How We Helped Newfield Exploration Make Their Largest Discovery

The Challenge

Analysis of offset well data and seismic interval velocities indicated that pore pressure at crest of the targeted pinnacle reefs are significantly higher than in the shale-dominated overburden/seal above and also higher than what can be explained from potential column heights present in the structure itself. A pressure model involving lateral transfer (centroid effect) was built from theoretical shale pressure estimations as well as prospect relief information and matched observed pressures in offset wells. Seal capacity and column heights were also estimated as part of the study.

Our Approach & The Outcome

Based on our developed model, the client drilled the two pinnacle reef prospects successfully and had a significant discovery in one off the drilled prospects. The model developed – including the potential column height estimate – predicted the actual encountered column height within 7ft.

The developed model was tested and used for another operator in a nearby prospect a few years later. This prospect/structure had been drilled on two separate occasions prior to this operators attempt resulting in underground blow-outs on both occasions. **Using the developed model, the prospect was drilled successfully and the well encountered 252 meters of net gas pay, indicating a multi-tcf gas discovery.** At the time of drilling (2019) this was the **company's largest discovery historically.**

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The Results

2 Significant Hydrocarbon Discoveries
Challenging carbonate prospects were successfully drilled due to our models

Successful Model
Repeatable and applied in other prospects resulting in a significant discovery

6 Weeks
From scoping to execution

The Partnership

Multiple Pre-drill PG/FG well plans for two Late Miocene pinnacle reef prospects offshore Sarawak, Borneo. The targeted structures in the area have reliefs up to about 1000 m / 3300 ft.