

REVITALIZATION OF WEST HIAWATHA FIELD

ROGER G. DICKINSON¹

ABSTRACT

West Hiawatha field is located in Moffat County, Colorado. The field was first drilled in the early 1930s and comprises 18 pay sands over a 3,500-ft interval. Production over this interval is from the Wasatch, Fort Union, Lance, Lewis, and Mesaverde horizons. The Wasatch and Fort Union horizons are composed of fluvial channel sand bodies ranging in thickness from 5 ft to 60 ft. The thicker sand channels have been mapped, and a general directional trend of the channels has been identified, along with an area where the channels are concentrated.

The shallow Wasatch and Fort Union sands were traditionally completed with hydraulic fracture treatments designed to intersect multiple pay sands in a single stage. Thin sands were often ignored because of the economic limitations of isolating small intervals. Recent completions have utilized coiled tubing as the fracturing conduit, which allowed individual sands to be fracture stimulated. As many as 14 coiled tubing-conveyed stages have been placed per wellbore, with individual stages placing from 20,000 to 55,000 pounds of proppant using a guar-based nitrogen foam fracturing fluid. With the improved clean-up and enhanced efficiency, wells have been brought on production four to six days earlier than when using the traditional method of completion. Results obtained by selectively fracturing all pay sands confirmed a significant variation of the fracture gradient in each interval. The variation in fracture gradient proved the ineffectiveness of stimulating multiple zones in one treatment. Production rates from these new completions are 75% above historical rates and have significantly increased the return on capital. The total field production is at the highest level in the field's 70-year history.

¹ Texaco North America Production
Denver, CO