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Managing the probability of making at least one discovery

This paper presents an exploration portfolio management tool that ChevronTexaco is using in the Gulf of Mexico Shelf Business Unit to maximize, or optimize, the probability of having at least one discovery within an investment or budget period. The method presented is applicable whenever the sum of the drill costs of all the good opportunities within a portfolio exceeds the available investment dollars. The tool provides a way to select a group of wells to drill from a larger portfolio such that the selected group will deliver a calculated probability that at least one of the wells will be a success. The technique is based on simple calculations for cumulative probability of success (CPOS), and incorporates individual well costs, geologic risk, and the total well budget for the investment period.

For attractive higher cost or higher risk wells, where partnering is desired, the tool can be used to help determine an acceptable level of participation in the initial exploratory well. CPOS calculations also can be used to determine how many wells to drill before abandoning a new play – to ensure that the play has been adequately tested. CPOS calculations can be used to help determine how much budget money should be requested at business planning time – to ensure that a team is adequately funded for success.

For teams with goals that require making more than one discovery during an investment period, the same CPOS analysis can be expanded to determine the probability of making multiple successes.