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Water and Air Quality Issues in Oil and Gas
Development: The Evolving Framework of
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Conference, June 5-6)

2014

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SLIDES: Experience on the Ground, Part Two: Water Use in the Marcellus

Susan Packard LeGros

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2014 MARTZ SUMMER CONFERENCE

Water Supply and Quality

“Experience on the Ground, Part Two: Water Use in the Marcellus.”

Susan Packard LeGros
President & Executive Director
June 5, 2014

ABOUT CSSD

...an unprecedented collaboration built on constructive engagement among environmental organizations, philanthropic foundations and energy companies from across the Appalachian Basin.



CSSD History

- Working group (2011)
- Promulgation of 15 Performance Standards (2013)
 - Air Emissions and Surface & Groundwater Protection
- Certification Program (2014)
 - Bureau Veritas North America Certification



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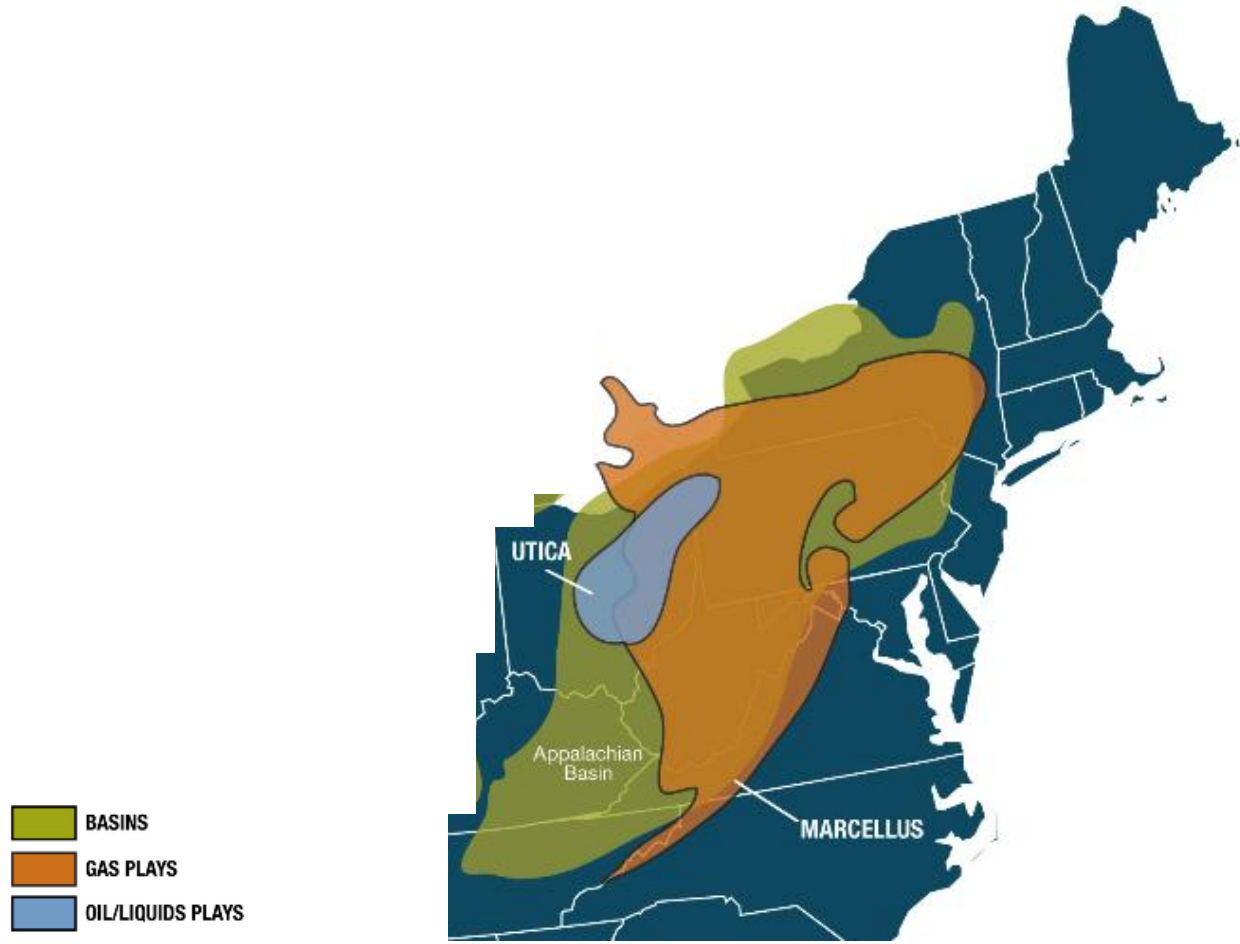
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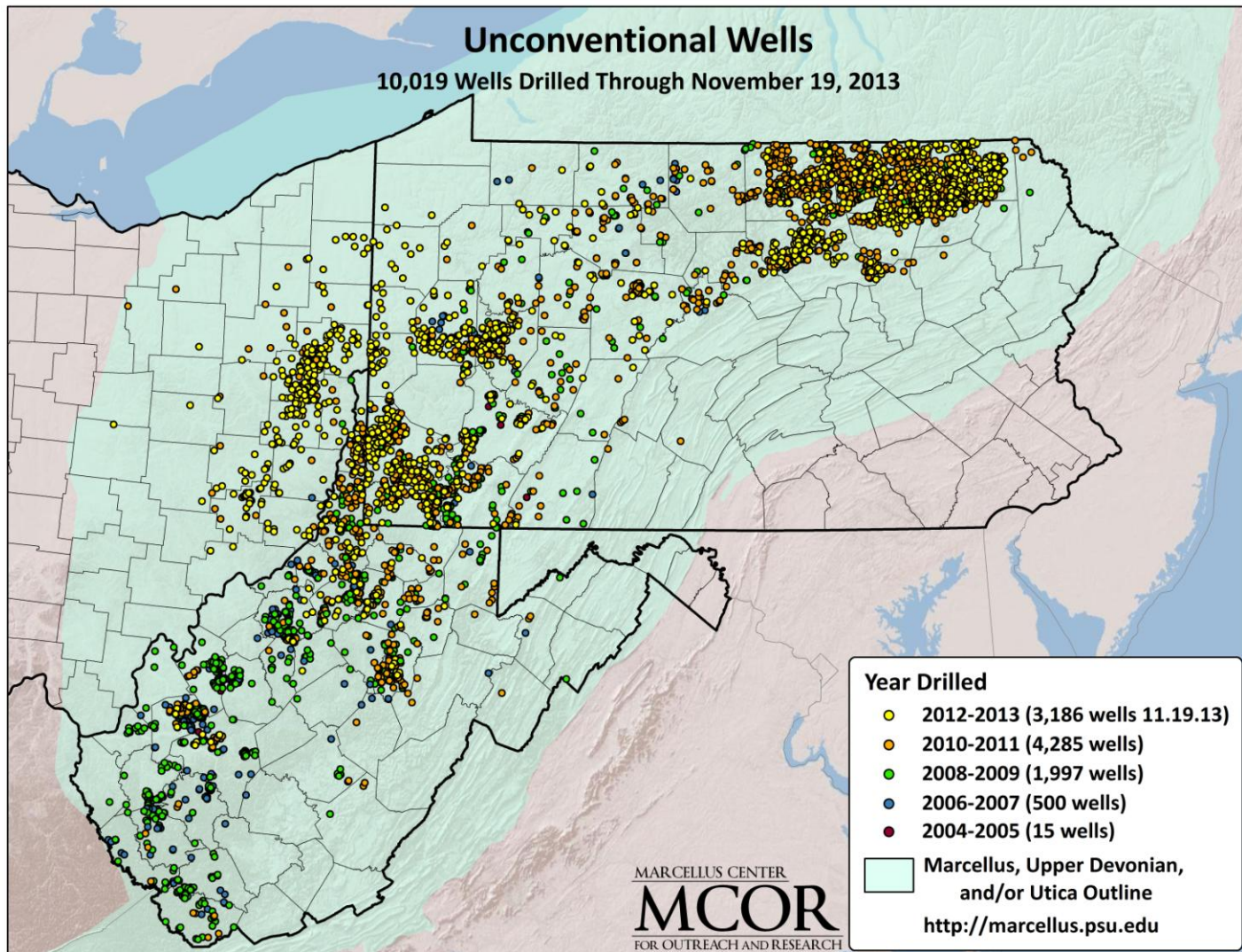
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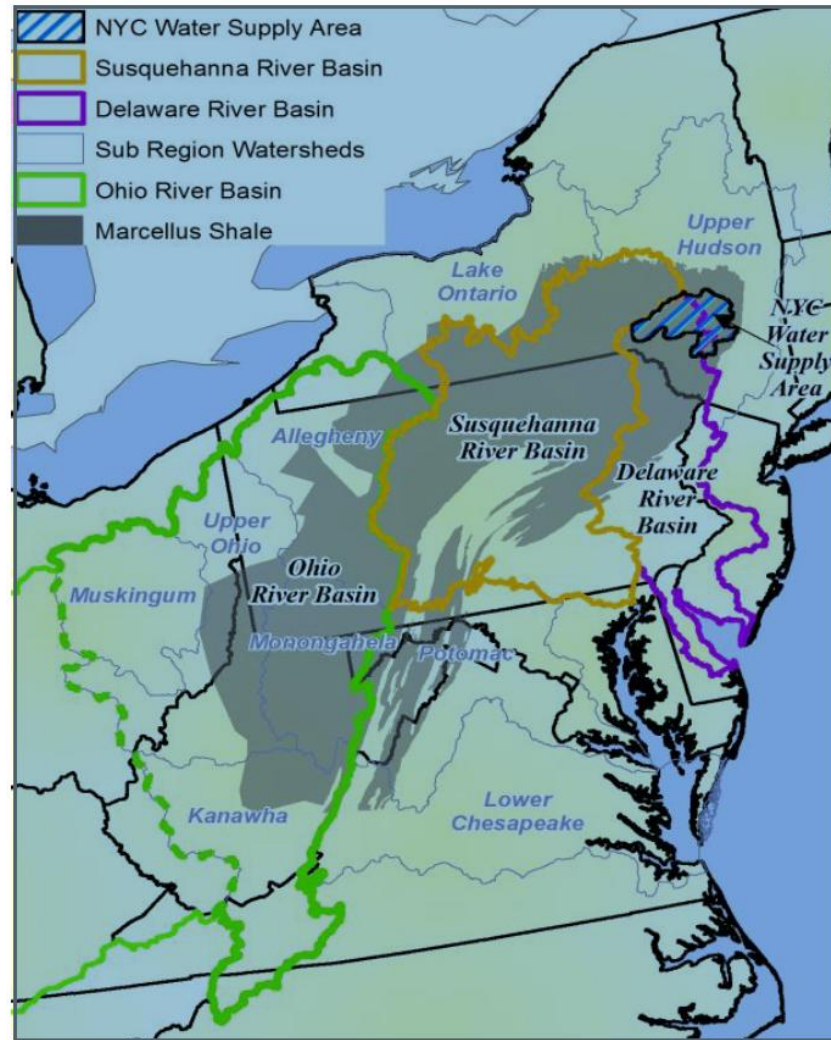
WATER RESOURCES IN THE MARCELLUS



Source: http://pacwestcp.com/wp-content/uploads/2013/02/PacWest_US-Lower-48-Key-Plays_Feb-2013.jpg



Source: <http://www.marcellus.psu.edu/resources/maps.php>



http://fracfocus.org/sites/default/files/publications/water_resources_and_use_for_hydraulic_fracturing_in_the_marcellus_shale_region.pdf

RIVER BASIN COMMISSIONS

Delaware River Basin Commission (DRBC)

- New York, Pennsylvania, Maryland, New Jersey, Delaware
- Covers 13,539 square miles
- DRBC Compact – November 1961
- Water supply for > 15 million people
- Marcellus underlies ~36%
- Has authority over water quantity and water quality issues
- Regulations drafted and proposed; postponed since 2011

Susquehanna River Basin Commission (SRBC)

- New York, Pennsylvania, Maryland
- Covers 27,510 square miles
- SRBC Compact – December 1970 – Agreement among states under consent of Congress
- Independent regulatory body
- Responsible for water quality and water supply



Ohio River Basin Commission (ORBC)

- New York, Pennsylvania, Maryland, Ohio, West Virginia, Kentucky, Illinois, Indiana, North Carolina, Tennessee and Virginia.
- Covers 203,000 square miles
- ORBC founded in 1971

PERFORMANCE STANDARDS

Groundwater Protection Standards

- Zero discharge of wastewater until adoption of a treatment standard.
- Wastewater recycling – > 90%.
- Closed loop containment of drilling fluids.
- Double-lined impoundments with leak detection.
- Pad specific Area of Review and risk analysis.
- Groundwater monitoring– pre and post operation.
- Casing and cement standards.
- Disclosure of well stimulation fluids.
- Well pad design –minimizing risk to water sources.
- Spill response and public notification plans.

What next?

- Net Water Producers
- Advanced Water Treatment
 - Evaporation
 - Distillation
 - Crystallization
 - Reverse Osmosis



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