

DBM Case Example: A South Oman Clastic Field from Scoping to Development Plan

Ibrahim Alismailli¹, Zaid Al-Siyabi¹, Sameer Al-Balushi¹, Khalid Al-Maamari¹, Salaam Al-Busaidi¹, Mohammed Al-Kindi¹, Khalid Al-Hinai¹, Abdulaziz Al-Maskari¹, and Mehdi Tadayoni¹

¹Vision Advanced Petroleum Solutions L.L.C.

ABSTRACT

As part of small field studies, Petroleum Development Oman (PDO) tasked Vision Advanced Petroleum Solutions (VAPS) to conduct a field development plan (FDP) of a relatively small (2 km x 2 Km) clastic field in south Oman. The field is reasonably well constrained with respect to structural control. However, uncertainty still exists in both structural, reservoir characteristic and fluid distribution.

PDO required a quick fit for purpose study towards an FDP. To facilitate an efficient study decision based modeling (DBM) had to be used to ensure both efficiency and value. Firstly, scoping of the project was only done after having a proper framing followed by data digestion and quick uncertainty screening. This allowed understanding the problem, decisions required and best routes possible. Scope then had elements to assess effect of main uncertainties and to map out possible development options (concept identifications). These put together allowed best model framing along a DBM philosophy. It became clear that water flood is most viable concept though design requires assessment. It also became clear that the field had fluid contacts (with related compartmentalization), relative permeability and viscosity as its main uncertainty effecting development.

The study underwent two phases. During assess phase, identified concepts were screened against a range of subsurface realizations. The models were built to specifically assess feasibility of the screened concepts. At the end of the Assess phase, two main developments were identified with a phased approach to development. The select phase then allowed further optimization to ensure robust development. Well models were used to assess sanding, artificial lift and best well design. The study concluded with an optimum development in six months.