The Semangkok Field, located offshore Peninsular Malaysia was first discovered in 1981 and developed in 1984 by two platforms, Semangkok A and B through 41 development wells. Subsequent to the initial field development, EMEPMI has conducted several re-developments at Semangkok, including the Semangkok B infill drilling program in 2001, and Semangkok A infill drilling program in 2003.

This paper addresses the challenges involved in the re-development of one such reservoir, the E-20, which has a relatively thin (~12m) oil column at Semangkok.

The E-20 reservoir, with its ~12 m crestal oil column, small gas cap and strong bottom water drive, was considered uneconomic during the initial development. Three wells were completed in this reservoir as a secondary objective during the initial development, with only one well making reasonable cumulative production of 0.5 MBO, while the other two wells saw early water breakthrough. All of the wells had relatively long perforation intervals, with the higher cumulative well having a coal layer close to the base of perforation which potentially acted as a buffer to prevent early water encroachment.

In 2002, an idle well was worked-over to add perforation in the E-20 reservoir. The perforated interval was only 1m TVD at the mid oil column, to provide sufficient stand-off from the interpreted current OWC and help reduce early water breakthrough. This well produced at a sustainable rate of 0.8 kbd with low GOR and watercut, and based on the encouraging performance, two additional single horizontal oil producing well targets were recognized for future development.

Key challenges for these targets included the optimal placement of the horizontal section to minimize water coning and maximize productivity of the thin oil column. As such, risks for these wells included structural and stratigraphic uncertainties and the possibility of early water breakthrough. This paper discusses ways the integrated team took to optimally address these challenges and maximize production.