

Saudi Aramco Explorer: A Solution to Guide Exploration Strategy and Optimize the Exploration Business Process

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ABSTRACT

Given the massive expansion in exploration drilling over the last decade, Saudi Aramco developed the Explorer application to optimize this business process and assist in decision making. Explorer provides support for both portfolio management (pre-drilling and post-drilling) and operational management.

In terms of portfolio management, Explorer provides an integrated view of the structured, unstructured and spatial data related to prospects and leads assembled from heterogeneous repositories. It includes a comprehensive set of attributes that span location, risks, reservoir, closure, seal, charges, fluids and other geological attributes. To support uncertainty, these attributes are represented using different statistical distributions such as triangular and lognormal. A Monte Carlo simulator ensures risk and uncertainty are included in volumetric computations and not afterthoughts. Once a prospect is drilled the post-drilling information contributes not only to the prospect but also to dependent prospects when relevant. Two analyses are provided to help visualize these assets: Quantitative Analysis and Spatial Analysis. The Quantitative Analysis provides a powerful dashboard to analyze different aspects of the portfolio and to view key performance indicators (KPI). The Spatial Analysis combines both mapping and spatial techniques to discover trends and identify strengths and weaknesses within the prospects portfolio.

During operations, Explorer bridges the gap between Exploration and its partners by providing consistent, relevant data available to all parties. Using integration, explorationists can schedule rigs and monitor the status of all pre- drilling tasks from staking to site preparation and water wells readiness. Electronic approvals are implemented to ensure timely actions of various tasks.