



Marcellus Shale in West Virginia

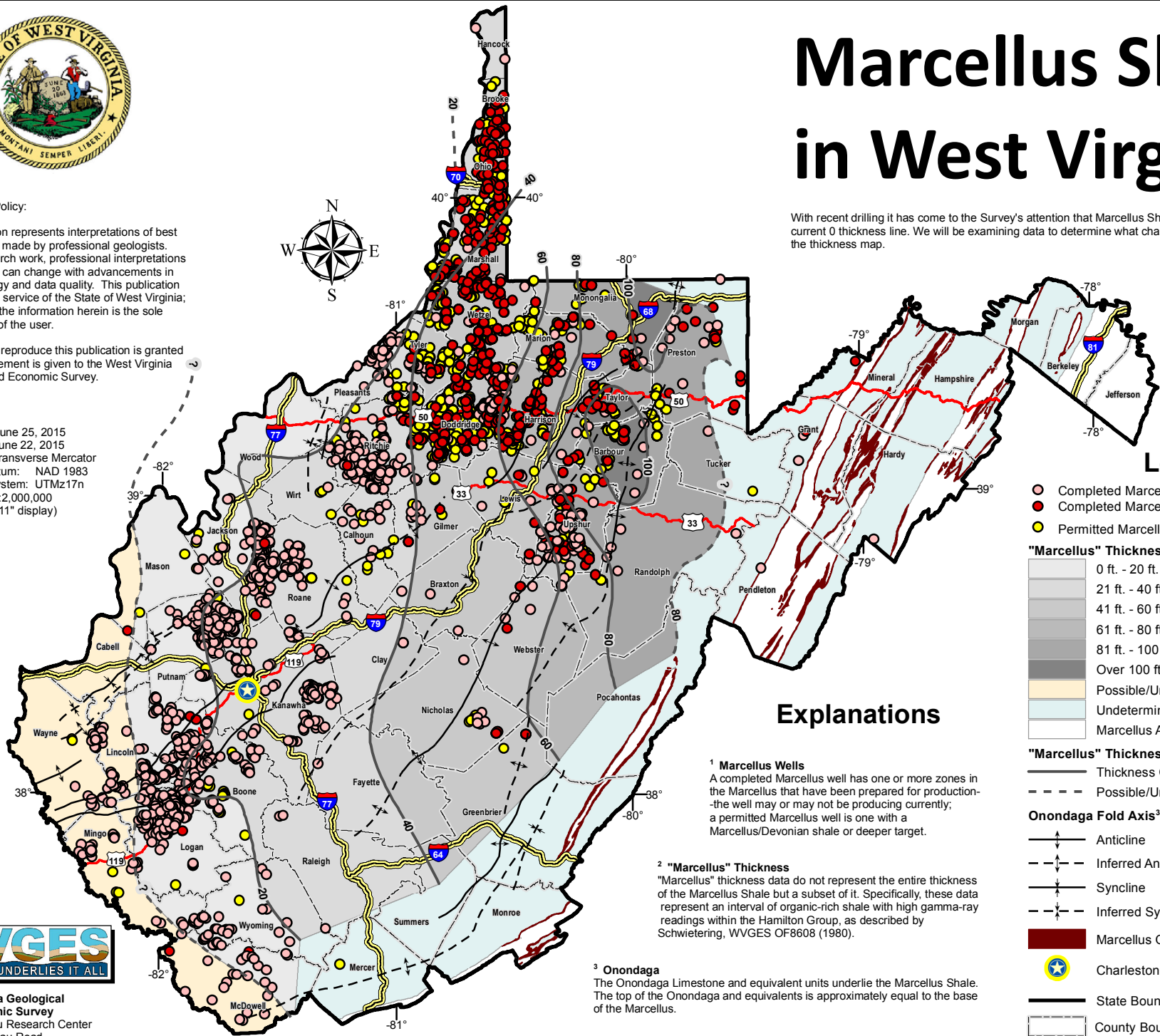
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Map Date: June 25, 2015
 Data Date: June 22, 2015
 Projection: Transverse Mercator
 Horizontal Datum: NAD 1983
 Coordinate System: UTMz17n
 Map Scale: 1:2,000,000
 (for full 8.5" x 11" display)

With recent drilling it has come to the Survey's attention that Marcellus Shale may exist west of the current 0 thickness line. We will be examining data to determine what changes may be needed to the thickness map.



Legend

- Completed Marcellus Vertical Wells¹
 - Completed Marcellus Deviated Wells¹
 - Permitted Marcellus Wells¹
- "Marcellus" Thickness (Isopach)²**
- 0 ft. - 20 ft.
 - 21 ft. - 40 ft.
 - 41 ft. - 60 ft.
 - 61 ft. - 80 ft.
 - 81 ft. - 100 ft.
 - Over 100 ft.
 - Possible/Uncertain Marcellus
 - Undetermined Thickness
 - Marcellus Assumed to be Absent
- "Marcellus" Thickness (Isopach) Contours²**
- Thickness Contour (20 ft.)
 - Possible/Uncertain Marcellus Shale Present
- Onondaga Fold Axis³**
- Anticline
 - Inferred Anticline
 - Syncline
 - Inferred Syncline
- Marcellus Outcrop
 - Charleston, WV
 - State Boundary
 - County Boundaries
 - Interstate Highways
 - U.S. Highways

Explanations

¹ Marcellus Wells
 A completed Marcellus well has one or more zones in the Marcellus that have been prepared for production - the well may or may not be producing currently; a permitted Marcellus well is one with a Marcellus/Devonian shale or deeper target.

² "Marcellus" Thickness
 "Marcellus" thickness data do not represent the entire thickness of the Marcellus Shale but a subset of it. Specifically, these data represent an interval of organic-rich shale with high gamma-ray readings within the Hamilton Group, as described by Schwietering, WVGS OF8608 (1980).

³ Onondaga
 The Onondaga Limestone and equivalent units underlie the Marcellus Shale. The top of the Onondaga and equivalents is approximately equal to the base of the Marcellus.



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