

## **Encouraging First Steps to Extend the Nahr Umr Subcrop Play and Portfolio in the South Oman East Flank, PDO Block 6**

**Kristoffer Engenes<sup>1</sup>, Samira Al-Kalbani<sup>1</sup>, Karima Al-Ghafri<sup>1</sup>, Qais Al-Battashi<sup>1</sup>, Ibrahim Al-Battashi<sup>1</sup>, and Ahmed Al-Mahruqi<sup>1</sup>**

<sup>1</sup>PDO

### **ABSTRACT**

This paper will describe the evolution and outcomes of the Rakid prospect located on the South Oman East Flank, close to the edge of PDO Block 6 acreage. This opportunity forms part of the regional stratigraphic truncation of Permo-Carboniferous Haushi reservoirs which sub crop against Cretaceous Nahr Umr sealing shales.

Rakid can be described as a combined structural fault bounded and stratigraphic sub crop truncation trap. This prospect was a 40% POS strategic play test to extend the Haushi play further to the Block 6 boundary and to open up possible portfolio follow up. The opportunity was identified by the PDO exploration growth team and subsequently matured to drill worthy status in 2015. Two key pre drill risks were associated with seal (sealing fault extending to surface) and recovery (low mobility heavy oil).

The first exploration well was drilled in 2016 and discovered producible hydrocarbons trapped in the Lower and Middle Gharif, with a low mobility heavy oil zone in the Al Khlata. The well was hooked up to the nearest station (Ihsan, 6 km to the north) within 4 months from well TD and is currently producing ~100 m<sup>3</sup>/d of oil with very low water cut. The prospect is in the process of being handed to development for accelerated appraisal and development drilling.

The well results proved a trapping configuration with a reliance on fault seal and sub crop could work, and it proved the presence of relatively light hydrocarbons in a thicker than average Lower Gharif reservoir. The later success appears to be related to the prospect's proximal position in a depositional sweet spot (shoreface deltaic system with overlying distributary channel complex) which has access to a kitchen with later light oil charge.

Rakid has demonstrated that fluvial Lower Gharif reservoirs may generate traps and support significant column heights (> 100m TVDss). Intra formational Gharif shales appear to provide competent lateral seals and top seal, and importantly there is follow up potential along the East Flank.