reservoir presence, structural evolution, top seal integrity, and timing of hydrocarbon charge and migration, to identify prospective areas for future exploration by integrating all available geological, geophysical and geochemical information into a consistent petroleum system framework. Using the basin-play-prospect maturation workflow, data spanning the geophysical domain (with inputs such as seismic evaluation, structural mapping and attribute analysis) to the geological realm (such as well correlations, fairway mapping, sedimentological studies, biostratigraphic investigations and source rock maturation modelling), are combined with structural kinematic evolution to generate detailed play-based element maps. The application of the tried and tested play-based evaluation methodology from basin evaluation through to prospect maturation has been carried out. This has led to a comprehensive play element analysis yielding a composite risk segment map within a consistent petroleum system framework. In addition, the study has provided sensible explanations for dry hole analysis, an important reality check, but most importantly it has generated a fresh insight into the overall prospectivity of the study area. This enhanced multi-discipline analysis is beneficial for reducing exploration risk for future expenditure in a time of depressed oil prices that calls for a more innovative approach for deepwater exploration. In summary, integration of available data and the application of new in-house ideas and solid geoscientific knowledge has added value through the generation of increased prospectivity, however for further ground-truthing the real litmus test has to come from future drilling.

**Keywords:** deepwater Sabah, play-based exploration, petroleum system, risk segment