

Integrated Reservoir Management in a Mature Field—25 de Mayo El Medanito SE y Jagüel de los Machos

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Abstract

The areas 25 de Mayo El Medanito SE and Jagüel de Los Machos, are located on the northeastern edge of the Neuquén basin and are under exploitation since the late 60s. This is a mature field of oil and associated gas that has been subjected to successive stages of development including primary production, secondary recovery projects, infill drilling, enlargement towards areas of edge, optimization of areas already developed, re-stimulation of wells, etc., in a context of carbonate, volcanic and conglomeratic reservoir rocks, with predominance of low permeability, compartmentalization and high degree of heterogeneity.

This paper describes the integrated management of processes for development and optimization of the reservoirs of the field, based on knowledge gained from decades of operation. The application of methodologies and tools for the characterization and analysis provide the support required for the management of developed reserves, for the investment projects of development of the 3P reserves in the short to medium term and the creation of a portfolio of contingent resources that allows the economic sustainability of the exploitation of the field. The integrated management enables to link such processes striving to achieve optimal recovery factors according to reference values depending on the characteristics of the reservoirs in each area.

Brief descriptions of two examples of different characteristics are explained. On the first place, La Isla Project, where new investment opportunities are detected by increasing the recovery factor in a mature zone of secondary recovery by water injection. On the second place, the Tapera Este Project, a new development detected on the basis of a review of existing models, in primary recovery and with the complexity of volcanic reservoirs, dual-porosity and permeability systems. Both cases demonstrate that despite almost 50 years of history, there are still opportunities that can extend the useful life of the field.