

## **Economic Analysis of Gas Production from the Silurian “Clinton” Formation in Ohio**

Martin R. Shumway, Pete MacKenzie

MacKenzie Land & Exploration, Ltd., Worthington, OH 43085, marty@mackex.com

Natural gas production data from over 10,000 wells completed in the Clinton formation in Ohio were used to develop composite decline curves for townships with cumulative gas production accounting for over 90% of total production. Townships were screened for sufficient quantity and quality of production and 168 townships were selected for analysis. Composite production decline curves were determined for each quartile of wells in each township and for the state as a whole.

Decline curves for each quartile of wells were used to perform economic analysis for each township incorporating estimated lease and drilling costs for gas prices between \$4-8 per mcf. Townships were ranked based on several economic metrics including; internal rate of return, present value, return on investment, payout time, and discounted profit to investment ratio.

For the state as a whole, the composite well for the 2<sup>nd</sup> quartile had an estimated ultimate recovery of 85 mmcf, 10-year cumulative production of 64 mmcf, and first year production of 19 mmcf. The composite well for the 3<sup>rd</sup> quartile had an estimated ultimate recovery of 175 mmcf, 10-year cumulative production of 115 mmcf, and first year production of 34 mmcf.

This analysis, combined with sound geology and a competent drilling and completion program, is a tool designed to identify areas within the state to initiate Clinton lease and drilling programs that will maximize the probability for high returns. The results identify townships with the potential to generate acceptable returns, even with gas prices as low as \$4 per mcf.