Dynamic Production Optimisation

Using Transient Multi-phase Simulation to Maximise Profit

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Abstract

Improving the design and operation (field life cycle) of full production systems (from reservoir to process facilities) to obtain optimum production and minimise investment and operating cost is a very attractive exercise with a corresponding acceleration/increase in reserve recovery to maximise profit. This presentation discusses the best approach for implementing dynamic simulation. It is based on the lessons learned by conducting dynamic simulation studies and applying dynamic modelling methods to increase oil and gas production and optimise well, pipelines and facilities design. Dynamic Production Optimisation methods can be successfully applied regardless of field life expectancy. Dynamic simulation of production systems at early stage is essential to identify and understand the key flow assurance issues. It allows better project definition during the concept selection, FEED and detailed design phases. Dynamic simulation of operative production systems should, minimise workover intervention and wireline activities, maximise safety, as well as enable operators to optimise, accelerate, and increase the recovery through the life of the well/field. Additional benefits have come from real-time surveillance - faster detection and diagnosis of problems, and quicker response to failures. This presentation also discusses when and how dynamic simulation should be applied and compares transient versus steady state approach. Furthermore, successful on-line off-line field simulation applications are listed as examples on integrated full field modelling and the relevance of dynamic simulation.

Biography

Juan Carlos Mantecon is Principal Consultant at Scandpower Petroleum Technology. Based in Perth, he is working on Well Completions, Production Technology, Flow assurance, Production Optimisation and Integrated Production Modelling issues in projects around the world. Juan also serves as advisor of the Petroleum Engineering Department at the Curtin University in Production Technology and Production Optimisation issues. He also lectures at The University of WA and the Curtin University of Technology. He holds a BS Degree in Mechanical Engineering and MS degree in Petroleum Engineering. He has broad field experience of over 25 years in Production and Reservoir Engineering working in onshore and offshore fields in Argentina, Venezuela, Canada, USA, Romania, Indonesia, Scotland, Brunei, Malaysia and Australia. He authored and co-authored numerous papers. Juan is a very active member of the SPE and corporate member of the Institution of Engineers, Australia.

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