

Drastic reduction in commerciality threshold for offshore exploration (Repsol-YPF-Maxus-Schlumberger, Java Sea, Indonesia)

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The Offshore SE Sumatra PSC in Indonesia's Java Sea has been explored for over thirty years, finding 30 commercial oil fields having cumulative production exceeding one billion barrels. In such a mature phase, exploration appeared unattractive owing to prohibitively high cost for apparently low reward. A strategy was needed to balance the risk:reward ratio (cost:risk:reserve potential) to encourage the exploration drilling necessary to maintain reserve growth.

This was solved by an expendable, 'slim-hole' drilling programme (dubbed 'MX'). A ten-well programme was designed that on a probabilistic risk analysis basis provided attractive net present value and rates of return. Costs were halved by utilizing three concepts; slim-hole, a built-for-purpose rig and truly integrated contractor services, using Schlumberger's new 'Bima', a highly-automated, self-propelled, self-elevating vessel designed for efficient moving, pre-loading, rig up/down operations. Economics were further improved by integrating with innovative production technological advances such as 'Guardian' monopod caissons. Close co-operation with Pertamina, in terms of 'streamlining' the approval process and allowing marginal field incentives on a case-by-case basis, was a key element to the success of the project.

To end 1999, seven exploration wells (and 13 development/delineation wells) had been drilled, in record time and with extremely reduced costs. In addition the performance exceeded predicted limitations on depth and other factors. Three of the exploration wells have so far encountered significant oil pay. If these prove commercial, the programme may be extended to larger-reserve, riskier ventures in the new Millennium.