

An in-depth Study of the Beaver Meadow and 74-NY-5 Cores from the Ordovician Utica and Devonian Marcellus Shales, New York State

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Detailed analysis of Utica and Marcellus cores in New York show that net pay that does not include interbedded limestones should probably be calculated for these shales. We are currently conducting analysis including TOC and carbonate content from core, well cuttings, and outcrops in the Devonian Marcellus and Ordovician Utica Shale across New York State. The focus is on the latest data from detailed core and outcrop analysis. The goal of the research is to characterize and identify zones that may have the greatest potential for production. This poster is focused on two cores that we have analyzed bed-by-bed for TOC and carbonate content.

The Marcellus Sub-group in the Beaver Meadows core consists of The Union Springs Formation, which is a black shale with interbedded limestones and carbonate nodules, the Cherry Valley Limestone and the Oatka Creek Shale which has few limestone beds and is generally more clay and silica rich. The Marcellus grades up into gray shale above and also gets less organic-rich in the far eastern part of the basin. The organic-rich section that is considered the play ranges from a few feet in the far western part of the state to more than 300 feet thick in the southeastern part of the state. TOC values are highest in the Union Springs black shale (commonly as high as 10-12%), but are very low in the interbedded limestone beds and nodules (<1%). The Cherry valley limestone has very low TOC values of less than 1% despite having a dark color. The Oatka Creek black shale is relatively high in TOC at the base (up to 5% TOC) but progressively lower up section.

The Utica Shale in the 74-NY5 core from near the outcrop belt in the Mohawk Valley consists of Flat Creek Shale, which is an organic- and carbonate rich interval that is time-equivalent to the Trenton Limestone, the Dolgeville Formation which is an interbedded limestone and black shale until that is also equivalent to the Trenton and the Indian Castle Shale, which is carbonate rich at the base and clay-rich at the top that may be time-equivalent to uppermost Trenton or postdate it completely. There is more than 500 feet of strata with TOC greater than 1% in these formations. The highest values are in the lowermost Flat Creek shale and in the Indian Castle. Limestone interbeds generally have very low TOC of <1%.