

## **Reservoir Definition of the Northern Portion of Albion Scipio Field, Michigan**

Murray M. Matson

West Bay Exploration Co., Senior Geologist, Traverse City, Mi 49684 murray@wbeco.net

Recent drilling and evaluation of the Trenton- Black River Formation at the north end of the Albion Scipio Field in Michigan has resulted in a 90% completion success. The drilling of over 30 well in the past two years and a detailed study of older wells in the Albion Scipio Field has defined an exploration model which explains reservoir characteristics such as shape, compartmentalization, and fluid flow. Strike slip faulting which produces a “Y” shaped reverse flower structure is key to reservoir development. Hydrothermal waters moving up from the basement through the fractures created by the strike slip faults dolomitize the regional Trenton-Black River limestone resulting in narrow linear reservoirs. The dynamics of the longer continuous underlying strike slip faulting migrating upward into a “Y” shaped narrow graben is fundamental in the formation of isolated compartments in the overlying Trenton Formation.

Albion Scipio Field has a dip of over 1000 feet from the north end of the reservoir in Lee Township, Calhoun County to the southern end in Adams Township, Hillsdale County. The twenty mile long portion of the field known as Albion Field is separated from the Scipio Field by the “Pulaski Break”. A study of Albion Field and information from recent drilling has defined a continuous reservoir in the Black River from the “Pulaski Break” to the southwest corner of Lee Township to the north. Due to regional dip only the southern updip portion of the Black River reservoir is oil filled, the rest being water filled. Strike slip fault mechanics and hydrothermal water flow has isolated the upper carbonate reservoir of the Trenton. The Trenton therefore overcomes regional dip and is oil productive. Production of oil in the Trenton is complicated by the highly vertically fractured, water filled Black River below. This has led to a variety of completion technique designed to minimize water coning. Those techniques include open hole completions, horizontal drilling, and dual water/oil tubing strings.