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ABSTRACT

THE IBIS DEEP STORY: PUSHING THE EXPLORATION LIMITS IN TRINIDAD

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bpTT has enjoyed considerable success exploring the shallow (normally pressured) Plio-Pleistocene Shelf Play in the Columbus Basin offshore SE Trinidad. However, many of the remaining large prospects lie in the deeper, overpressured part of the section. Recent wells have started to explore this deeper section by drilling into the top of the transitional pressure ramp, but the Ibis Deep well drilled through this ramp, to definitively test the prospect on its way to being the deepest well ever drilled in Trinidad teaching us much about the deep geology and about how to drill these challenging high-pressure wells.

Regional studies identified Ibis Deep as the best imaged and lowest risk opportunity to test the deep play. The pre-drill prospect model comprised gas-bearing stacked deltaic sands of Pliocene age in a downthrown 3-way dip and fault closed anticline, charged by underlying Upper Cretaceous source rocks, and sealed by overlying transgressive slope mudstones. The reservoir section was expected to be pressure-regressed relative to the overlying mudstones, enhancing the seal capacity, and creating the possibility for large hydrocarbon columns. Critical risks were considered to be reservoir effectiveness and seal capacity, whilst reservoir presence and hydrocarbon charge volume were considered to be lower level risks.

On drilling, the well achieved its objectives of penetrating and evaluating the prospective zones, but failed due to lack of reservoir. The target levels encountered were, highly overpressured mudstones, separated by hard silty mudstones, with minor gas shows from one thin silt. In the absence of effective reservoir, no conclusive statements can be made regarding hydrocarbon charge volume and seal capacity.

There were two significant “lost time” incidents whilst drilling the well – a lost circulation incident at 13520ft MD at the start of the overpressure zone, and a stuck pipe incident, requiring a sidetrack at 15229ft MD. Apart from those, the drilling progressed well and all key subsurface objectives were met. The Ibis Deep well was plugged and abandoned as a dry well.

The information gained from Ibis Deep will play a large part in mitigating the risks on other deep prospects in the Columbus Basin, and helps define the remaining resource in the Columbus Basin.