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DEVELOPING REMAINING OIL IN K1.1 SAND RESERVOIR WITH HORIZONTAL WELL IN BARAM FIELD, SARAWAK BASIN

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Baram field is located in Miri Sarawak Basin, East Malaysia. (Figure1). The field was discovered in 1963 and brought into production in 1969. In it's nearly 40 year production period, optimal well placement is critical for drainage of the remaining reserves.

The field was developed with 8 drilling platform, three surface facilities, and two compressor platforms. STOIP was estimated at 1400 MMSTB with a EUR of 390 MMSTB from more than 170 wells. Some of the remaining reserves are left behind in the oil column <60 ft, reservoir thickness <20 ft, and dipping angle >4deg which was economically unattractive to be developed.

This study is mainly focused on how to maximize oil recovery with respect to horizontal well in thin reservoir by using azimuthal geosteering technology. (Figure 2)

BADP-E Rev 1 project successfully drilled a 2000 ft horizontal section in Baram-E111S1 well to drain the remaining oil from K1.1 reservoir in Block 3. The horizontal section was drilled at +3800 ft TVDSS within 1-5 feet below the ceiling and without exiting the reservoir. (Figure 3) Thereby allowing the well to attain maximum distance from oil-water contact and ensuring no attic oil was left behind.

References

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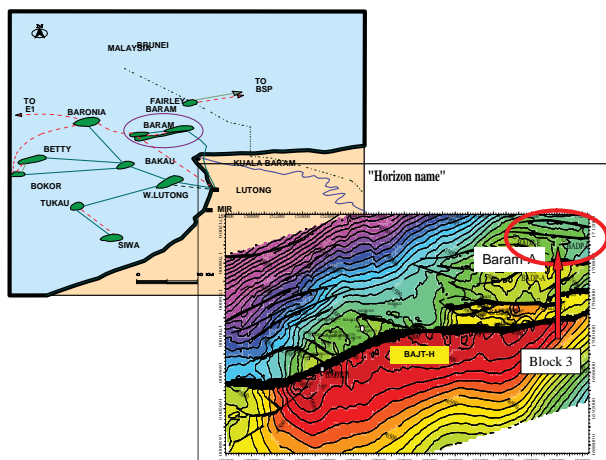


Figure 1: Baram Field Location.

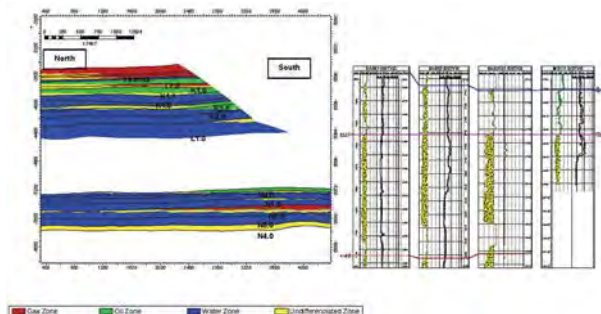


Figure 2: Horizontal well in thin reservoir (K1.1 sand).

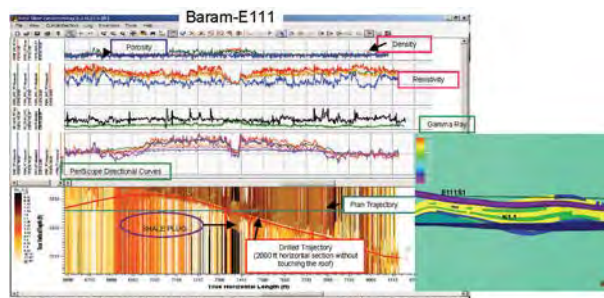


Figure 3: The horizontal section was drilled 1-5 feet below the ceiling and without exiting the reservoir.