Altamont Field, Northern Uinta Basin: Development Operations and Regional Correlation of the Wasatch and Green River Formations

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The 500 mi² Altamont-Bluebell-Cedar Rim field in the northern Uinta Basin has produced over 308 MMBO and 518 BCFG (394 MMBOE or 2.4 TCFE) from the Tertiary Wasatch and Green River formations. To date the field is developed on 320 acre spacing, though recent down spacing provides the opportunity for four wells per section. Infill wells and recompletions have good EUR potential, however challenges include: 1) reservoir complexity; 2) high drilling, completion and lifting costs; 3) complex field history/data and 4) the refining market. Drilling challenges include water flows (natural and disposal wells), abrasive lithologies and lost circulation related to closely spaced overpressured and depleted zones.

From north to south, stacked reservoirs pinch out structurally updip into offshore/open lacustrine mudstones, forming a major (3500') regressive-transgressive wedge. This configuration creates multiple opportunities for stratigraphic traps in the basin-centered, overpressured bottleneck accumulation. The best production occurs in the marginal lacustrine facies tract, which includes a high percentage of shoreface, distributary mouth bar, and deltaic sandstones and carbonates. These facies exhibit lower clay content, better sorting and greater continuity than deposits in the offshore facies tract to the south, and the alluvial/fluvial (red bed) facies to the north. Natural fractures, related to hydrocarbon generation, are essential for enhancing production of the tight matrix (Wasatch, 3-8% porosity, <.01 md permeability; Green River, 7-10% porosity, 0.5-4 md permeability) and control production/depletion anomalies.

Quantitative log analysis is difficult due to thin bedding, mixed lithologies, low matrix porosity, variable water resistivities, wax and barite effects and fractures. Drilling and recompletion decisions are made largely based on offset production analogy using maps and cross sections to analyze perforation history and zonal production. Completion strategies include both multi-stage acid jobs and recent proppant fracs. A regional grid of cross sections illustrate stratigraphic and paleogeographic variations in the field and provide a framework for assessing hydrocarbon potential throughout the basin.