Cube Development in the Uinta Basin, Utah, Part II: Delineating Reservoir Spacing

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Abstract

The Uinta Basin, a prolific hydrocarbon province in northeastern Utah, has witnessed a resurgence of exploration and development activities, particularly in the Lower Green River and Wasatch Formations. As operators strive to maximize resource recovery, the implementation of multi-bench cube developments with numerous stacked horizontal wells has gained traction. However, determining the optimal well spacing within these cube developments remains a critical challenge, necessitating a comprehensive approach to reservoir description that integrates geologic characterization, offset well performance analysis, reservoir modeling, well interference testing and iterative implementation of development concepts. This study presents a robust workflow for identifying optimal well spacing by coupling high-resolution geologic characterization with multi-well production and pressure decline analyses. This workflow culminates in the identification of optimal well spacing configurations that strike a balance between maximizing resource recovery and minimizing well interference effects. The proposed workflow has been successfully implemented by XCL Resources in multiple cube developments within the Uinta Basin, yielding significant improvements in well performance and resource recovery. By integrating geologic characterization and offset well performance metrics, operators can make informed decisions regarding well spacing, ultimately enhancing the economic viability and sustainability of their cube development projects.