

The Ontario Phase of the Trenton-Black River Hydrothermal Dolomite Play: Historical Context and Contributions to a Modern Exploration Model

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The Trenton-Black River play started in 1884 when oil and gas was discovered near Findlay, Ohio, leading to the drilling of nearly 100,000 wells in the giant Lima-Indiana trend. Discovery of the Deerfield oil field in 1936 expanded the play to Michigan and eventual discovery of the giant Albion-Scipio field in 1957. The first modern discovery well in New York was drilled in 1986 but development did not begin until 1996. The play has now expanded throughout Appalachia. In Ontario key events were the discovery of the Dover gas pool in 1917 and the Hillman and Dover 7-5-VE pools in 1983. Ontario was the focus of the entire play in the 1980's and 1990's. During that time innovations in seismic interpretation, including the first 3D survey, and improvements of the geological model greatly improved exploration success rates, leading to 39 new field discoveries between 1982 and 2004. The first horizontal wells in the play were drilled in Ontario. Lessons learned in Ontario have been applied with great success in New York State by Fortuna Energy. Cumulative production from Trenton-Black River reservoirs in Ontario totals 22.5 million barrels of oil and 40 bcf of natural gas to the end of 2007. Proven recoverable reserves in individual pools range up to 6 million barrels of oil and 13.6 bcf of natural gas at an average depth of 825 metres. A 2005 assessment estimates that 85% of the natural gas and 43% of the oil resources in this play are still undiscovered.