

First Round Mature Fields, Mexico

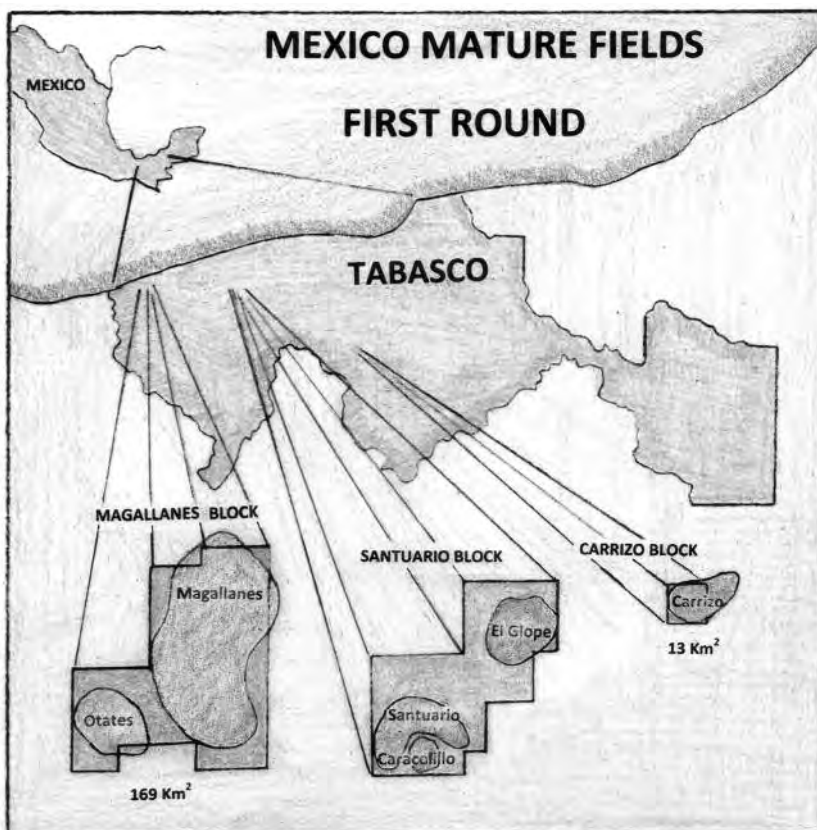
Overview of the Blocks: Opportunities, Upsides and Downsides

by Colin Stabler

Early in 2011 Petroleos Mexicanos (PEMEX) plans to contract out the redevelopment of mature and abandoned fields in three separate blocks onshore in the southern state of Tabasco, under a recently approved performance-incentive scheme. This executive summary provides the technical opportunities, upsides, and downsides for each block as well as the main contract terms, so that small companies with specific experience or niche technologies can ascertain their interest in evaluating data packages and competing in the upcoming first round.

The Magallanes Block presently produces 6,833 bopd and 13.6 mmcf/gpd from 54 wells. The opportunity in the very mature 63-year-old Sanchez Magallanes Field is to redevelop 86.5 mmboe of probable and possible remaining reserves of 31° to 34° API gravity oil and associated gas. PEMEX has had this offering certified based on 2005 vintage 3D seismic in a complex of multiple Upper Tertiary fair to good quality reservoir sands and fault blocks lying at depths of -2,000 to -3,500 m both above and flanking a salt intrusion. The upside is finding deeper exploration prospects (turtles, sub-salt), infill drilling locations, and recompletion intervals by reprocessing the seismic data and conducting detailed fault trap analyses. The downsides are incomplete acquisition coverage in the 3D seismic survey, and wells that have sanding-up and paraffin problems. Much of the field has been water-flooded. The other field in the block, Otates, has very little remaining identified undeveloped reserves in a few remnant fault traps overlying a small adjacent salt intrusion and may need to be relinquished after re-evaluation. Moreover, the study and surveillance of at least 160 separate pools in Sanchez Magallanes will be a challenge to manage efficiently as it will likely tie up considerable staff time.

The Santuario Block presently produces 6,742 bopd and 3.81 mmcf/gpd from 34 wells. The opportunity is to take over from PEMEX the development of 44.5 mmboe of proven remaining reserves of 35° to 36° API gravity oil and associated gas that PEMEX has already identified based on 3D seismic in multiple Upper Tertiary good to fair quality sands lying at -2,950 to -3,600 m in two 43- and 47-year-old fields (El Golpe and Santuario) formed by fault traps on the crest of a major roll-over anticline.



The upside is in covering two small parts of the block with mini-3D seismic surveys (17 km² and 10 km²) to reveal more recompletions and infill drilling locations. The downside is that a third field in the block, Caracolillo, is abandoned, has no identified remaining reserves, and may need to be relinquished after re-evaluation.

The opportunity in the Carrizo Block is to redevelop 51 mmboe of remaining possible reserves of oil and associated gas in the abandoned Carrizo Field, a shallow, faulted gentle anticline abandoned due to lack of funds. It is unclear how much of these reserves are heavy oil (18° to 22° API gravity) in Upper Tertiary sands lying at -1,400 to -2200 m and how much is extra heavy oil (7° to 12° API gravity) in shallower sands of excellent quality overlying the field. The upside is in covering the unsurveyed 40% part of the field with a mini-3D seismic survey to identify more recompletions and infill drilling locations. In addition, an enhanced thermal recovery project could be installed to exploit the shallow extra-heavy oil.

Technical Notes continued on page 17

The contracts on all three blocks offer the opportunity to be paid for services on the basis of performance factors, including production of oil and gas in excess of a pre-established decline curve, cost reduction, accident prevention and value added. Payment will be in cash on an inflation adjusted fee-per-barrel basis (the biddable item). The upsides include 21% of the fee-per-barrel for existing production, a two-year evaluation phase (followed by total or partial relinquishment), a possibility to expand the area, and an additional service fee and cost recovery for new-build infrastructure. The downsides are that reserves cannot be booked, the payments are limited by the net cash flow of the project and capped indexed to oil price, only 75% of costs can be recovered (but can be rolled over into the next period), a mandate of minimum 40% national content, and putting aside funds for abandonment needs. There is a potential conflict of interest in that PEMEX, with only a 10% working interest, has to approve the operator's annual budget and work program. Also, an extensive environmental baseline study will be required and many of the surface facilities are old and cannot be expected to last the 25-year term of the contract without

extensive maintenance. Red flags are the community risk (PEMEX operations have suffered from demonstrations and shutdowns from farmers and fishermen in the past) and the security risk (PEMEX staff have suffered kidnappings recently). ■

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Biographical Sketch

COLIN STABLER is a consulting petroleum geologist, retired from Shell in Mexico City. He has worked Mexican subsurface geology since 1966, first as part of a British consulting group, more recently as Shell's E&P representative in Mexico. In between times, he worked for Shell in many capacities in the USA and international arenas. Presently, he is active in Mexican E&P affairs and keeps abreast of the upcoming opportunities.

