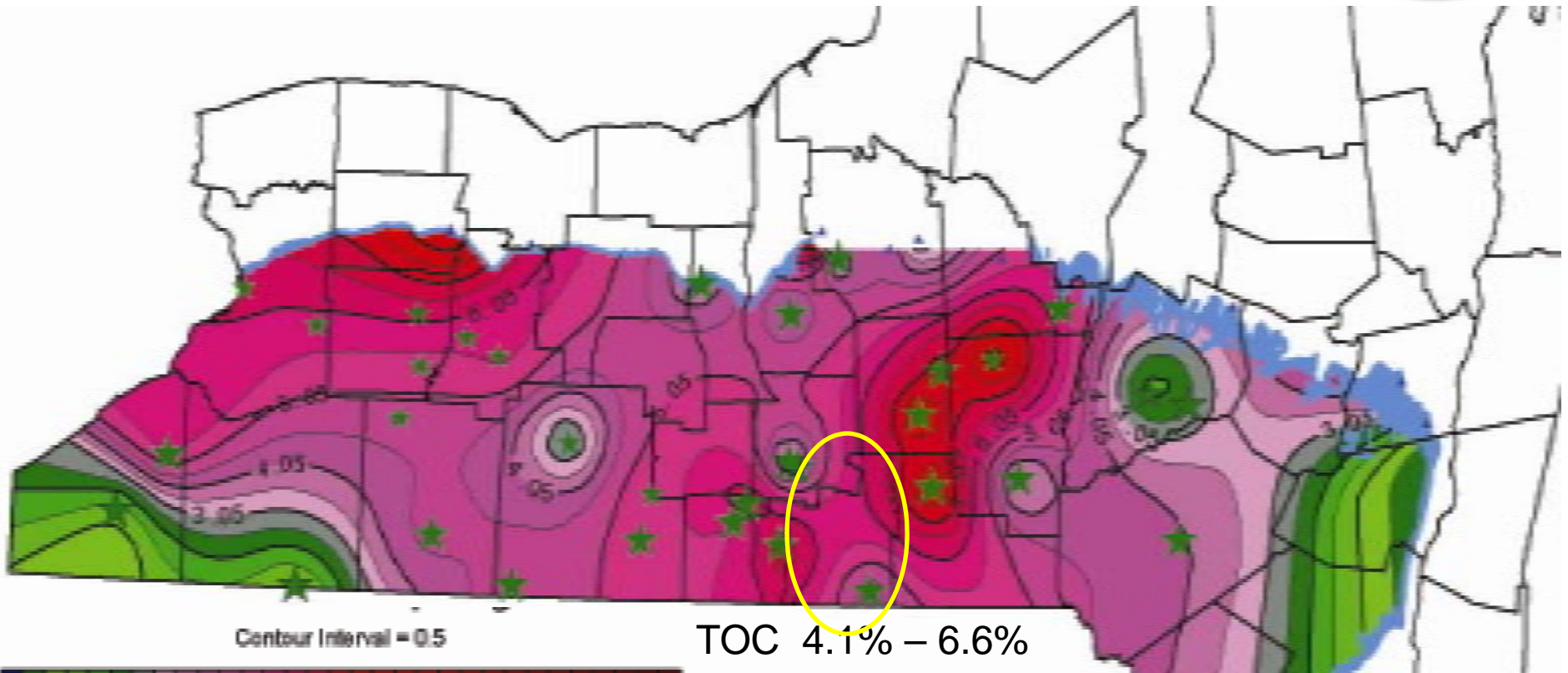


Marcellus Shale, Union Springs Member

TOC Map RCG

(R. Nyahay, J. Leone, L. Smith, J. Martin, D. Jarvie, 2007)

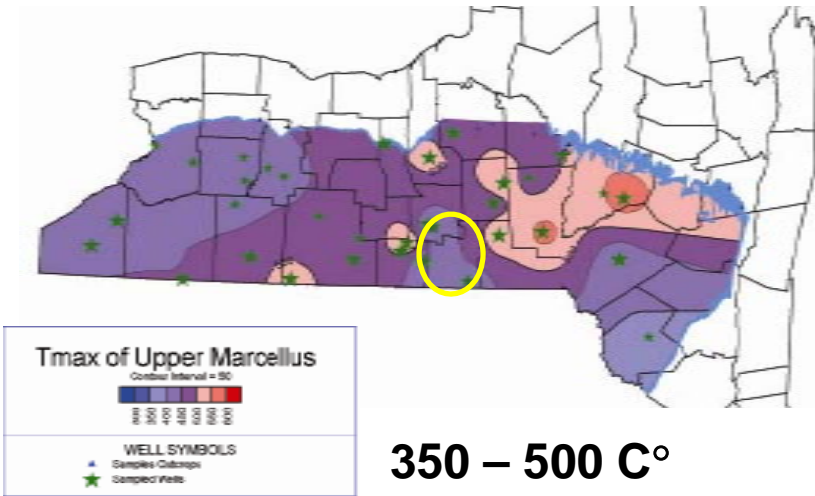


WELL SYMBOLS

- ▲ Sampled Outcrops
- ★ Sampled Wells

Tmax (C°) Marcellus

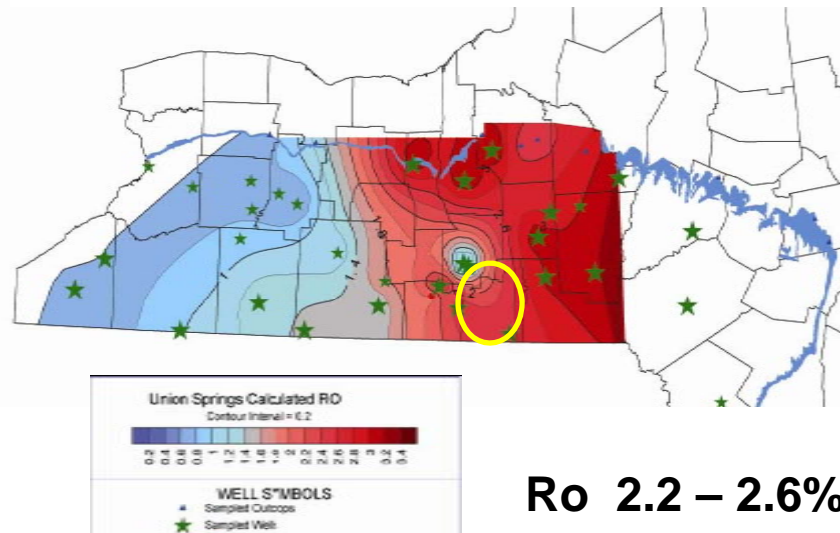
(R. Nyahay, J. Leone, L. Smith, J. Martin, D. Jarvie, 2007)



350 – 500 C°

Ro Marcellus

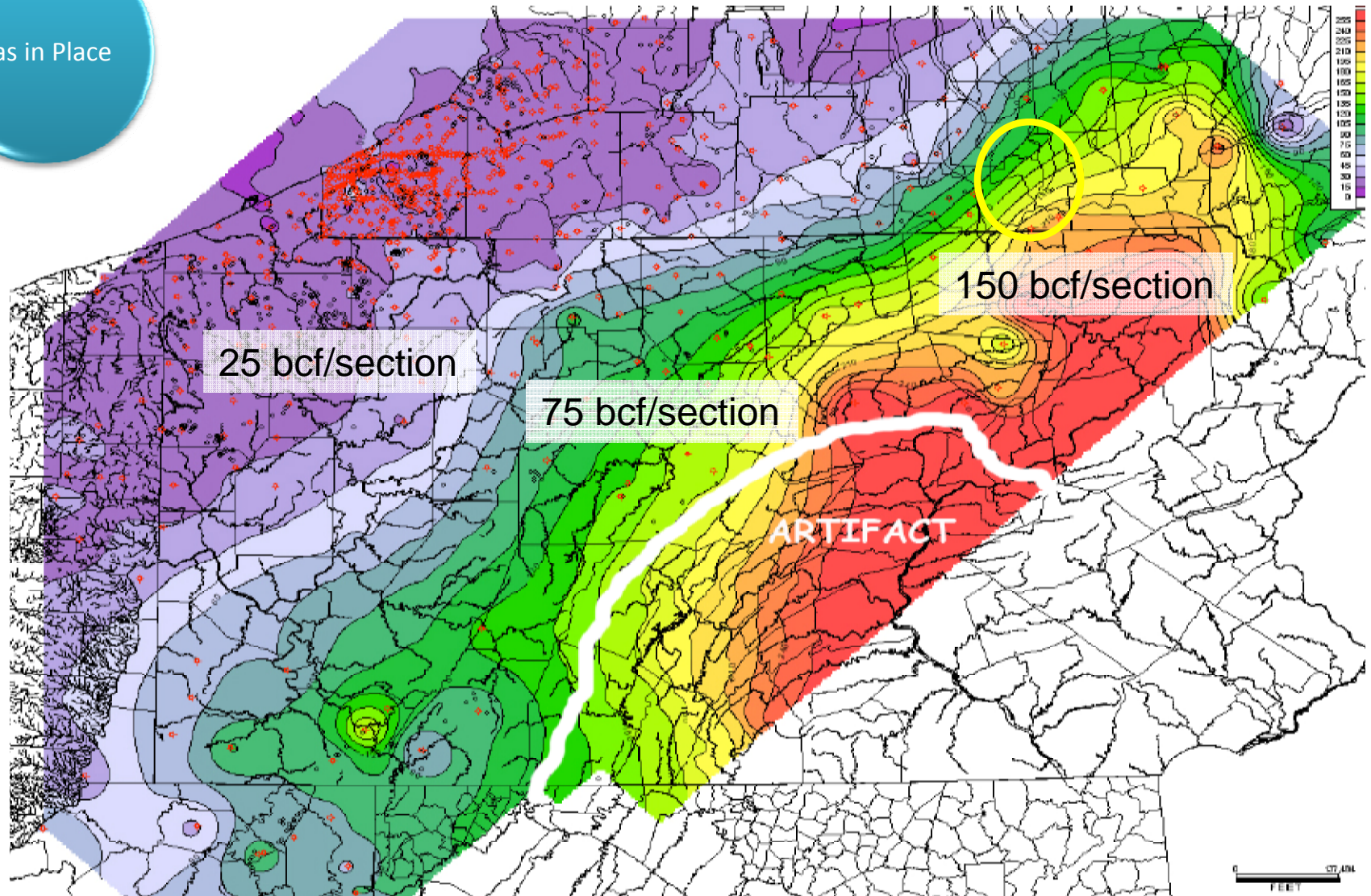
(R. Nyahay, J. Leone, L. Smith, J. Martin, D. Jarvie, 2007)



Ro 2.2 – 2.6%

Marcellus Shale Regional Isopach, Engelder PSU, 2009

Gas in Place



Legend

- Depth to the Top of the Marcellus Shale
- ▨ Marcellus Shale and Hamilton Group Outcrop
- Extent of the Marcellus Shale in New York

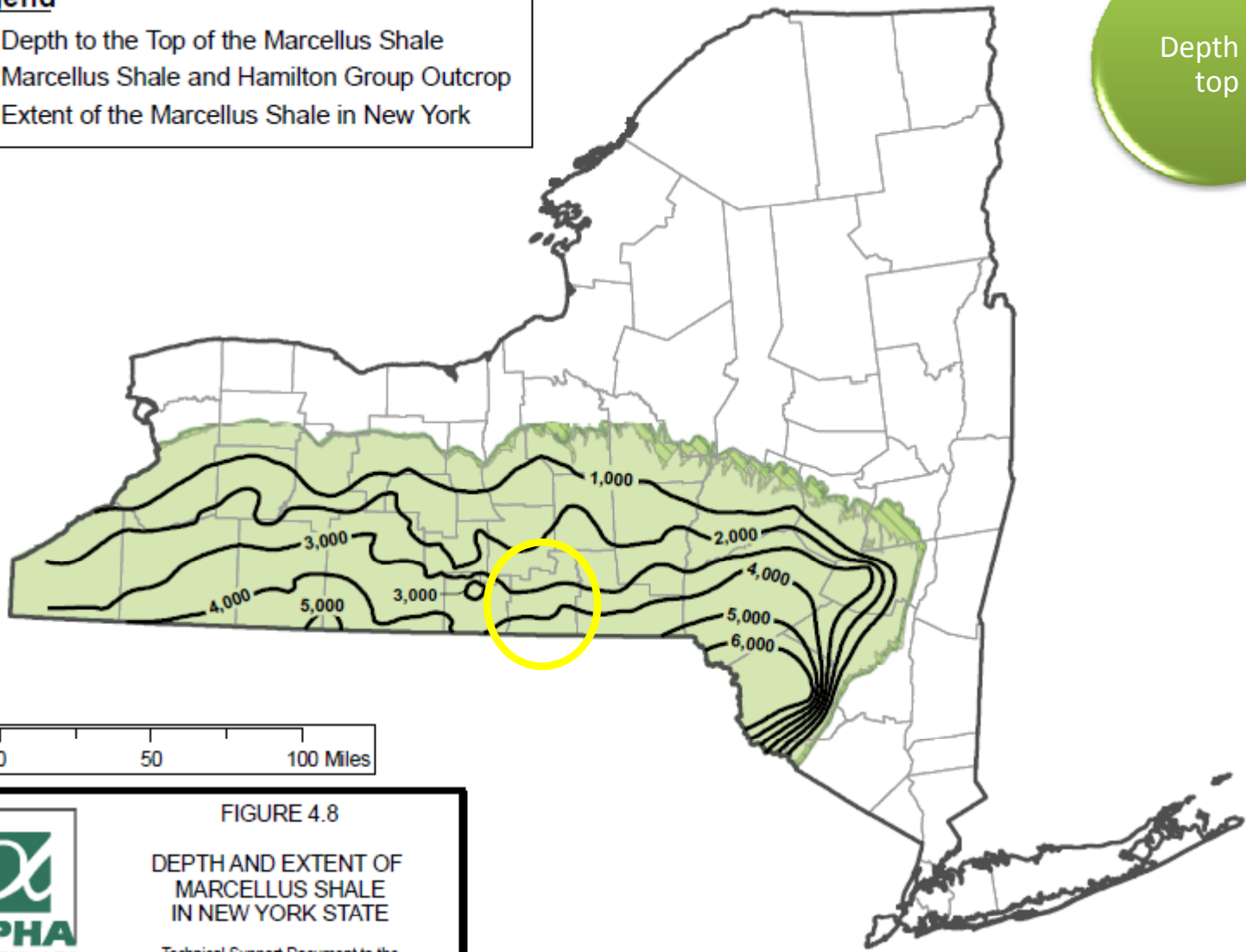


FIGURE 4.8

DEPTH AND EXTENT OF MARCELLUS SHALE IN NEW YORK STATE

Technical Support Document to the Draft Supplemental Generic Environmental Impact Statement

Source:
- New York State Museum - Reservoir Characterization Group (Leone, 2009).

Legend

- Thickness Organic-Rich Marcellus Shale (in feet)
- ▨ Marcellus Shale and Hamilton Group Outcrop
- ▨ Extent of the Marcellus Shale in New York

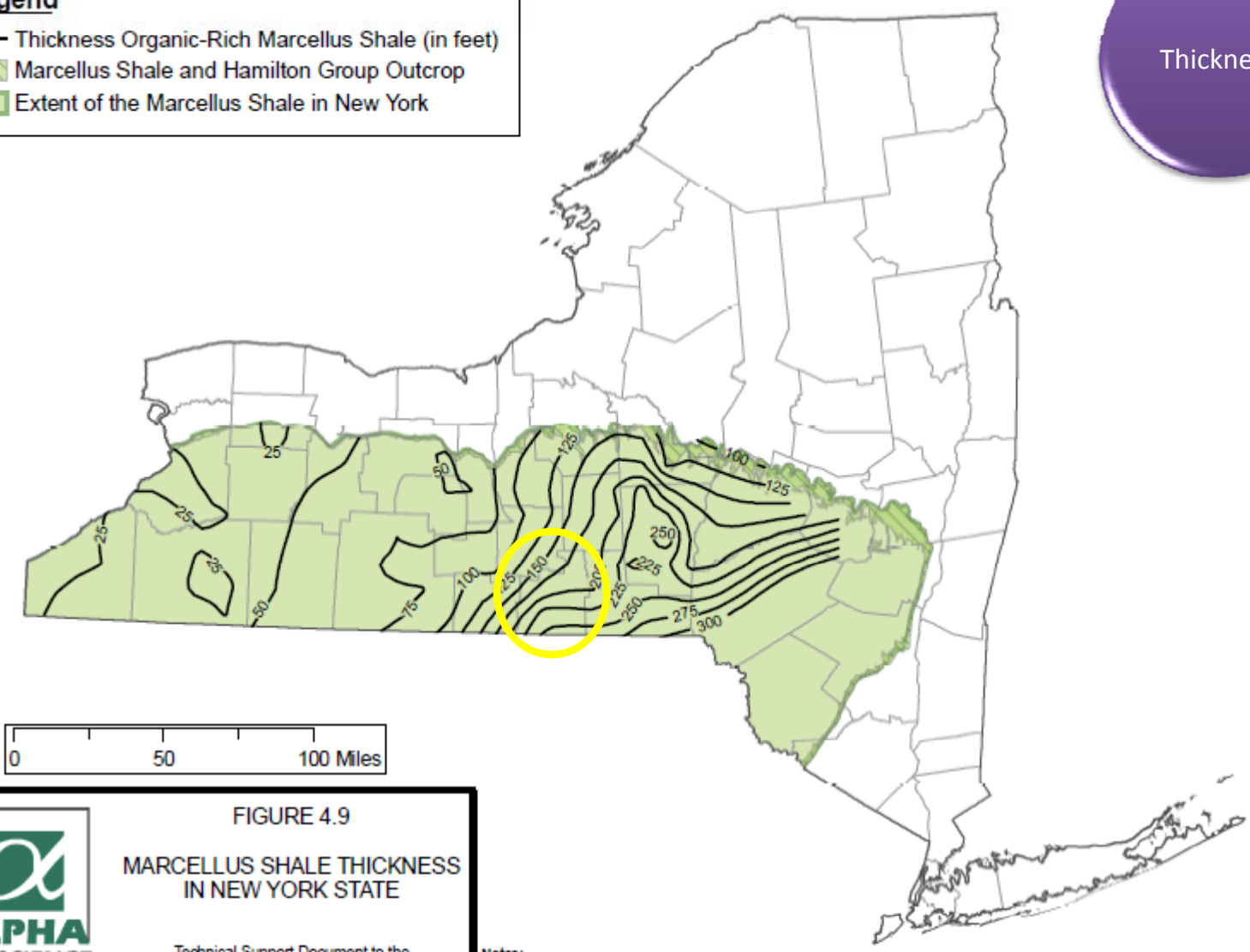


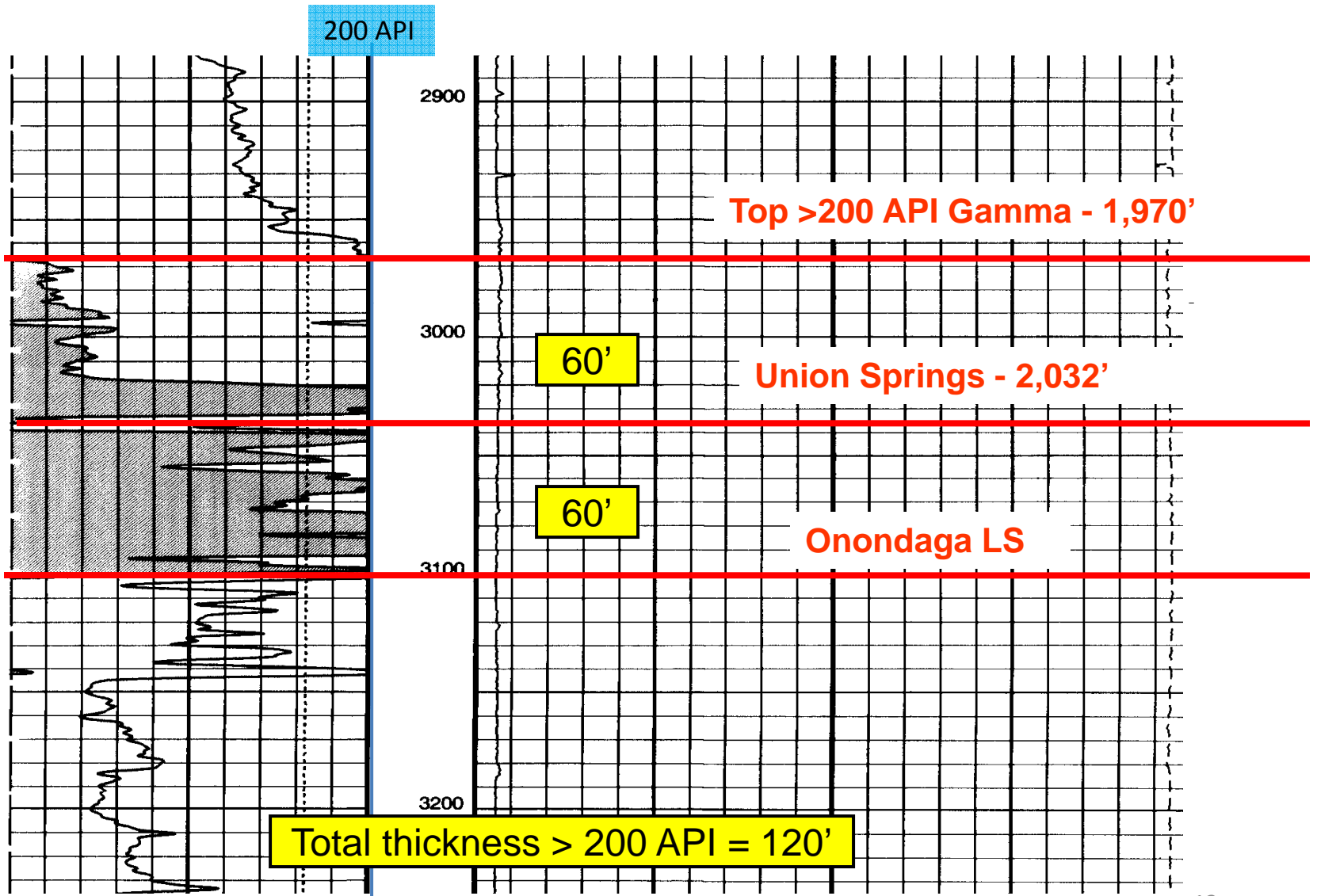
FIGURE 4.9
MARCELLUS SHALE THICKNESS
IN NEW YORK STATE

Technical Support Document to the
Draft Supplemental Generic
Environmental Impact Statement

Notes:
- Source: New York State Museum - Reservoir Characterization Group (Leone, 2009)
- Organic-rich Marcellus includes Union Springs and Oatka Creek Members and lateral equivalents.

Type Log

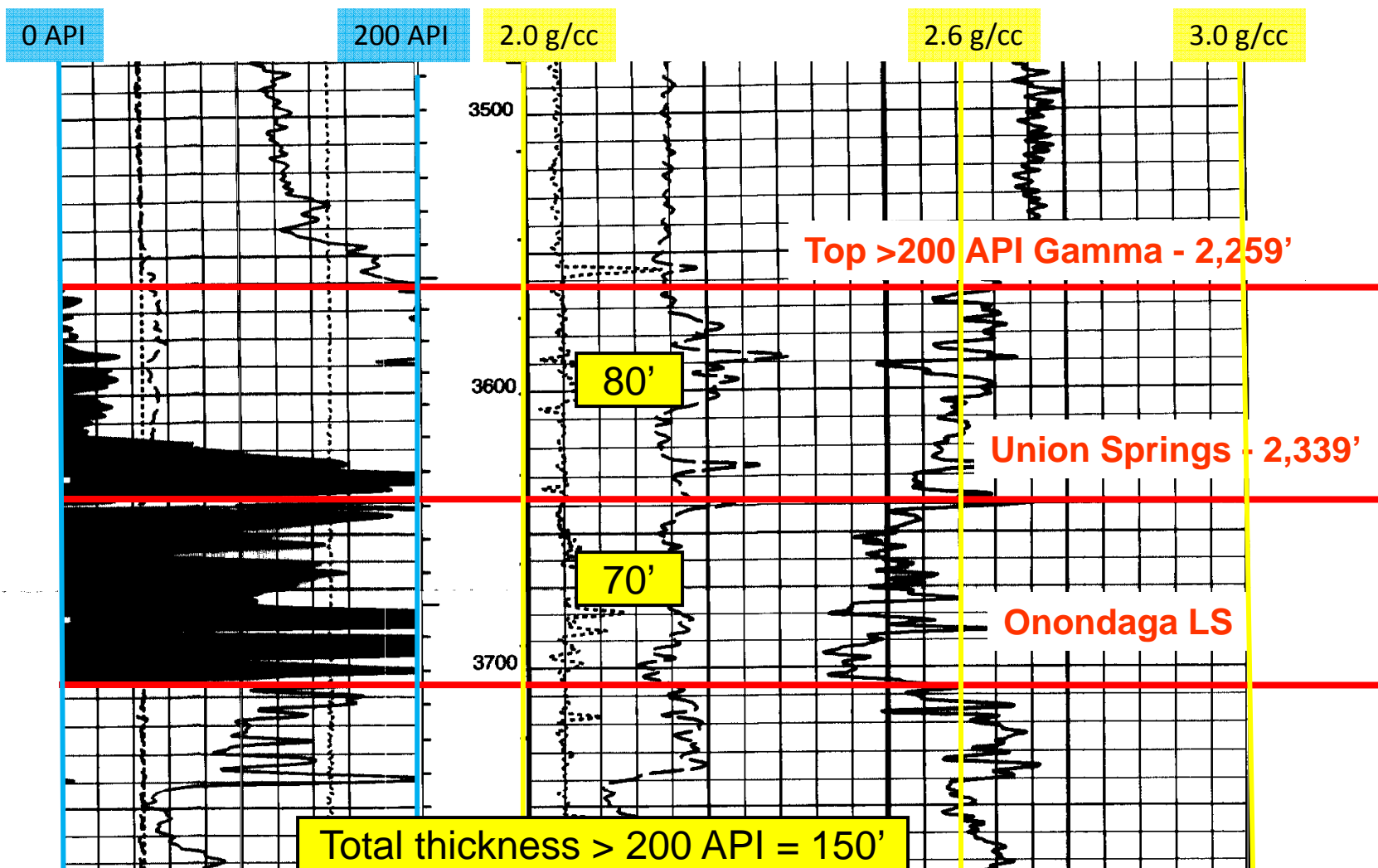
Janiak #1, 23880, TD=9,282', KB= 998',
Spencer twp., Tioga, NY



Type Log

Winter #G1, 23855, TD=9,807', KB= 1,301'

Spencer twp., Tioga, NY



Tioga Advantages

- Within Marcellus Shale Fairway.
- 107,000+ Acres.
- Top Marcellus (Gamma >200 API) at reasonable drilling depths (range from -2,000' to -3,400' subsea) .
- Thick (100' – 160') Marcellus shale (>200 API units) in central and southern Tioga.
- High Marcellus Shale Total Organic Carbon content 4.1 – 6.6% .
- Stacked Targets (Marcellus shale, Oriskany /Heldeberg Sandstone, Utica Shale, Trenton Black River hydrothermal dolomite, at reasonable drilling depths, high “up side”).
- Near Existing Fields and Discoveries.
- On Millennium Pipeline.
- Within dry gas window, little if any processing required, high BTU value.
- New York Pricing Premium (Averaged \$1.05 to NYMEX).
- Excellent Economics relative to other shale plays.
- Excellent Infrastructure.
- Abundant Water Resources.
- Rural area, sparsely populated, with pro-drilling landowners.
- Topography consists of gently rolling hills.