Production Monitoring and Surveillance

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An ongoing focus area for Saudi Aramco is the optimum field development and depletion of the mobile oil in the tar area, which is limited in extent and occurs mainly along of the periphery of the southeast flank of the field. Unlike many tar mats in other fields, the tar in this field is patchy and has a complex distribution in the reservoir. In addition, areal and vertical tar extensions reveal great variations along with the existence of fractures in the area which imposes difficulties on the reservoir characterization as well as predicting fluid flow behavior.

The objectives of this paper is to present an overview of the tar infected areas, reservoir performance, formation evaluation results, reservoir characterization and modeling workflow to formulate the development strategy. Various tools were utilized such as NMR log, flow-meters, POPI analysis, PVT analysis, Pressure Transient and core analysis to better understand the tar and optimize the development strategy. This paper also documents the results of a recently drilled evaluation well and the proposed horizontal sidetracks performances as actual case studies.