

Utica Shale: Issues in Law, Practice and Policy Legislative and Regulatory Update



**Cleveland Metropolitan Bar Association
Thursday, September 13, 2012**

Presented By:

W. Jonathan Airey

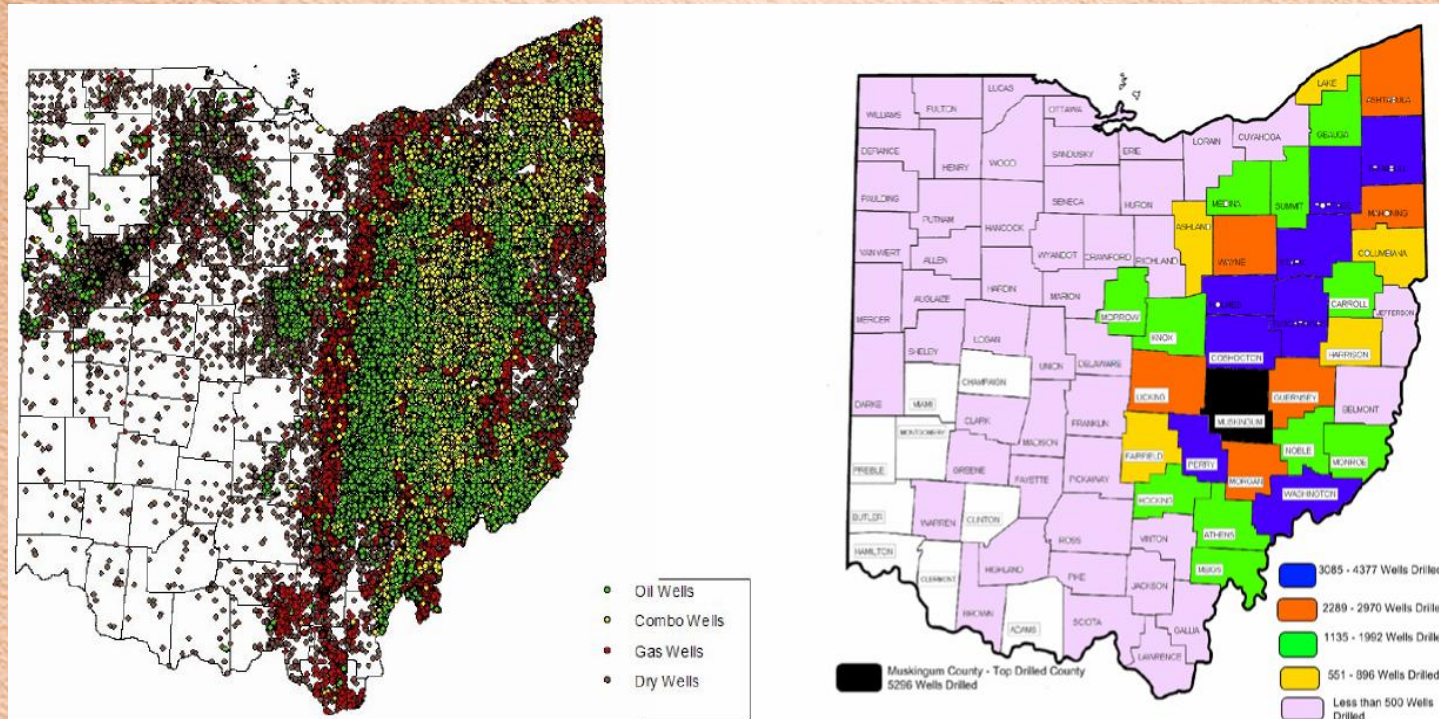
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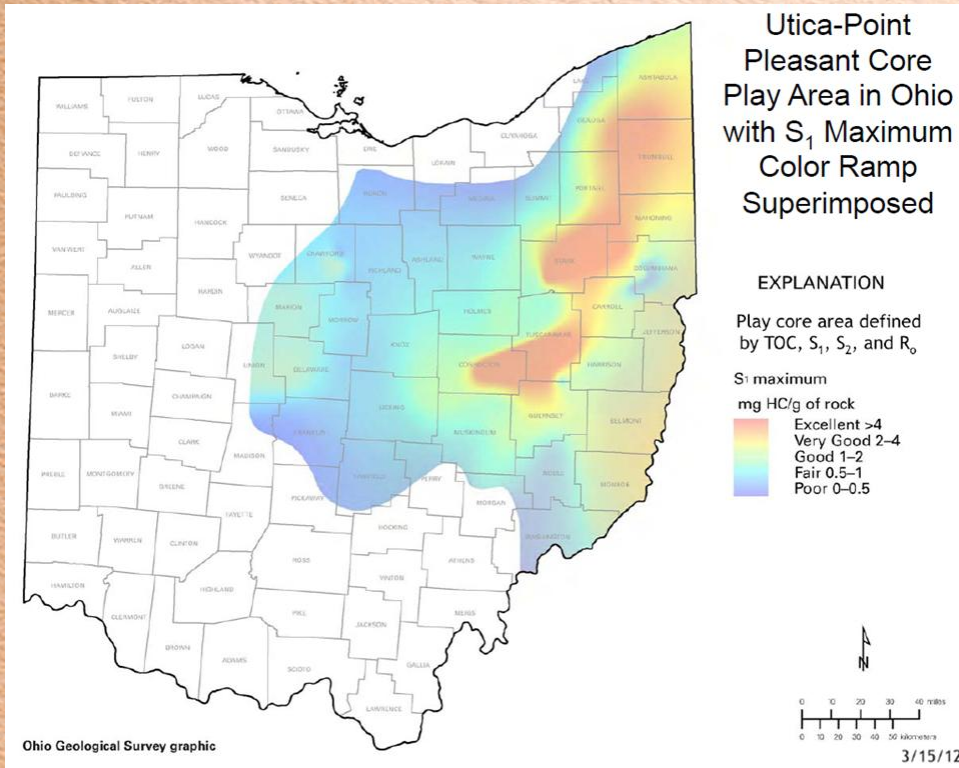
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Oil and Gas in Ohio

- Ohio well spot map shows significant development in three of four Ohio quadrants, with a total of 264,232 oil and gas wells drilled in Ohio by year end 2011.
- And, while geology dictates that eastern Ohio is dominant, in modern times wells have been drilled in 79 of 88 counties.



Area of Greatest Utica Potential in Ohio

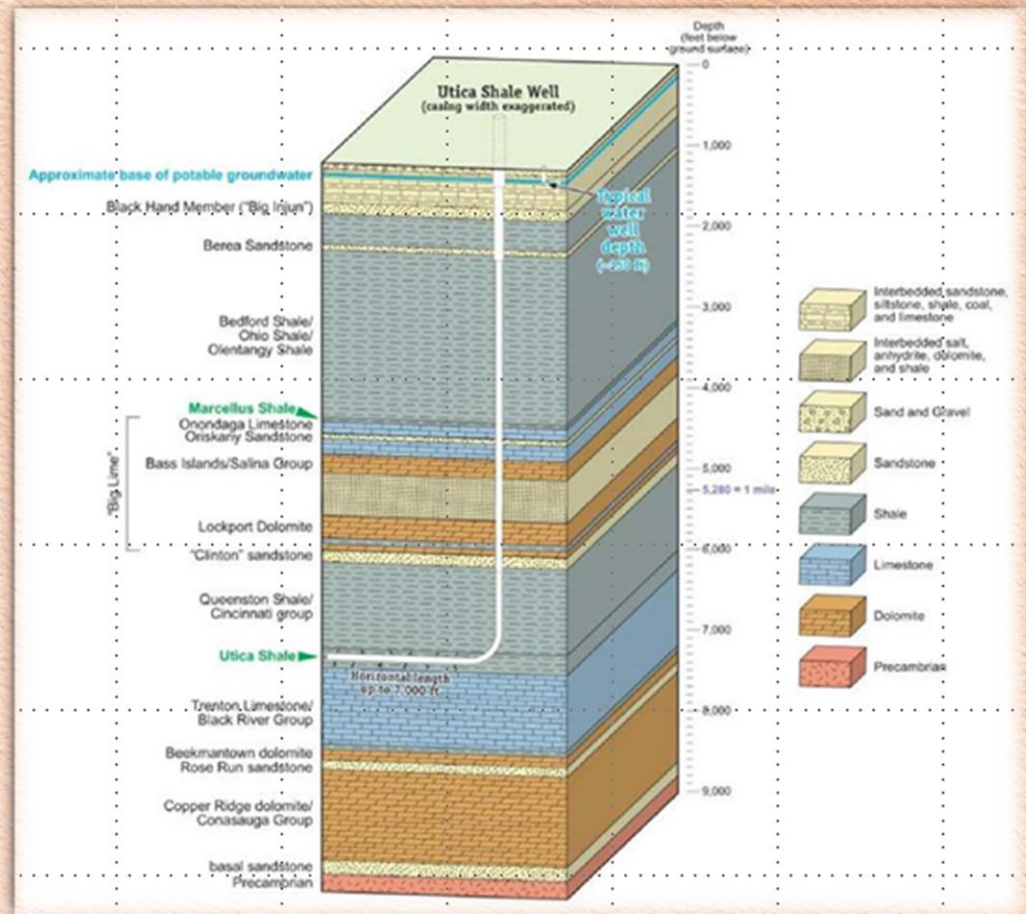


As of August 26, 2012:

- Total Utica horizontal wells drilled in Ohio - 129
- Total Utica wells on production - 27
- Total horizontal Utica permits - 359
- Total horizontal rigs drilling in Utica in Ohio - 38

Generalized Geology and Profile of a Utica Shale Well Prototype in East-Central Ohio

At these depths, pressure from the overlying rocks and fluids make it physically impossible to induce a fracture all the way up to the groundwater layers.



Ohio Oil and Gas Regulatory Structure

- Established in 1965 by passage of Revised Code Section 1509
- 1509 passed to deal with issues raised by Town Lot drilling in Morrow County boom
- 1509 worked well in the late 1960's and 1970's with boom in late 1970's of gas drilling to offset gas curtailments by interstate pipelines
- Ohio in mid 1970's developed Self-Help program for deliveries of gas to end users on East Ohio and Columbia Distribution systems

Basic Concepts of 1509

Well Spacing by Drilling Units

Formation of Drilling Units

DMRM Depth Spacing Rules

0–1,000 feet

- ≥ 1 acre
- ≥ 200 feet from well
- ≥ 100 feet from boundary of tract or drilling unit

1,000–2,000 feet

- ≥ 10 acre
- ≥ 460 feet from well
- ≥ 230 feet from boundary of tract or drilling unit

2,000–4,000 feet

- ≥ 20 acre
- ≥ 600 feet from well
- ≥ 300 feet from boundary of tract or drilling unit

4,000 feet and deeper

- ≥ 40 acre
- $\geq 1,000$ feet from well*
- ≥ 500 feet from boundary of tract or drilling unit*

*For Horizontal Wells, measured from the first perforation in the formation to the last perforation in the formation, commonly called the “take point.”

Drill Unit Formation

Three options:

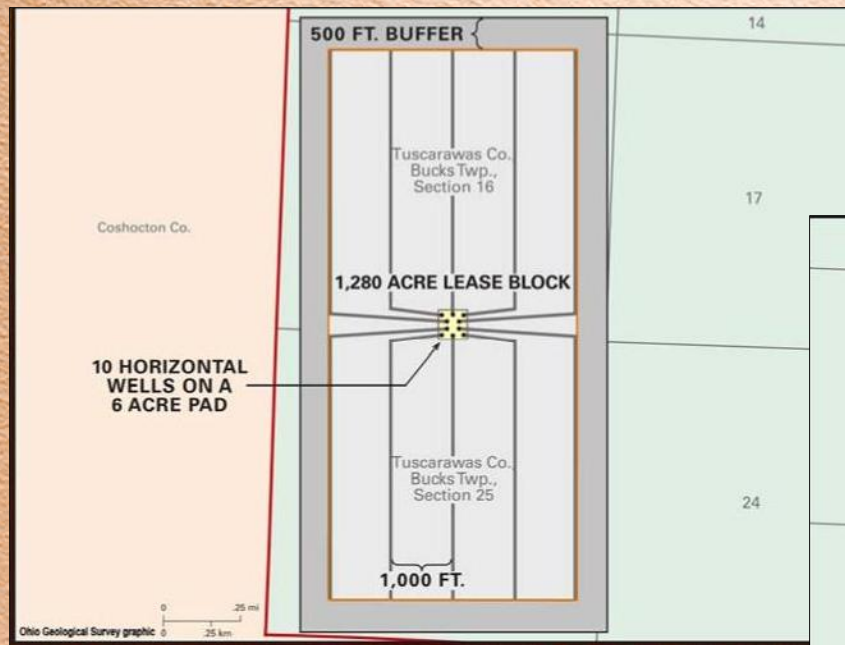
1. Voluntary Pooling Agreements (1509.26)

When owner holds all leases needed for a drilling unit or reaches agreement with others who do.

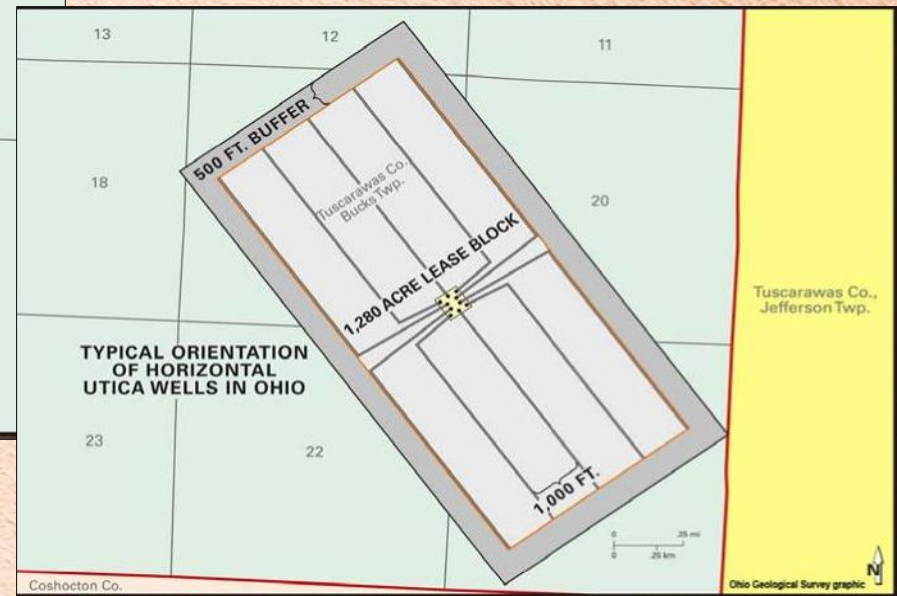
2. Mandatory Pooling Orders (1509.27)

3. Order Providing for Unit Operation (1509.28)

Developmental Drilling 101



Optimally operators would like to have lease blocks of about 2 square miles contiguous to allow drilling in two directions from one central drill pad.



Most horizontals are being drilled in a NW-SE orientation in Ohio to intersect the natural NE-SW joints and fractures.

1509.27 Mandatory Pooling Orders

- Tract: Insufficient size or shape to meet the requirements for drilling a well
- No Voluntary Agreement: Unable to form a drilling unit by agreement on a just and equitable basis.
- Necessary: To protect correlative rights and provide effective development, use, and conservation of oil and gas
- Outcome: Drilling permit and a mandatory pooling order from Division

1509.27 Mandatory Pooling Orders

- Unwritten Rule – 90%+ of acreage already in unit
- Delays Likely
 - TAC meets only quarterly
- Limited to 5 per year
- More on Procedure
 - Division Outline

June 10, 2010

MANDATORY POOLING PROCEDURAL OUTLINE

I. Applicant Requirements

The permit application package for a mandatory pooling request shall include all of the following information:

- A. A cover letter to the Chief requesting mandatory pooling.
- B. Affidavit(s) from the applicant, applicant's legal counsel and/or surveyor which include:
 1. A statement explaining why mandatory pooling is needed and what acreage and/or distance is involved. The explanation must outline why an alternate location is not possible.
 2. A statement detailing the attempts to obtain a lease and form a drilling unit under Section 1509.26 O.R.C (Voluntary Pooling).
 - a. List dates of attempts, who was contacted, proposals given and results of attempts.
 - b. Copies of any correspondence sent to the affected individual(s) should be attached to help document the negotiations. Proof of the attempt to voluntary pool must be submitted. (A voluntary pooling agreement allows the owner of the land to participate in the cost of drilling of the well to become a working interest owner.)
 - c. "Window Acreage" within the unit is strongly discouraged; however, for any "window acreage" within the proposed drilling unit, identify who the landowner is and the attempts made to lease that property.
- C. A list identifying the individual(s) to be pooled including the names, addresses and respective acreage of all owners within the unit.
- D. On the survey plat, highlight those properties that are being mandatory pooled and indicate the distance from the wellhead to those property boundaries.
- E. The proposed well location identified on a portion of a USGS 7.5 minute quadrangle map showing the location and permit numbers of any past, existing or known proposed wells within 2,000 feet of the proposed well.
- F. An aerial photograph showing the well location, access road, tank battery and sales line on a 1" = 200' scale. Indicate the distance from the tank battery to any mandatory pooled property line.
- G. An itemized breakdown of the estimated drilling and equipping costs and the monthly operating expense for the well.
- H. Several photographs showing a general representation of the area of the wellhead. They should be labeled indicating the direction (for example: from the north facing south), and should show the proposed mandatory pooled properties as seen from the location of the wellhead.

1

Unitization 1509.28

- Application
 - Owners of 65% or more of land to be unitized
- Requires
 - Order must be reasonably necessary to increase substantially the ultimate recovery of the resource
 - Value of estimated additional resource recovery must exceed its estimated additional costs
- Among the Benefits
 - Production deemed from each of the tracts
 - Operations constitute fulfillment of all express or implied lease obligations to extent that compliance cannot be had because of the order
- Process

SB 165 – Enforcement

- SB 165 Enforcement Issues
 - Chief may issue an order finding an owner in Material and Substantial Violation
 - Important for owners to avoid being designated in Material and Substantial Violation by protecting Due Process Rights
 - Concept is to encourage compliance

SB165 - Statewide Jurisdiction

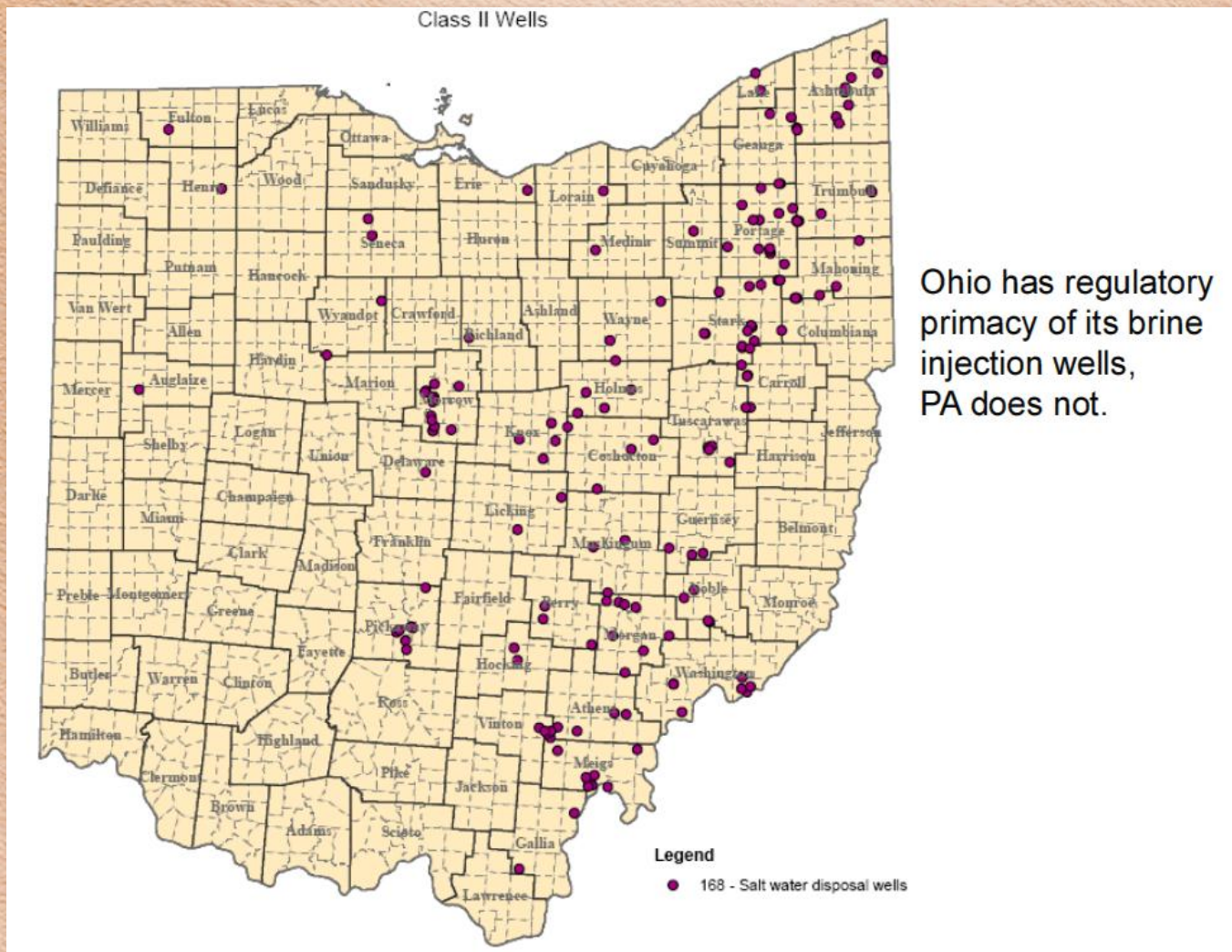
- HB 278 (2004) reserved sole and exclusive regulatory authority over all aspects of oil and gas drilling and production to the Division (1509.02)
- SB 165 further clarified the Division's existing authority by explicitly inserting "Production Operations" and "Well Stimulation" into 1509.02
- Mayor's Amendment: sought clarification of municipal control over public streets (ORC 723.01) (but, not lease roads)

Nothing in this section (1509.02) affects the authority granted to the director of transportation and local authorities in section 723.01 or 4513.34 of the Revised Code, provided that the authority granted under those sections shall not be exercised in a manner that discriminates against, unfairly impedes, or obstructs oil and gas activities and operations regulated under this chapter.

Produced Brine Disposal in Ohio

- Produced brine became an issue in 1980's
- Amended Substitute HB 501 effective in 1986
 - Required produced brine to be disposed of primarily through a Class II UIC well
 - Established regulatory regime for brine haulers – licensing and manifest system
 - *Very* limited surface spreading for townships and/or municipalities that approve spreading

Class II Injection Wells



Ohio has regulatory primacy of its brine injection wells, PA does not.

Underground Injection Control (UIC) Rules

- Rules stem from the Northstar #1/Youngstown seismic investigation
- ODNR halted UIC permitting until new rules were crafted.
- July 10 – Governor Kasich Executive Order
 - Implemented draft rules via executive order
 - Effective immediately for 90 days.
 - ODNR submitted rules package to JCARR July 11
- New rules allow Chief to require additional tests
 - Can include pressure fall off test and investigation for possible faulting
 - Can require continuous pressure monitoring
 - Can require automatic shut off if well exceeds its maximum allowable injection pressure

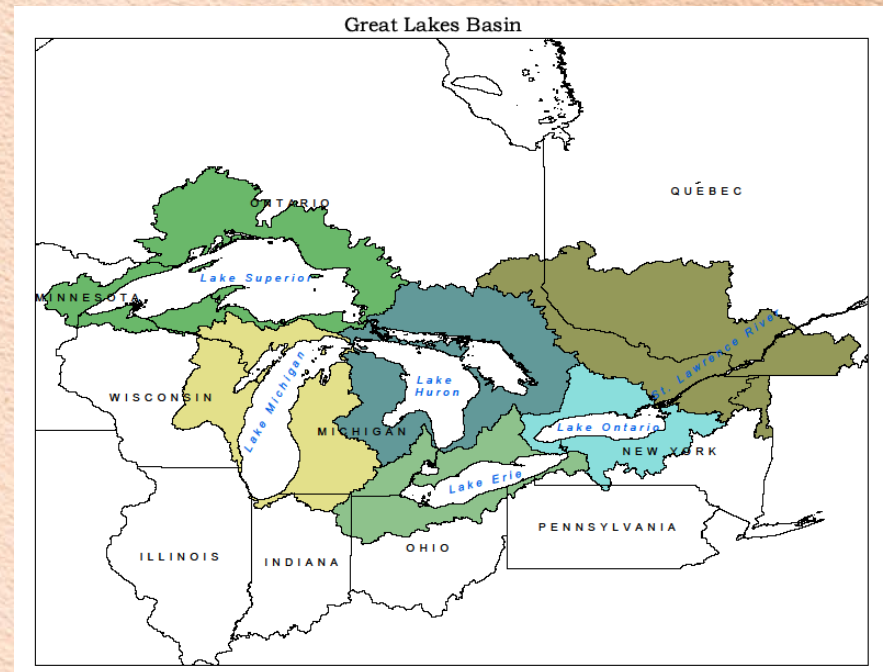
SB 315

Water Issues

- Permit application requires report on anticipated sources of water and if water will come from Lake Erie or Ohio River water shed (R.C. 1509.06(A)(8)(a))
- Division can attach conditions for wells located in 100-year flood plain and 5-year time of travel to public water supply (R.C. 1509.06(A)(2))
- Class II disposal wells quarterly electronic reports on each load of produced water from Ohio licensed brine hauler or UIC well operator (R.C. 1509.22(D)(1)(a))

The Great Lakes – St. Lawrence River Basin Water Resources Compact

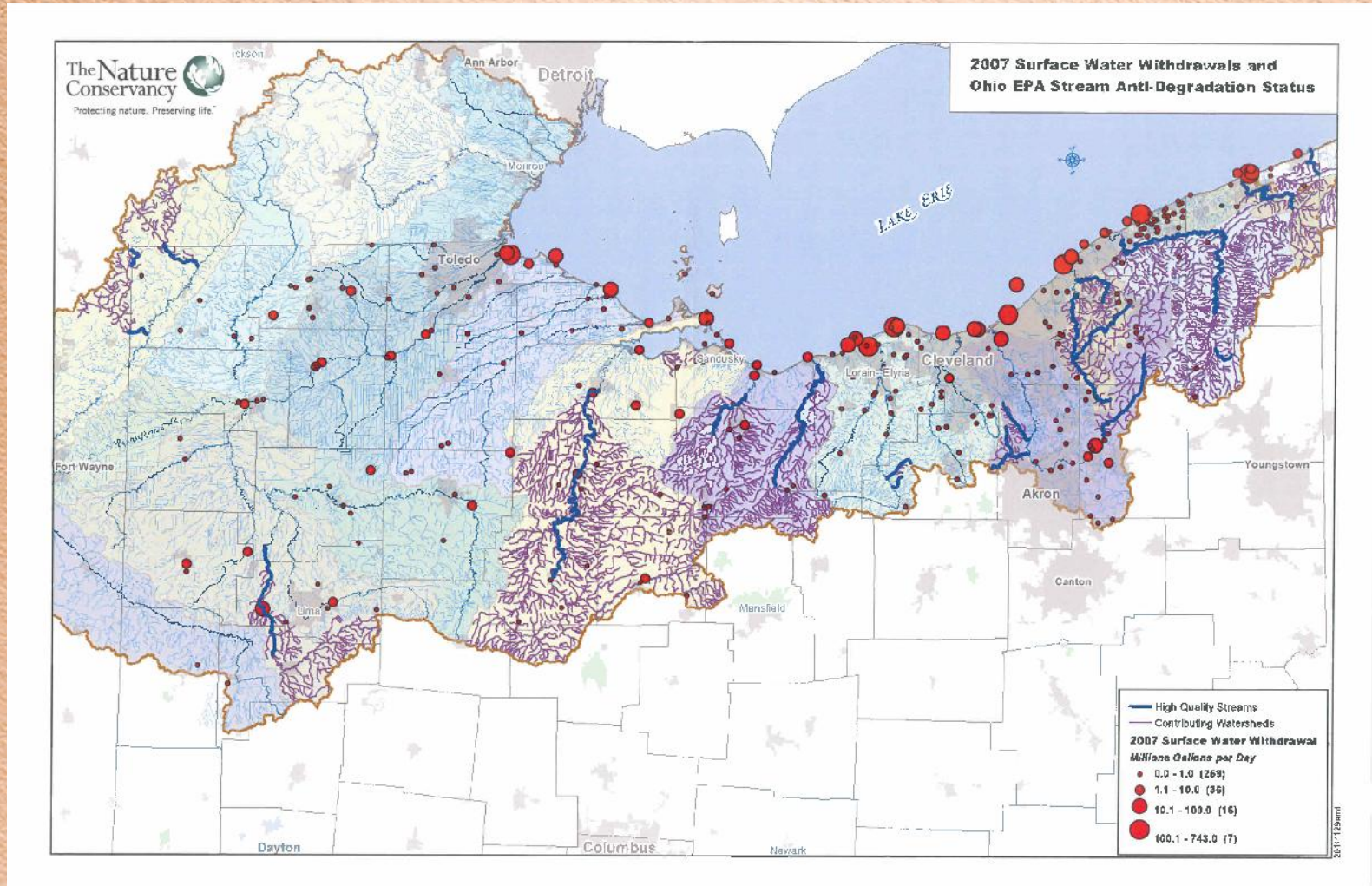
- On December 13, 2005, the Great Lakes Governors (IL, IN, MI, MN, NY, OH, PA & WI) and the Premiers of Ontario and Québec signed the Great Lakes—St. Lawrence River Basin Sustainable Water Resources Agreement and endorsed the Great Lakes—St. Lawrence River Basin Water Resources Compact.



Ohio's Implementation of the Compact

- On June 27, 2008, Governor Ted Strickland signed Amended House Bill 416 – ratifying the Compact.
- The Great Lakes – St. Lawrence River Basin Water Resources Compact became Federal law on December 8, 2008, following approval by each of the eight State legislatures and Congress, and signature by President Bush.
- Each state in the Great Lakes Basin was charged with developing withdrawal and consumptive use restrictions for their respective portions of the Basin.
- Per the terms of the Compact, Ohio had until the end of 2012 to implement their own withdrawal and consumptive use restrictions or the restrictions set forth in the Compact would serve as a default.

Lake Erie Watershed



Ohio Amended House Bill 473

- Governor Kasich signed HB 473 into law June 4, 2012.
- Under R.C. 1522.11(A), no person is allowed to install or operate a facility or equipment that results in a ***new or increased diversion of any water*** out of the Lake Erie watershed without obtaining a permit.
- R.C. 1522.12(A) institutes a permit program for withdrawal and consumptive use of water from the Lake Erie watershed.
 - (1) - Facility with a new or increased capacity for withdrawals or consumptive uses from ***Lake Erie or a recognized navigation channel*** of at least 2.5 MGD . (Averaged over any 90 day period)
 - (2) - Except as provided by (A)(3), facility that has a new or increased capacity for withdrawals or consumptive uses ***from any river or stream or from ground water in the Lake Erie watershed*** of at least 1.0 MGD. (Averaged over any 90 day period)
 - (3)(a) – Facility that has a new or increased capacity for withdrawals or consumptive uses from any river or stream in the Lake Erie watershed that is ***high quality water*** of at least 100,000 gpd. (Averaged over any 45 day period)

Substitute Senate Bill 315 Timeline

- Introduced at Governor's request March 22, 2012
- Signed into law June 21, 2012
- Effective September 10, 2012
- Governor's proposal significantly modified by Ohio Senate

SB 315

Chemical Disclosure

- Chemical disclosure on completion report
 - All chemicals used while drilling until surface casing set (R.C. 1509.10(A)(9)(a))
 - To Division or to Frac Focus; all chemicals used in fracture treatment by chemical abstract number (R.C. 1509.10(F))
 - Trade secret protection for operators and service companies (R.C. 1509.10(I))
- After initial completion, disclose for refracture or new completion for a well (R.C. 1509.10(J)(1)(2))
- Inaccurate or incomplete information is treated as substantial compliance (R.C. 1509.10(K)(1))
 - Trace amounts do not need to be disclosed (R.C. 1509.10(K)(2))

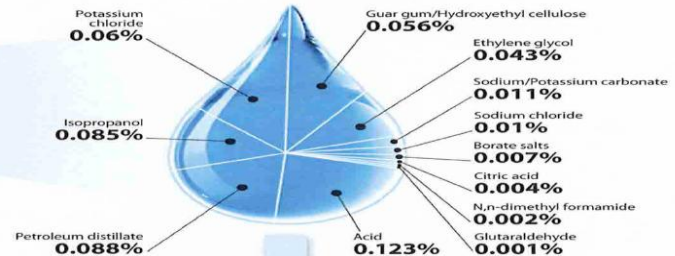
A FLUID SITUATION: TYPICAL SOLUTION* USED IN HYDRAULIC FRACTURING

**0.49%
ADDITIVES***



On average, **99.5%** of fracturing fluids are comprised of freshwater and compounds are injected into deep shale gas formations and are typically confined by many thousands of feet of rock layers.

Source: DOE, GWPC: Modern Gas Shale Development in the United States: A Primer (2009)



| Compound* | Purpose | Common application |
|-------------------------------|---|---|
| Acids | Helps dissolve minerals and initiate fissure in rock (pre-fracture) | Swimming pool cleaner |
| Glutaraldehyde | Eliminates bacteria in the water | Disinfectant; Sterilizer for medical and dental equipment |
| Sodium Chloride | Allows a delayed break down of the gel polymer chains | Table Salt |
| N, n-Dimethyl formamide | Prevents the corrosion of the pipe | Used in pharmaceuticals, acrylic fibers and plastics |
| Borate salts | Maintains fluid viscosity as temperature increases | Used in laundry detergents, hand soaps and cosmetics |
| Polyacrylamide | Minimizes friction between fluid and pipe | Water treatment, soil conditioner |
| Petroleum distillates | "Slicks" the water to minimize friction | Make-up remover, laxatives, and candy |
| Guar gum | Thickens the water to suspend the sand | Thickener used in cosmetics, baked goods, ice cream, toothpaste, sauces, and salad dressing |
| Citric Acid | Prevents precipitation of metal oxides | Food additive; food and beverages; lemon juice |
| Potassium chloride | Creates a brine carrier fluid | Low sodium table salt substitute |
| Ammonium bisulfite | Removes oxygen from the water to protect the pipe from corrosion | Cosmetics, food and beverage processing, water treatment |
| Sodium or potassium carbonate | Maintains the effectiveness of other components, such as crosslinkers | Washing soda, detergents, soap, water softener, glass and ceramics |
| Proppant | Allows the fissures to remain open so the gas can escape | Drinking water filtration, play sand |
| Ethylene glycol | Prevents scale deposits in the pipe | Automotive antifreeze, household cleansers, deicing, and caulk |
| Isopropanol | Used to increase the viscosity of the fracture fluid | Glass cleaner, antiperspirant, and hair color |

*The specific compounds used in a given fracturing operation will vary depending on source water quality and site, and specific characteristics of the target formation. The compounds listed above are representative of the major material components used in the hydraulic fracturing of natural gas shales. Compositions are approximate.

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Horizontal Wells

- Horizontal Well defined is well producing from Utica, Point Pleasant or Marcellus formations (R.C. 1509.01(GG))
- Heightened regulations for Horizontal Wells
 - Higher insurance requirements \$5 million (R.C. 1509.27(2))
 - Required to test water wells out to 1,500 feet from well head (R.C. 1509.06(c))
 - Well pad preconstruction site visit with Division inspector (R.C. 1509.04(H))
 - Road Use and Maintenance Agreement or an affidavit that the operator attempted in good faith to obtain a RUMA but was unable to reach agreement with local officials (R.C. 1509.04(11)(G))

SB 315 Updates Clarifications

- Clarifies decades-old concept that an Ohio drilling permit is not an order that can be appealed (R.C. 1509.03(B)(1))
- Division can now enter into cooperative agreement to seek “advice and consultation” from other state agencies, but Division does not give up any of its R.C. 1509 authority (R.C. 1509.02)

SB 315 Highlights

Violations

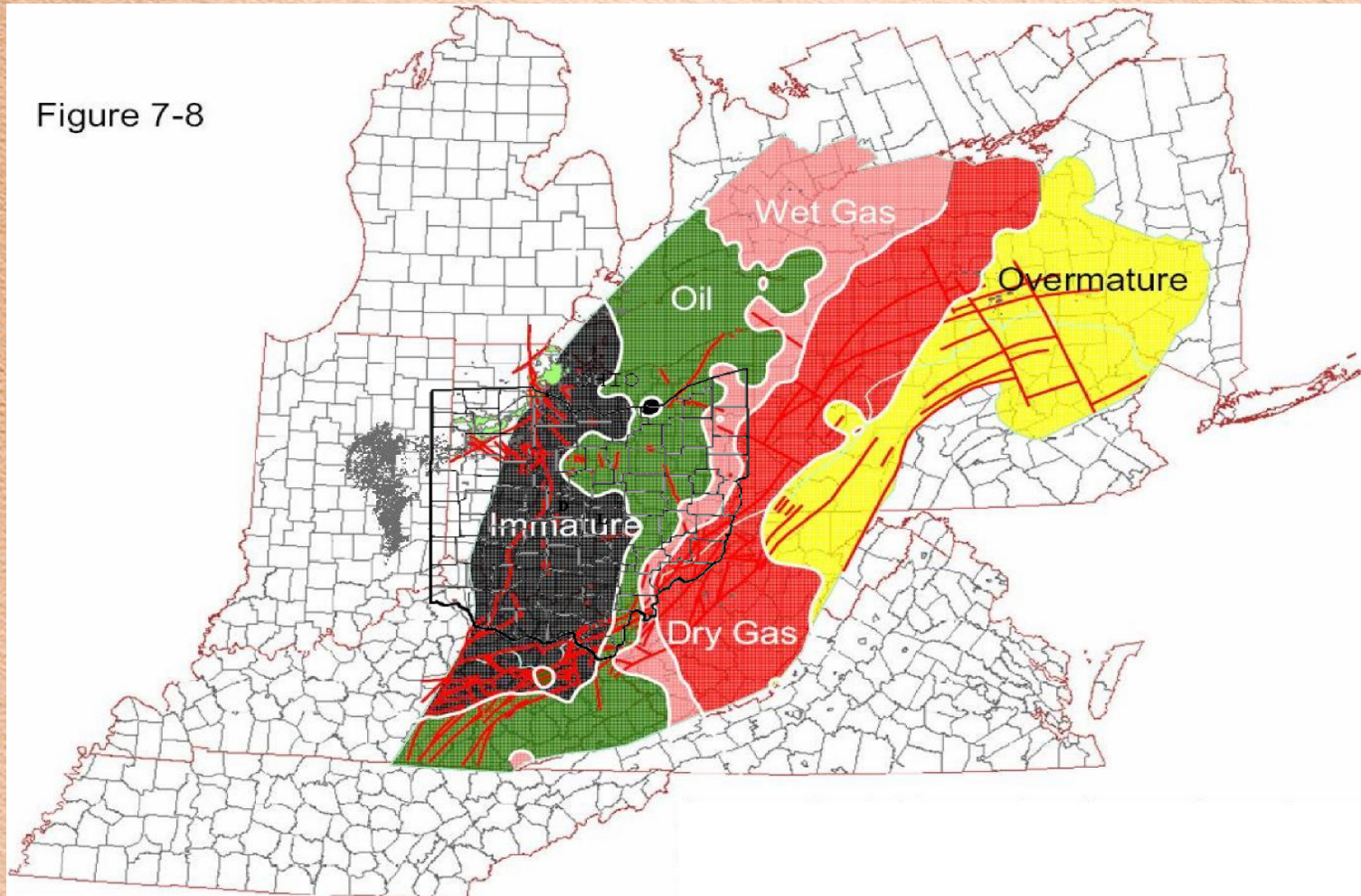
- Material and substantial violations now include failure to file reports:
 - A procedure to grant extensions
 - Notice and 30-day cure period before action is taken
 - R.C. 1509.04(A)(2)
- Allows each day of a violation to be treated as a separate offense for both civil (R.C. 1509.33(I) and criminal penalties (R.C. 1509.99(F))

Midstream Facilities

- Gas gathering pipelines and related facilities
- Gas processing plants and exit pipelines
- Fractionation plants and exit pipelines

Utica Shale Play: Thermal Maturity Studies Indicate Ohio is Within the Oil or Wet Gas Window: USGS Map

Figure 7-8



Gas Processing Plant

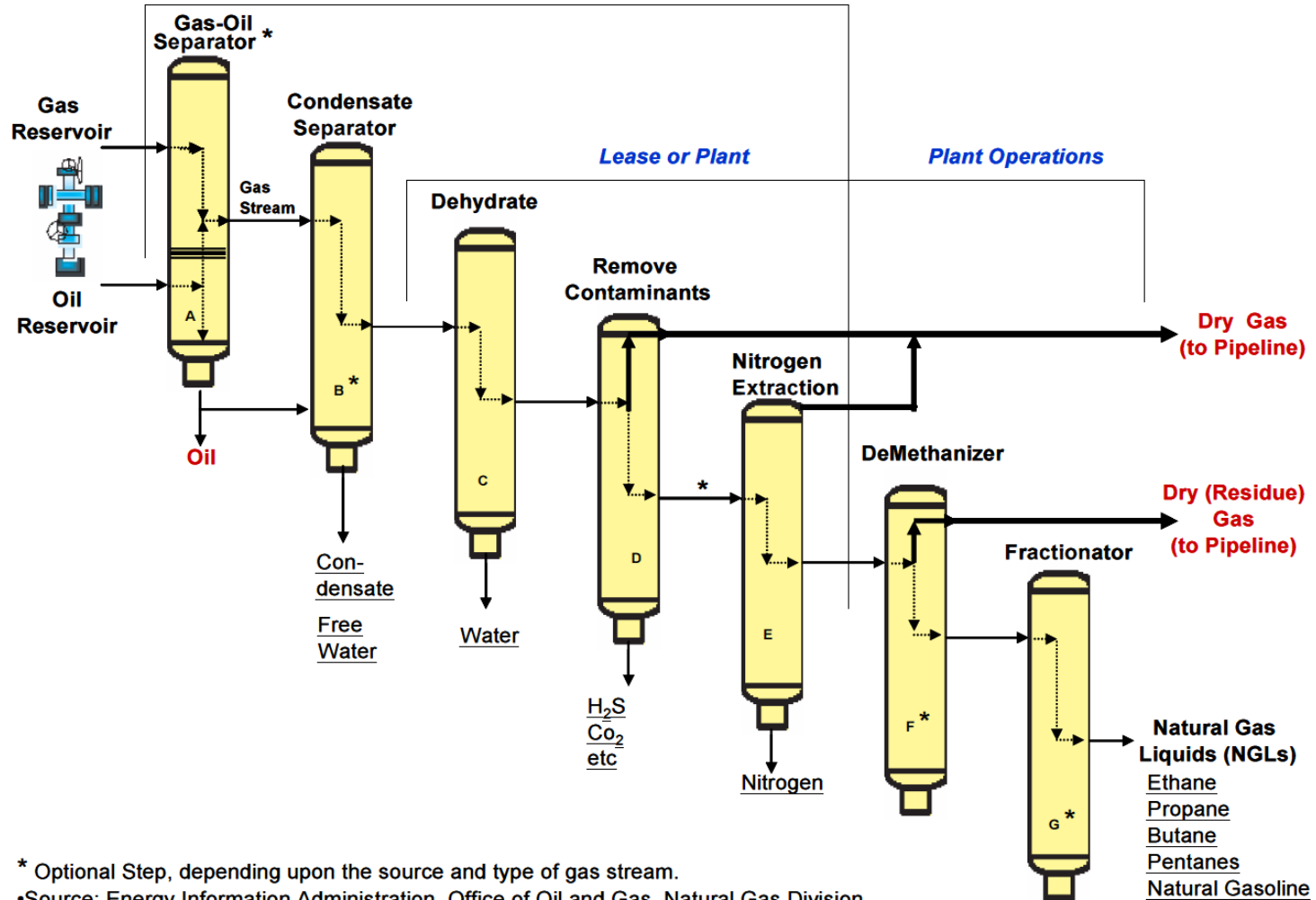


NGL Fractionation Plant



Figure 1. Generalized Natural Gas Processing Schematic

Lease Operations



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Existing Gas Pipeline Safety Regulations

- Production lines are not covered by DOT and PUCO rules.
- Endpoint of production generally furthestmost downstream point in a production operation.
- Gathering lines can be subject to pipeline safety rules, as determined by federal regulation (42 CFR §192.8).

SB 315 Midstream Regulation

Section 4905.911 Requirements

- A gas gathering pipeline or a processing plant gas stub pipeline completely constructed after the effective date of SB 315 must ensure the pipeline complies with any applicable Part 192, Subpart C pipe design requirements.

Midstream Changes in SB 315

Section 4905.911 Requirements

- Follow Part 192 requirements for design, installation, construction, inspection and testing.
- Implement a control corrosion program according to the requirements of Part 192, Subpart I if the pipeline is metallic.
- Establish and carry out a damage prevention program under Part 192.614.
- Establish and carry out a public education program under Part 192.616.

Midstream Changes in SB 315

Section 4905.911 Requirements

- Establish the maximum allowable operating pressure of the pipeline pursuant to Part 192.619.
- Install and maintain pipeline markers according to the requirements for transmission lines under Part 192.707.
- Perform leakage surveys according to Part 192.706.
- Retain records of each leakage survey for five years or until the next leakage survey is completed, whichever time period is longer.

Midstream Changes in SB 315

Notice Filing

- Operator to file a pre-construction notice with the PUCO Pipeline Safety at least 21 days before construction describing:
 - The proposed pipeline route;
 - The maximum allowable operating pressure of the pipeline;
 - The outside diameter;
 - The wall thickness; and
 - The pipeline's material and yield strength.
 - Revised Code 4905.94

Midstream Changes in SB 315

“As Built” Notice

- Operator must also file a notice with the PUCO within 60 days after completing construction detailing the final pipeline route and the pipeline’s operating information, including the “as-built” specifications for the pipeline.
- Revised Code 4905.94

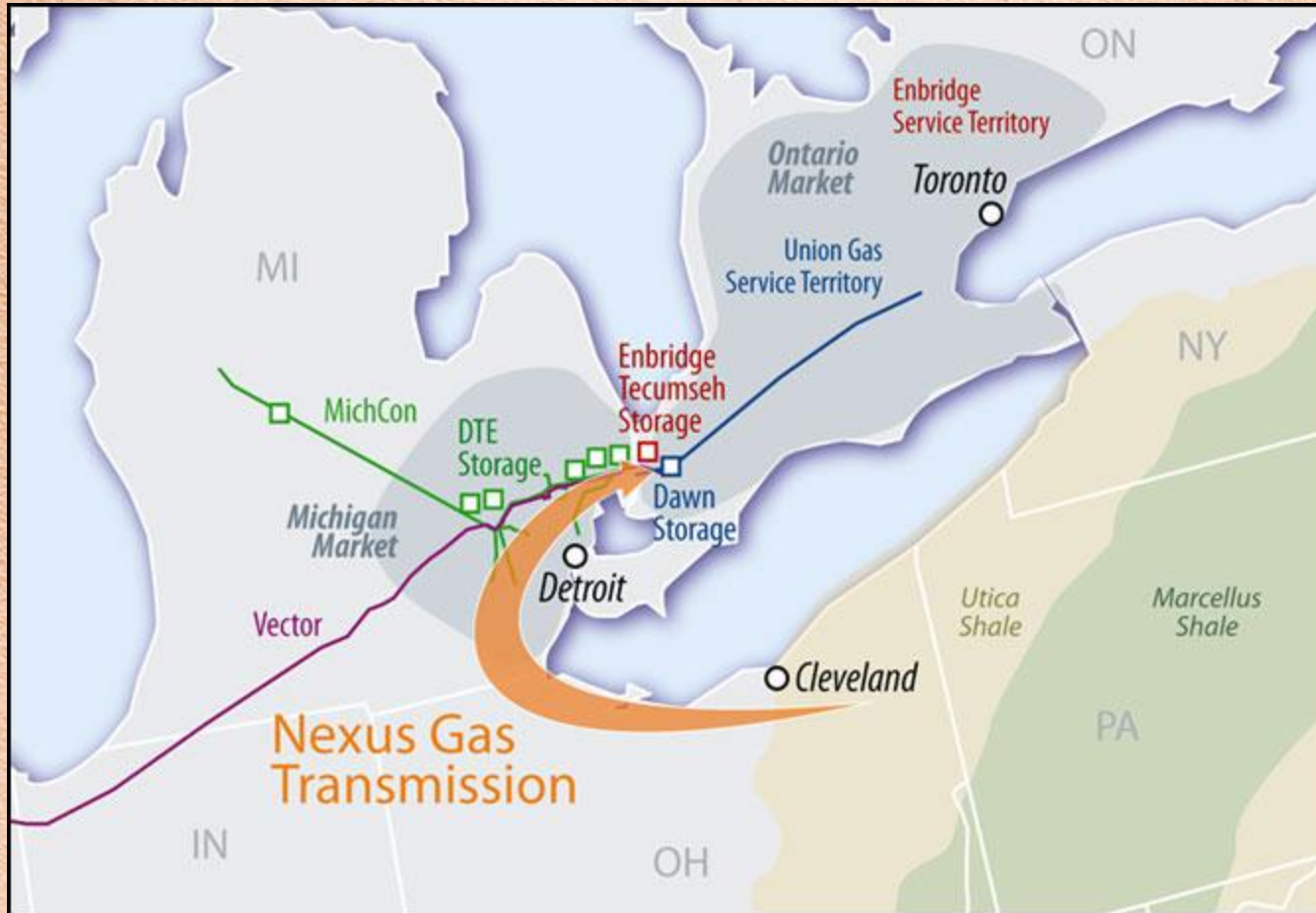
Ohio Power Siting Board Oversight

- SB 315 expressly exempts from OPSB oversight:
 - All midstream facilities; and
 - Any pipeline less than 500 feet
 - Revised Code 4906.07(B)(2)
- SB 315 also amended Section 4905.03(A)(6) to clarify that companies engaged in gas gathering and the transport of raw or finished natural gas liquids are exempt from PUCO public utility oversight.

Existing Gathering and Production Pipelines

- SB 315 does not alter the current regulatory scheme for existing gathering lines and production operations.
- The Production Operations are still regulated solely by the Division of Oil and Gas.
- Operators of Gathering Lines that are subject to the Natural Gas Pipeline Safety Act (i.e., gathering lines in populated areas) must continue to comply with Ohio's existing pipeline safety requirements and any applicable federal requirements.

NEXUS Gas Transmission



Source: Spectra Energy

NEXUS Gas Transmission: Description

- Partner Companies signing Memorandum of Understanding include: DTE Energy, Enbridge and Spectra Energy
- The Nexus Gas Transmission (“NGT”) system will move the increasing supply of Utica Shale gas to high-demand markets in Ohio, Michigan, and Ontario.
- NGT project will originate in NE Ohio, include 250 miles of large diameter pipe, and be capable of transporting approximately 1 BCF of natural gas per day.
- The new line will follow existing utility corridors to an interconnect in Michigan and utilize the existing Vector Pipeline system to reach the Ontario market.
- It will include interconnects with:
 - Michigan Consolidated Gas Company,
 - Consumers Energy and,
 - through the Vector Pipeline, the Enbridge Tecumseh Gas Storage facility and Union Gas’ Dawn Hub, both in Ontario.
- Additional delivery points across northern Ohio, southeastern Michigan and southwestern Ontario will be added to serve those markets.
- The NGT has a targeted in-service date as early as November 2015.

Thank you

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Biography

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Mr. Airey is a partner in the Vorys Columbus office and a member of the energy and environmental group. His oil and gas practice is broad in scope. He has represented numerous clients in state and federal regulatory proceedings and in connection with gas market agreements and disputes.

Career highlights include:

- Defending several oil and gas producers in gas royalty litigation
- Representing oil and gas producers in obtaining full compensation for rejection of gas purchase contracts by interstate pipeline companies
- Representing gas users in obtaining favorable supply and delivery terms for natural gas

Mr. Airey is a member of the Ohio State Bar Association, the California Bar Association, the Ohio Oil and Gas Association, the Independent Petroleum Association of America, the Rocky Mountain Mineral Law Foundation, and the Energy and Mineral Law Foundation.

Mr. Airey annually presents a natural gas market report to the Ohio Chamber of Commerce Energy Conference and has led discussions of gas royalty issues for the Independent Petroleum Association of America Law Committee.

Mr. Airey received his J.D. from the University of California at Los Angeles School of Law where he was a member of the *University of California at Los Angeles Law Review*. He received his B.A. with honors from Loma Linda University.

Publications

Oil and Gas Alert: Ohio Oil and Gas Regulation Legislation Revisions to Revised Code 1509, June 19, 2012

Practice Areas

Energy and Utilities
Litigation

Industries

Energy and Utilities
Oil and Gas
Trade Associations

Education

University of California at Los Angeles School of Law, J.D., 1973
University of California at Los Angeles Law Review, 1971-1973
Loma Linda University, B.A., 1967, with Honors

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(Continued)

Oil and Gas Alert: Ohio Gas Gathering Legislation Detailed, June 7, 2012

***Transportation of Direct Sale Natural Gas,** 5th Annual Proceeding of Eastern Mineral Law Foundation, 1985,* January 10, 1990

***Crude Oil Price Regulation,** Proceedings of Eastern Mineral Law Foundation, 1980,* January 4, 1990

***Price Controls for Natural Gas and Crude Oil,** Ohio Legal Center Institute, 1980,* January 4, 1990

***Basic Revision in the Ohio Oil & Gas Law,** Ohio Bar, December 1, 1980 (Vol. LII, No. 46),* January 1, 1990

Professional and Community Activities

Energy and Mineral Law Foundation, Trustee, 1980-present

Ohio Oil and Gas Association, Trustee, Executive Committee Member, 1994-present; Legal Committee Chair, 1982-present

Independent Petroleum Association of America, Trustee and Law Committee Chair, 1990-present

IPPA Pipeline Safety Task Force, Chairman, 2002-present

Rocky Mountain Mineral Law Foundation, Trustee

Honors and Awards

Columbus CEO, Top Lawyers in Columbus, 2010-2012

Ohio Oil and Gas Association, Oilfield Patriot Award, 2008

Ohio Oil and Gas Association Hall of Fame, Inductee, 2006

Ohio Super Lawyers, Energy and Natural Resources, 2004

The Best Lawyers in America, Oil and Gas Law, 2008-2013

Martindale-Hubbell AV Peer Review Rated

Bar and Court Admissions

Ohio

California (inactive)

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