



Reservoir Depositional Element (RDE) Maps – Anchored or Exploring the range – A Case Study

Author: ¹Tracy Gunness and ²Randy Partap

¹tracy.gunness@uk.bp.com -presenter, bpTT, Trinidad ann Tobago

² bptt

Theme: CG: Stratigraphic and sedimentological principles

Key Words: depositional environment, sedimentology, stratigraphy, structural

Reservoir Depositional Element (RDE) maps are a key product in understanding variability within a field or prospect, informing exploration activity or field development/management . These maps are generated from integration of a range of observed and modelled data. Data quality, availability, utilization, anchoring and bias all impact the maps being generated. As such, it is important to explore alternative scenarios to capture the range of uncertainty and better assess risk. This presentation uses a case study to illustrate how additional seismic attributes and a deeper investigation of structural controls on sedimentation were used to generate an alternative scenario for an existing RDE map.

The existing RDE map, depicting a deltaic shelf with a channelized system to the south, and its inputs were first reviewed. Data gaps and uncertainty were focused on; what and how data was utilized, what data exists that were not integrated and potential gaps in the regional framework. The workplan was developed from this foundation to investigate alternative scenarios. Aspects of the workplan include investigating depositional controls, generating additional seismic attributes, focusing on observations and potential alternate interpretations and a reassessment of analogues.

One area that was identified as potentially influential to the depositional environment, but not previously analyzed or integrated, was the structural framework, particularly syn-depositional faulting. Faults control where accommodation space is created, the location of depocenters, how stress is distributed and instabilities, created through fault linkage zones between similar and differently oriented faults and inherited fabrics. The findings from this work, integrated with seismic observations, and analogue studies led to the realization of a slump model as an alternative.

RDE interpretation impacts the way we view uncertainty and influences how we analyze risk for a target. Assessing alternative cases helps us explore the range of possibilities and make more informed business decisions.