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**Large Geologic Models for Evaluation and Development Planning for Heavy Oil Reservoirs in Zuata Area, of the Faja Petrolifera del Orinoco, Eastern Venezuela Basin**

Petrozuata has completed its initial phase of drilling of horizontal multilateral wells to tap Oficina Formation heavy oil reservoirs using detailed geologic modeling as a tool for development planning and volumetrics. Conoco, Inc. and PDVSA used these tools for regional screening in Zuata. The Oficina geological models were built in Roxar Reservoir Modeling System (IRAP-RMS) as simple Boolean models, heavily constrained by bed thickness information from logs, and dimensional and morphology information from 3-D seismic surveys. These models utilized most well data available, typically exceeding 350 vertical and horizontal wells. Thin grid cells were chosen to preserve vertical heterogeneity, and some models exceeded 17 million cells in total size. Petrophysical properties were taken from existing well data, and were populated with geostatistical methods. The resulting models were analyzed for connectivity and volumes drainable from possible development laterals. These grids were seldom directly used for fluid flow simulation, but rather provided populations of volumes for stratigraphic intervals then used as input for simulation models and production stream forecasts. The detailed models reproduce the range of reservoir volumes expected from current production wells, and replicate bed thickness distributions from vertical well data. Regional models were constrained by geostatistical mapping utilizing the PDVSA Geostress mapping system. Kriged maps provided necessary soft control for modeling sand distributions and directions, petrophysical properties of sands, coalescence between layers, and confidence factors for modeling variability. The combined workflow, based on detailed geologic analysis, has proven to be an effective approach for heavy oil development planning in Petrozuata.