

## **Development of a Methodology for New Producer Wells Allocation from the Computational Modeling based on Streamline Simulation**

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Currently, it's essential computational techniques supported on more elaborate mathematical foundation to help evaluate different behaviors of a reservoir and perform optimization studies without consuming significant computational time.

This is the importance of simulation technique based on streamlines which is strong in the dynamics of flow fields study in the reservoir, positioning of new producing wells and automatic and assisted history matching. The basic foundation is focused on time of flight calculation that keeps a direct relationship with many important parameters of the reservoir.

This work is focused mainly on developing and implementing a methodology divided into several steps to the location of new production wells using as main tool the streamline simulation.

The methodology provides the historical setting assisted initially followed by an analysis of maps of reservoir properties in order to choose the initial target areas. Later, it performs a refinement of these areas using the streamlines tracing, excluding effective drainage areas for each well with an analysis of the wells near the selected area. As a result we analyze the effect of new production wells on production performance of the field and propose different pattern configurations.

The implementation of the proposed methodology was applied in a heterogeneous two-phase reservoir of 66,220 cells with a current production period of 13 years which was in period of decline. After analysis, the different features of the site as the behavior of production and status of wells methodology was applied to generate various positions and thus areal new configurations might considerably increase the recovery factor, by identifying potentially producing areas.