

Evolution of Exploration, Drilling and Completion Concepts for Appalachian Basin's Trenton-Black River Play

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The hottest play in the Appalachian basin continues to be the deep Trenton-Black River play (Ordovician), a high-tech, high-risk play that began in New York in 1995 with the discovery of the Glodes Corners field. High initial potential tests, followed by high, sustained production, attracted national interest, even before the play was extended to West Virginia in 1999.

Early discoveries in New York were based on an exploration model developed by Richard Beardsley, the first recipient of AAPG's Outstanding Explorer Award. Beardsley chose the first locations based on seismic where he observed a basement fault beneath a sag on the top of the Trenton, which he interpreted as being due to a volume reduction in the Trenton as limestone was converted to hydrothermal dolomite (HTD) adjacent to fault zones.

PTTC became involved in the play soon after the discovery of the Cottentree field in West Virginia in 1999. Our first Trenton-Black River workshop focused on the more academic aspects of the play, the structural and stratigraphic settings, and depositional environments, complemented by drilling updates and some limited seismic data. However, at the end of the workshop, participants had an appreciation for the high-risk, high cost nature of the play, and a realization that basement-deep faults were necessary for the development of HTD reservoirs in both the Trenton Limestone and underlying Black River Formation.

As additional discoveries were made in New York and West Virginia, industry requested that PTTC take the lead in technology transfer regarding this play. Subsequently, we held a second workshop in May 2001, that forced us to turn away nearly 50 hopeful registrants.