



more *Insight.*

Shale Gas Operations

Regulatory Update in Key States & Preparing for Likely
by Christopher B. "Kip" Power, Mychal S. Schulz and Mar

Damage Claims
by Ann Poirier

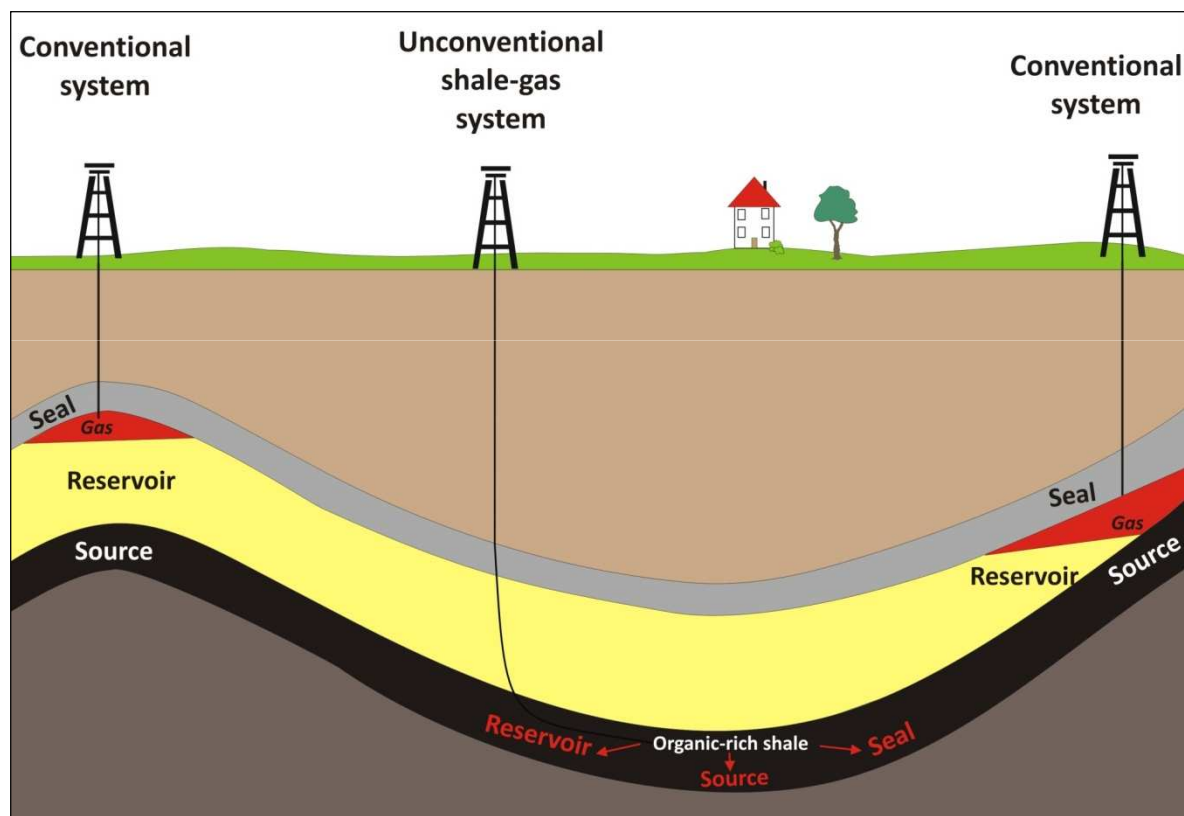
February 23, 2012

We will be covering:

- Well drilling, fracking and step to market
- Foreach of O Hand WV:
 - Well permitting process
 - Recent changes, open issues
- Potential litigation risks:
 - Likely issues
 - Strategies for abating risks

Drilling the Shale Resources

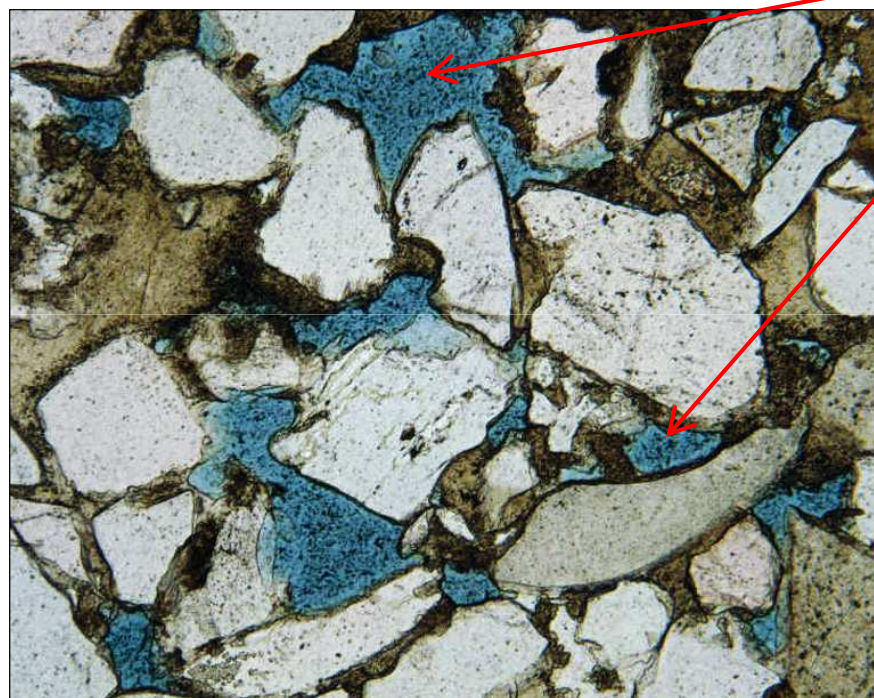
► First, what is shale?



From Kostelnick (2010), modified from Schmoker and Oscarson (1995).

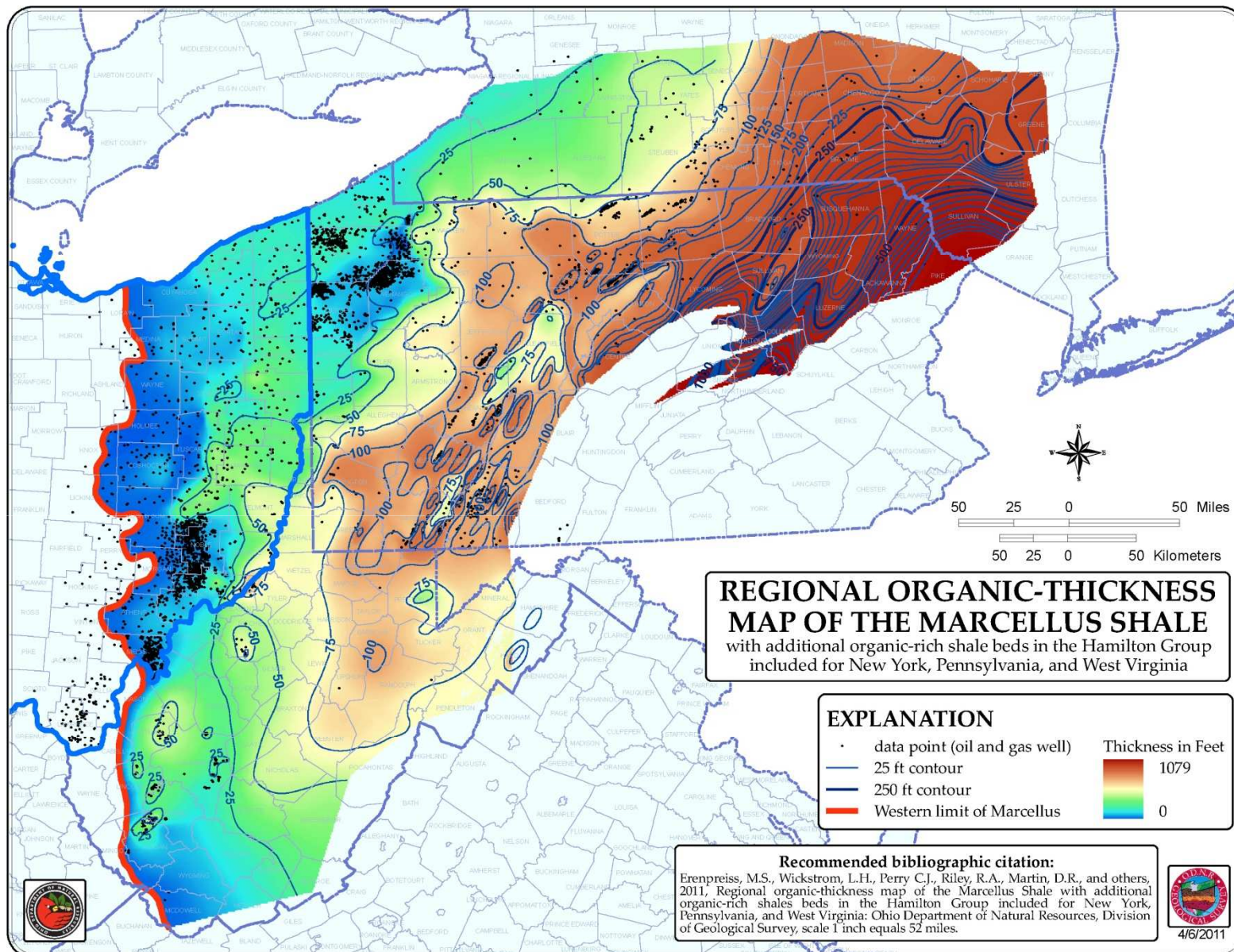
Drilling the Shale Resources

▶ Shale source, up close



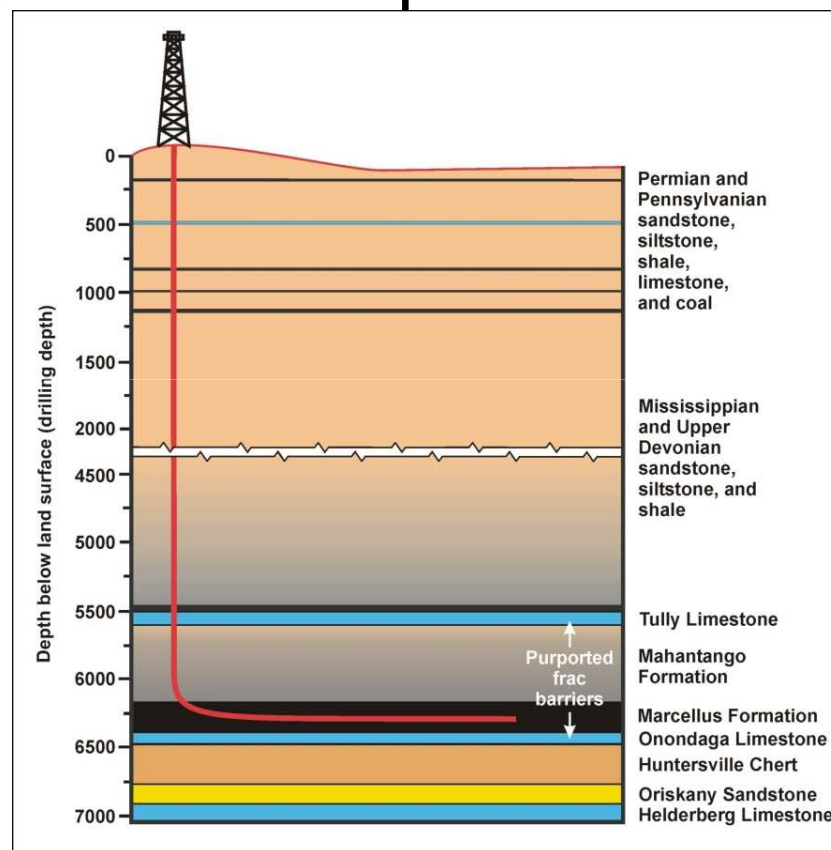
Pore spaces
colored blue

From Kostelnick (2010), modified by ODNR Geological Survey



Drilling the Shale Resources

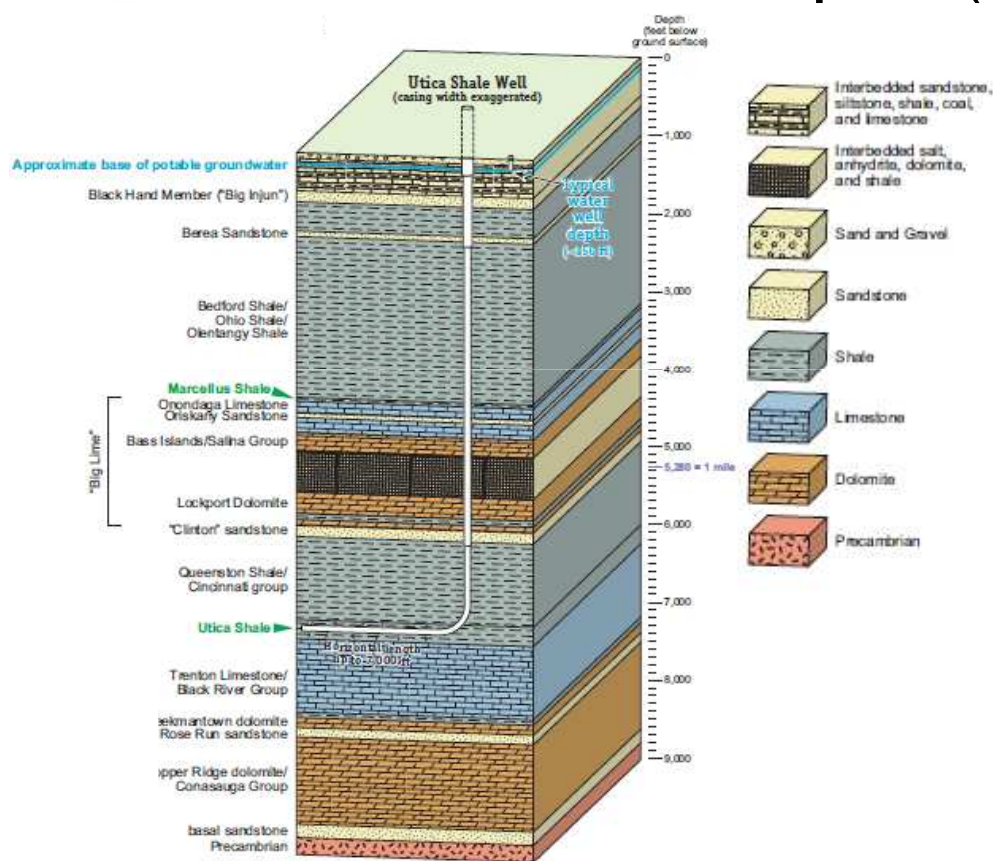
► Where is it, in terms of depth?



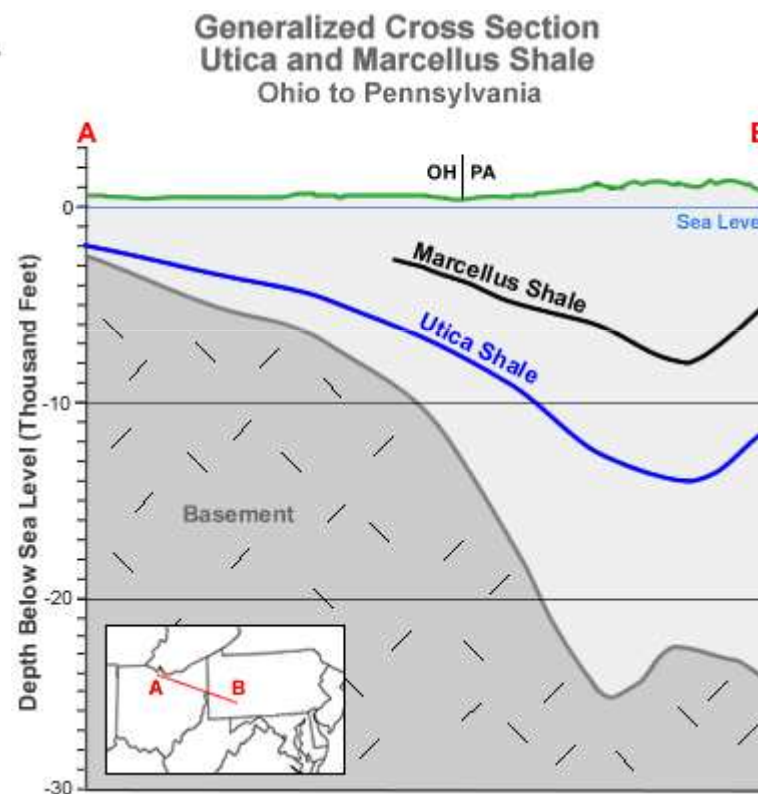
Graphic from Kostelnick (2010).

Drilling the Shale Resources

► Where is it, in terms of depth? (cont'd)



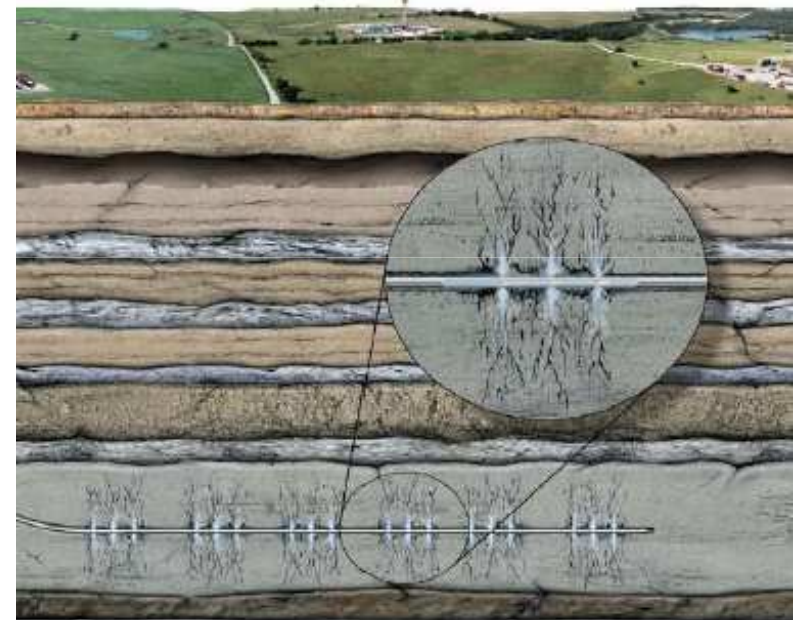
Graphic from Ohio Division of Geological Survey



Graphic from geology.com

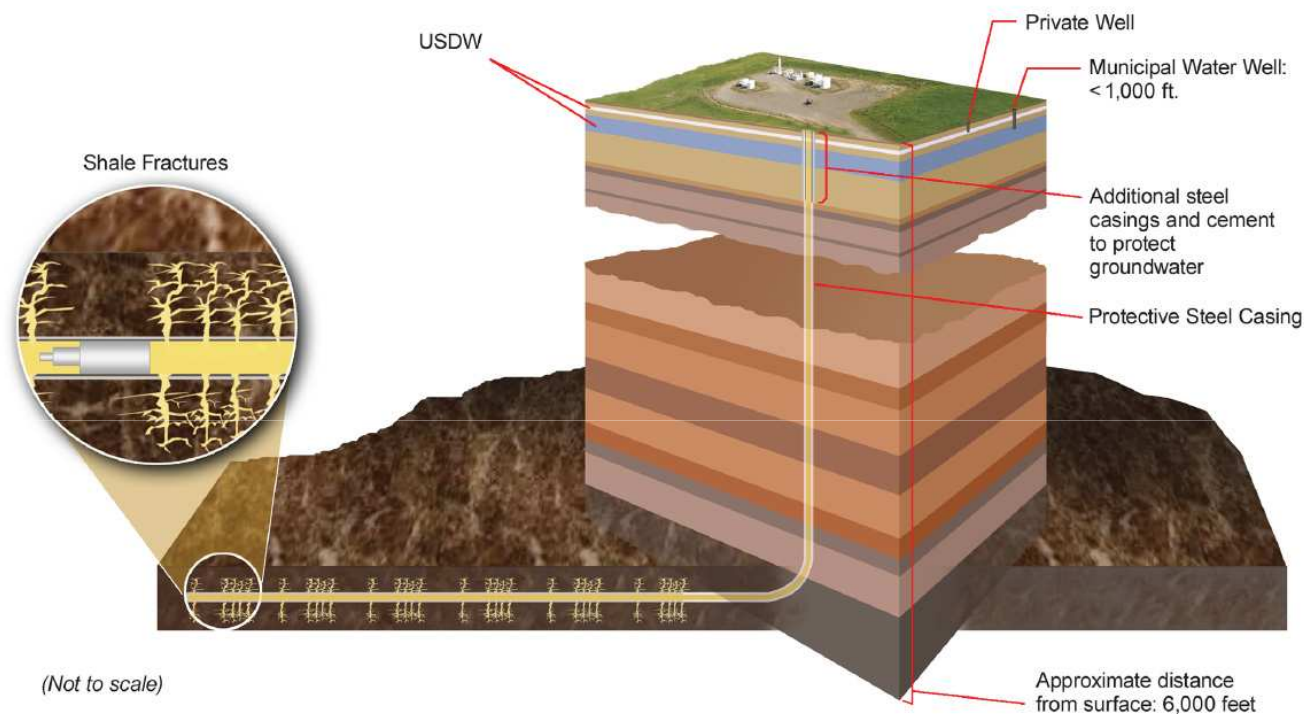
Drilling the Shale Resources

▶ Basic Process



Source:PIOGA.

Drilling the Shale Resources



(Not to scale)

Steel casing lines the well and is cemented in place to prevent any communication up the wellbore as the fracturing job is pumped or the well is produced. Shallow formations holding fresh water that may be useful for farming or public consumption are separated from the fractured shale by thousands of feet of rock.

Source: Shale Gas: Applying Technology to Solve America's Energy Challenges, "NETL, 2011 (as posted on www.fossil.energy.gov).

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Drilling the Shale Resources

▶ Estimating the Resources:

▶ Utica:

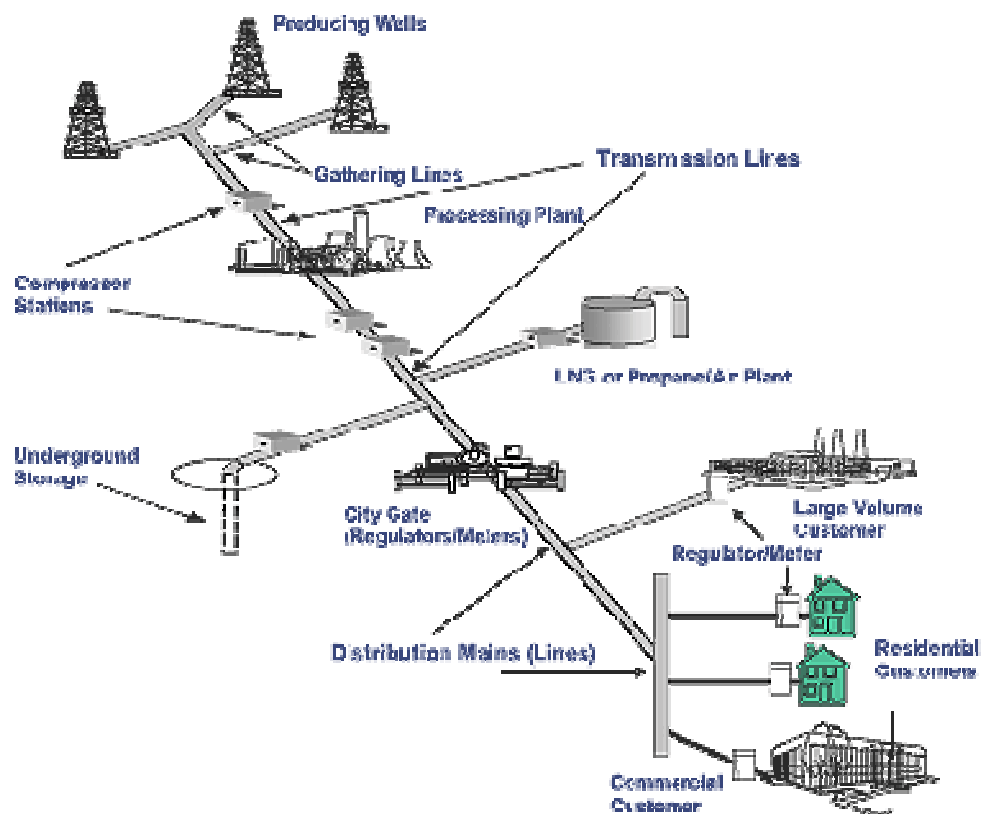
- ▶ ODNR Geological Survey: Estimates Utica/Point Pleasant to have 3.75-15.7 Tcf natural gas & 1.31-5.5 billion barrels of oil
- ▶ “1/3 the production of Alaska’s Prudhoe Bay”
- ▶ Chesapeake:
 - ▶ Aug. 1, 2011: Estimated it’s then-acreage of 1.25 million acres in the oil-rich portion of Utica formation to be worth \$15-20 billion
 - ▶ Sept. 21 -22, 2011 Kasich Energy Summit: Overall shale play could be worth \$500 billion. Aubrey McClendon: “I prefer to say half a trillion.”

▶ Marcellus:

- ▶ Estimated gross economic impact in W. Va. (2008) = \$371 million / 2,200 jobs (per U.S. DOE, NETL, March 31, 2010)
- ▶ Snapshot re Marcellus: Per EIA, PA increased its natural gas production from 288 Bcf in 2009 to ~1 Tcf by end 2011

Drilling the Shale Resources

► Steps beyond production



Source: www.epa.gov

Well Permitting– Ohio

- ▶ First things first: Secure real estate rights

- ▶ Key principle:

ODNR has “ sole and exclusive authority to regulate the permitting, location and spacing of oil and gas wells and production operations within the state ”
except “those activities regulated under federal laws.
..[and] delegated to the [OEPA] and activities regulated under 6111.02 to 6111.029 of the [ORC]..
.” (ORC 1509.02)

Well Permitting– Ohio

- ▶ Key legislative actions (ORC Chap. 1509)
 - ▶ Senate Bill 165 (effective June 30, 2010)
 - ▶ First comprehensive update to oil and gas laws in 25 years
 - ▶ Meant to address drilling in urban areas
 - ▶ Meant to be proactive as to hydraulic fracturing
 - ▶ House Bill 153 (effective September 30, 2011)
 - ▶ Budget bill
 - ▶ Expanded definition of “production operations”
 - ▶ Created new “Division of Oil and Gas Resources Management”
- ▶ *Note: Rulemaking ongoing*

Well Permitting– Ohio

- ▶ Production operations (ORC 1590.01 (AA)):
 - ▶ “Production operation” means all operations and activities and all related equipment, facilities, and other structures that maybe used in or associated with the exploration and production of oil, gas or other mineral resources that are regulated under this chapter, including operations and activities associated with site preparation, site construction, access road construction, well drilling, well completion, well stimulation, well site activities, reclamation and plugging
- ▶ Specifically includes:
 - ▶ Piping, equipment, facilities
 - ▶ Processes of extraction/recovery, lifting, stabilization, processing, storage, waste disposal...
 - ▶ Well drilling, stimulation and completion activities

Well Permitting– Ohio

- ▶ Well stimulation (ORC 1590.01 (Z))

“Well stimulation” or “stimulation of a well” means the process of enhancing well productivity, including **fracturing** operations

the
hydraulic

- ▶ Urbanized area (ORC 1509.01 (Y))

“Urbanized area” means an area where a well or production facilities of a well are located within a corporation or within a township that has **an unincorporated population of more than five thousand** in the most recent federal decennial census prior to the issuance of the permit for the well or production of

a municipal
and in
the
facilities

Well Permitting– Ohio

▶ ORC 1509.06– Permit applications

▶ Drill new or deeper; reopen; convert; plug

▶ Key requirements:

- Owner info
- Royalty interest owners
- Location/geological formation
- Drilling equipment
- Surveyor map
- Surety bond (1509.07)
- Liquids composition
- Access roads
- Restoration plan
- Urban area statement
- Fee

Well Permitting– Ohio

- ▶ ORC 1509.06 cont'd
 - ▶ Urban areas– notice to parcel owners within 500 feet
 - ▶ Permit processing:
 - ▶ Urban areas– permit issued within 18 to 30 days
 - ▶ Non-urban areas– permit issued within 10 to 21 days
 - ▶ Permit to be denied by order if “substantial risk that the operation...will present imminent danger to public health or safety or damage to the environment”
 - ▶ Urban permit lasts for 1 year, non-urban for 2 years
- ▶ ORC 1509.021– New well spacing requirements
 - ▶ Spacing in urban > spacing in non-urban
 - ▶ Generally 50 feet from water bodies, RR, roads

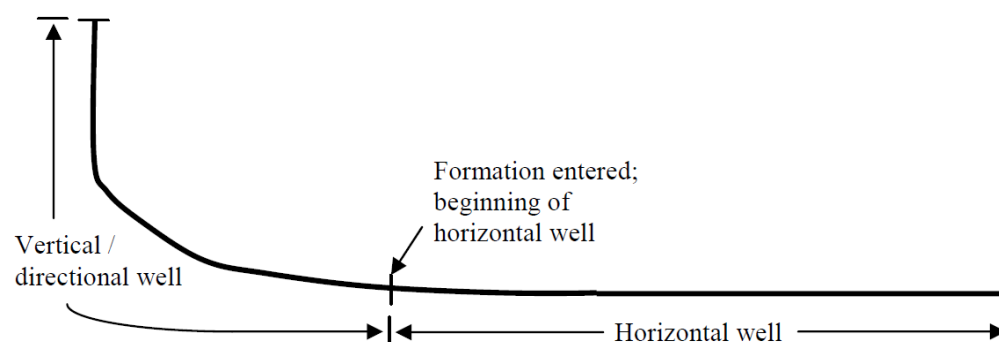
Well Permitting– Ohio

▶ Drilling unit (ORC 1509.01 (G))

“Drilling unit” means the minimum acreage on which one well may be drilled, but does not apply to a well for injecting gas into or removing gas from a gas storage reservoir.

▶ *But* ORC 1509.022...

[T]he surface location of a new well that will be drilled using directional drilling may be located on a parcel of land that is not in the drilling unit of the well.



Well Permitting– Ohio

- ▶ Drilling unit related to expected total well depth (OAC 1501:9-1-04)
 - ▶ If 2000-4000 ft depth:
 - ▶ 20 acres
 - ▶ 600 feet from another well producing from same formation
 - ▶ 300 feet from drilling unit line
 - ▶ If over 4000 ft depth (shale):
 - ▶ 40 acres
 - ▶ 1000 feet from another well producing from same formation
 - ▶ 500 feet from drilling unit line
 - ▶ *If doing a horizontal well bore, then would need 500 feet beyond the length of that horizontal bore*

Well Permitting– Ohio

▶ Mandatory Pooling (ORC 1509.27)

- ▶ Limit of 5 applications per year
- ▶ \$5,000 fee
- ▶ 90% agreement
- ▶ Requires 3 elements:
 1. Trace of land of insufficient size or shape
 2. Inability to form drilling unit under agreement on just and equitable basis
 3. Necessary to protect correlative rights and provide effective development, use and conservation of oil and gas
- ▶ Only acreage needed to meet minimum spacing and setback requirements must be mandatorily pooled

Well Permitting– Ohio

- ▶ Unitization (ORC 1509.28)
 - ▶ No limit per year
 - ▶ 65% under agreement
 - ▶ No limit to drilling unit size
 - ▶ Chief may issue an "order providing for unit operation of a pool or part thereof"
 - ▶ Burden to show unitization will substantially increase recovery and that the value of the increased recovery will exceed any costs associated with the unitization
 - ▶ Limited guidance; Chesapeake application pending

Well Permitting– Ohio

- ▶ Reporting, recording-keeping requirements
 - ▶ 24-hour notice to inspector prior to “commencement of drilling, reopening, converting, well stimulation, or plugback operations” (ORC 1509.06(J); 1509.19)
 - ▶ 24-hour notice to chief upon discovery of defective well casing
 - ▶ Immediately repair; correct construction inadequacies; or plug & abandon
 - ▶ File detailed log report within 60 days of well completion
 - ▶ Include all wireline electric logs; pressure, rate graphs
 - ▶ Frac/acid information
 - ▶ Invoices for all materials used
 - ▶ Cement tickets 60 days after completing cementing operations
 - ▶ DNR must maintain MSDS

Well Permitting– Ohio

- ▶ Beyond the ODNR permitting basics:
 - ▶ Water withdrawal (ORC 1521.16, 1501.32, 1501.33)
 - ▶ Registration or permit for withdrawal > 100,000 g/day, depending on whether from non-Lake Erie or Ohio River drainage basins
 - ▶ Permit if increased consumptive use from waters of state > 2,000,000 g/day avg. during 30-day period
 - ▶ Water disposal
 - ▶ Injection in UIC well preferred method (ORC 1509.22)
 - ▶ Primacy
 - ▶ 177 active Class II injection wells as of early January 2012
 - ▶ Wetland crossings, etc.
 - ▶ OEPAG General Air Permit finalized (for *production* phase)
 - ▶ Air concerns– pending U.S. EPA Oil and Gas NSPS/MAC Rulemaking proposal (finalized April 2012?)
 - ▶ Green completions
 - ▶ Advance notice of completions

Well Permitting– Ohio

- ▶ Beyond the ODNR permitting basics, cont'd:
 - ▶ June 2011: Ohio legislature approved drilling in State parklands
 - ▶ December 2011 (extending back to March): Injection into UIC wells blamed for earthquakes in vicinity of Youngstown, OH
 - ▶ January 2012: Kasich announcement to make changes in impact fees, severance taxes for deep shale operators

Well Permitting – West Virginia

- ▶ First things first: Secure real estate rights
 - ▶ Right to drill into Onondaga for completion
 - ▶ Right to pool with production from adjacent areas
 - ▶ Full right to use surface for production facilities, (ponds), pipelines, roads

Well Permitting– West Virginia

- ▶ “Natural Gas Horizontal Well Act”
(22-6A-1, *et seq.*)
 - ▶ Broad statement of purpose; to protect safety of persons, prevent damage to publicly owned land and resources, protect fresh water sources and “otherwise protect the environment”
 - ▶ Acknowledges that existing laws applicable to conventional gas operations do not adequately address new techniques
 - ▶ N/A to coal bed methane wells

Well Permitting– West Virginia

- ▶ Applies to any natural gas well that will use a horizontal drilling method and:
 - ▶ Will disturb 3 acres or more or use >210,000 gallons of water in a 30-day period; and
 - ▶ Was not permitted or the subject of an order regarding permit application filed prior to December 14, 2011
 - ▶ Does not affect surface owner– operator agreements entered into prior to effective date

Well Permitting– West Virginia

- ▶ New permit application fees:
 - ▶ \$10,000– for horizontal well at one surface location
 - ▶ \$5,000– each additional horizontal well–same pad

- ▶ “Permit-Blocking” (similar to mining statute)– if applicant has committed a “substantial violation” of previously-issued horizontal well permit or rules

- ▶ Suspension of permit if “substantial violation” occurs and operator fails to abate or seek review
 - ▶ Written findings
 - ▶ Appealable to circuit court under APA

Well Permitting – West Virginia

- ▶ Substantially expanded permit application requirements
 - ▶ Separate permit for each well (may be combined in one application)
 - ▶ Detailed casing program
 - ▶ Proof of compliance with surface and coal owner notification requirements prior to stimulation of horizontal well
 - ▶ Soil and Erosion Control Plan (if 3 acres or greater – RPE)
 - ▶ If 3 acres or greater: Site Construction Plan

Well Permitting– West Virginia

- ▶ Expanded permit requirements, cont'd:
 - ▶ Well Site Safety Plan
 - ▶ Actual well work, completion, and production phases
 - ▶ Emergency point of contact
 - ▶ Provided to Local Emergency Planning Committee
 - ▶ Withdrawing 210,000 gallons or more water in 30 days:
 - ▶ Water Management Plan
 - ▶ Individual well or watershed basis
 - ▶ Signs at withdrawal locations
 - ▶ Certification from Division of Highways that applies as an agreement with DOH re: use of local service roads

Well Permitting– West Virginia

- ▶ Water Management Plan
 - ▶ Type of water source, county and specific location
 - ▶ Expected volumes and timing of withdrawals
 - ▶ Management and disposition of all wastewater
 - ▶ Listing of anticipated additives to be used for fracturing, and upon completion, listing of additives that were actually used (filed with completion log)
 - ▶ Description of measures to be used to ensure that withdrawals leave adequate flow in streams, and minimize adverse impact to aquatic life

Well Permitting – West Virginia

- ▶ Expanded permit requirements, cont'd:
 - ▶ Reclamation:
 - ▶ Detailed requirements
 - ▶ Generally required 6 months after completion of drilling
 - ▶ Partial reclamation allowed for up to 24 months between drilling of wells where pad is designed to contain multiple horizontal wells, subject to 5 year reclamation deadline from completion of wellpad construction
 - ▶ Civil actions for contamination or disruption of drinking water wells; *rebuttable* presumption of causation if freshwater source or supply within 1500' of center of wellpad/mandatory pre-drilling surveys; water replacement regimes similar to mining statute
 - ▶ \$5,000 civil penalty for willful violation of the Act, rules, permit; \$100,000 for certain willful violations relating to wrongful disposal of fluids, drill cuttings, or other liquids

Well Permitting – West Virginia

- ▶ Expanded permit requirements, cont'd:
 - ▶ Compensation of Surface Owners for Drilling
 - ▶ Notice of intent to enter land for purpose of drilling and/or to conduct survey: 10 days before filing well permit application
 - ▶ No later than date application is filed: Notice of Horizontal Well drilling plans, including
 - ▶ Copy of statutory section
 - ▶ Copy of most of detailed info from application
 - ▶ Proposed Surface Use and Compensation Agreement
 - ▶ Note: separate Article 6B: “Oil and Gas Horizontal Well Production Damage Compensation” (applies to drilling commenced after 1/1/12; specific categories of damages; prohibition on reservation or assignment; common law rights preserved; two year claims period after operator files notice the final reclamation is commencing; surface owner claims – circuit court actions or binding arbitration)

Well Permitting– West Virginia

- ▶ Well location restrictions
 - ▶ Wells: >250' from drinking water wells or springs
 - ▶ Pads:
 - ▶ center >625' from occupied dwelling, or dairy barn or poultry house at least 2500 s.f. in size
 - ▶ >1000' from surface or groundwater intake for public water system (detailed rules on measuring distances)
 - ▶ Wells or pads: 100' from streams or lakes; 300' from “naturally reproducing” trout streams [note: ambiguous]
 - ▶ WVDEP Secretary may waive separate well and pad restrictions, based on consent of surface owner or variance with protective provisions

Well Permitting– West Virginia

- ▶ Bond: \$50,000 for each horizontal well or \$250,000 blanket bond
 - ▶ Bonds posted for individual wells prior to 12/14/11 continues in effect for all work permitted prior to effective date of Act
 - ▶ Blanket bonds posted prior to 12/14/11 must be replaced within 60 days of DEP's written notice; if not, existing bond will be forfeited

Well Permitting – West Virginia

- ▶ Impoundment capable of holding 210,000 gallons or more: Certificate of Approval (RPE)
 - ▶ Applies to construction, alteration, repair or abandonment (routine repairs that do not affect safety exempt)
 - ▶ \$300 application fee/\$100 annual registration fee
 - ▶ Monitoring and emergency action plan
 - ▶ Maintenance plan
 - ▶ After hearing, DEP may amend, suspend or revoke Certificate of Approval (appealable to Env. Quality Bd.)
 - ▶ N/A to farm ponds constructed with written consent of surface owner, to be primarily used after drilling for agricultural purposes

Potential Litigation Claims

***If You Build It,
They Will Come***

Potential Litigation Claims

- ▶ Traditional Claims
 - ▶ Workers' compensation claims
 - ▶ Deliberate intent/intentional injury claims
 - ▶ Traditional personal injury claims
 - ▶ Motor vehicle accidents
 - ▶ Invitees and trespassers

Potential Litigation Claims

- ▶ Traditional employment claims
 - ▶ Discrimination; retaliation; harassment
 - ▶ Whistleblower claims
 - ▶ ADA or other disability claims

- ▶ Royalty payments/breach of contract claims
 - ▶ Tawney, et al. v. Columbia Natural Resources, et al.
 - ▶ Competing states in same property: coal v. gas

Potential Litigation Claims

▶ Administrative Claims

▶ DEP/DNR Enforcement claims

- ▶ Permit violations: everything from storm runoff violations, to violation of labor standards, to violation of other permit terms

▶ OSHA violations: especially after accident or death

▶ Clean Water Act violations

- ▶ Construction stormwater permit issues; citizen suits

Potential Litigation Claims

▶ Emerging Claims

▶ Property-related claims:

- ▶ property damages claims— fences; cattle or other animals; backflow water claims
- ▶ diminution in value of property
- ▶ nuisance claims— air pollution, noise

▶ Water well claims: diminution in either water quality or quantity

Potential Litigation Claims

▶ Emerging Claims, cont'd

▶ Personal injury/toxic torts

▶ EPA's Draft Investigation of Ground Water Contamination near Pavillion, Wyoming (2011)

▶ Initial conclusions

▶ Critiques of EPA's initial conclusions

▶ House Subcommittee on Energy and the Environment – "Fractured Science: Examining EPA's Approach to Ground Water Research in Pavillion, WY" (2-1-12)

▶ Importance for future toxic tort claims

▶ Medical monitoring, "fear of" claims, and emotional distress

▶ Exxon Mobil verdicts in Maryland in 2009 and 2011 from gasoline leak

Potential Litigation Claims

- ▶ We Built It, So... Now What?
 - ▶ Best Practices— establish, follow, and effectively enforce Best Practices
 - ▶ Risk Management
 - ▶ Ohio— Safety and Hygiene Division
 - ▶ West Virginia— Brickstreet Insurance



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Questions?

Christopher B. "Kip" Power

Charleston, WV

Office^304.357.0902

christopher.power@dinsmore.com

Mychal S. Schulz

Charleston, WV

Office^304.357.0906

mychal.schulz@dinsmore.com

MaryAnn Poirier

Dayton, OH

Office^937.449.2809

maryann.poirier@dinsmore.com