

## **Characteristics of the Utica Black Shale in NY and PA: Black Shale Blanket or Complex Facies Mosaic?**

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Although the Late Ordovician Utica black shale appears to be a homogeneous unit in single outcrops and wells, local and regional variations controlled by both eustatic sea level change and fault block motion significantly influenced the local deposition. Therefore, it should not be surprising that TOC and other measures of importance for the gas industry vary across the region.

The Utica Shale is laterally equivalent to Black River and Trenton Groups within the northern Taconic Foreland Basin, but also oversteps them from east to west and invariably overlies them unconformably. Biostratigraphic and K-bentonite correlations demonstrate that this contact differs in age by the entire duration of the Trenton Group. Recent work in central and eastern NY State indicates that the overstep represents maximum flooding intervals in three depositional sequences. Dolgeville-like ribbon-limestone facies interfinger with the Utica within each of these overstepping sequences and east of Hoffmans Fault are isolated from the Trenton Group.

Regional structural control on accommodation space and organic productivity produced a discontinuous distribution of organic-rich condensed intervals within the basal Utica. These zones are locally bounded by faults or different lateral facies. Structural analysis indicate that the Utica experienced both compressional and extensional stresses contemporaneously with deposition. Anthraxolite coatings on fault surfaces and as fillings within calcite-lined voids within the Schenectady mudstones suggest that an early hydrocarbon charge entered the Utica prior to extensive compaction of these sediments, most likely along the same structures that affected deposition of the Utica mosaic.