

Horizontal Well Development Pooling, Spacing, and Unitization:

A Regulatory Toolbox for Key Policy,
Regulatory, and Statutory Considerations



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This publication was developed by the Interstate Oil and Gas Compact Commission Legal and Regulatory Affairs Committee under the leadership of the 2015 - 2016 Chair Matt Lepore in coordination with state oil and gas agencies.

INTRODUCTION

The Interstate Oil and Gas Compact Commission Legal and Regulatory Affairs Committee has prepared this “Regulatory Toolbox” as a reference guide for state regulators and other stakeholders to address policy, regulatory, and statutory considerations related to spacing and statutory pooling (also known as integration) for horizontal well development. The Toolbox identifies key issues related to spacing and pooling for horizontal well development, and summarizes the ways in which different states have responded to these issues. Individual states have provided relevant information about state regulations, statutes, and policies through their participation with the IOGCC Legal and Regulatory Affairs Committee.

The Toolbox is organized into a summary text and two appendices. The text contains separate sections on spacing units and statutory pooling; within each section, key “Issues” and “Questions” are identified and one or more “Approaches” used by states in response to the issues are summarized. The state approaches are intended to be examples only; more complete summaries of twenty-one individual states¹ approaches to the key issues, including citations to relevant regulatory and statutory provisions are contained in Appendix A. These state summaries have been provided by representatives from each participating state. Appendix B contains copies of state statutory provisions related to spacing and pooling. Appendix B was compiled by IOGCC Staff from materials previously provided by the states to the IOGCC.

The Toolbox, of necessity, captures information at a given point in time. State regulations, policies, and statutes, on the other hand, are dynamic. Users of this Toolbox are cautioned to review pertinent regulations, statutes or policies for updates or amendments and are encouraged to confer with individual state regulators for additional information about a state’s regulatory regime.

¹ Summaries are provided for: Alabama, Alaska, Arizona, Arkansas, Colorado, Illinois, Indiana, Kansas, Kentucky, Louisiana, Nevada, New Mexico, New York, North Dakota, Ohio, Oklahoma, Texas, Utah, Virginia, West Virginia, and Wyoming.



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Spacing Units for Horizontal Development of Unconventional Formations

1. Unit Size.

Issue: Horizontal laterals typically extend at least 4,000' and may extend up to 10,000 feet. This length requires a spacing unit of as much as two miles. However, drainage around producing intervals of a horizontal lateral is typically in the range of several hundred feet, meaning a unit could be long and narrow. Nonetheless, spacing units for horizontal development in the range of 640 to 1280 acres seem common, with an expectation that many wells will be located within the unit.

Question: Should state regulators adopt a presumptive or required spacing unit size for horizontal well development?

State approaches:

- A. Some states have adopted presumptive or required spacing unit sizes.
 - North Dakota: Horizontal wells not deeper than Mission Canyon Formation: 320-acre or 640-acre drilling unit. Horizontal wells deeper than Mission Canyon Formation: 640-acre drilling unit.
- B. Other states determine unit size on a case-by-case basis.
 - Colorado: No presumptive unit size established; allows a "wellbore spacing unit" for a single horizontal lateral that includes each governmental quarter-quarter through which the wellbore passes, as well as all quarter-quarter sections less than 460 feet from the wellbore.

2. Number of Wells Allowed in a Spacing Unit.

Issue: State statutory spacing provisions may specify that only one well is allowed to be drilled within a spacing unit. Statutory spacing provisions also typically allow infill wells to be drilled within an established unit if production results and geologic and engineering evidence show additional wells will improve resource recovery without damaging correlative rights.

A single horizontal well producing from a shale formation is unlikely to effectively drain a 640 or 1280 acre unit. If there are no statutory or regulatory limitations on the number of wells allowed within a unit, setback and inter-well distances may dictate the maximum number of wells within a unit.

Question: Should statutory or regulatory limitations on the number of wells in a unit be modified to accommodate multiple horizontal wells within a drilling and spacing unit?

State approaches:

- A. Many states allow for only one well per unit.
 - Alabama, Arizona, and Colorado all provide for infill wells and more for unconventional resources.
 - Indiana: One well per unit, but multiple laterals from the same vertical are considered one well and multiple wells allowed in larger, voluntarily pooled units.

- B. Arkansas designates an upper limit of wells per unit: No more than 16 wells per unconventional reservoir unless an exception is granted by the Commission.
- C. Other states do not limit wells per unit.
 - Nevada: Number of wells established through the hearing process.
 - Texas: Number of wells unlimited for oil; gas wells are limited to one per regulatory lease.

3. Ownership Requirements to Establish (and Operate) a Spacing Unit.

Issue: Large spacing units (640 acres or more) are more likely to include multiple mineral owners (meaning working interest owners who have a right to drill a well within the spaced lands).

Questions:

- A. May a mineral owner establish a large spacing unit for horizontal development regardless of its percentage ownership within the proposed unit?
- B. Is the operator who applies for the spacing unit presumptively the (exclusive) operator of the unit, regardless of its percentage ownership?

State approaches:

- A. Most states have no minimum ownership requirements to establish and operate a spacing unit.
 - Kansas: Any working interest may file an application for unitization.
 - Wyoming: Any interest owner may file a drilling permit within a spaced area. For example, Company A applies for the drilling and spacing unit, but Company B may file a drilling permit.
- B. A few states require a minimum ownership to pool.
 - New York: Applicant for permit to drill must control no less than 60% of the acreage within the proposed spacing unit.
 - Virginia: Requires that the operator have the right to conduct operations or the written consent of owners with the right to conduct operations on at least 25% of the acreage included in the unit.

4. Unit Boundary Setbacks and Inter-well Distances.

Issue: Horizontal wells producing from unconventional formations typically have an elliptical drainage pattern that extends only a few hundred feet beyond the producing intervals of the wellbore. Multiple horizontal laterals running parallel to one another within a spacing unit may be necessary to efficiently recover the resource.

Question: Are reduced setback distances from unit boundaries and reduced inter-well distances compared to conventional formation spacing units appropriate for spacing units in unconventional formations?

State approaches:

- A. Some states provide specific rules for horizontal development.
 - Utah: In the absence of special orders, no portion of the horizontal interval shall be closer than 660 feet to a unit boundary, and any horizontal interval shall not be closer than 1,320 feet to any vertical well producing from the same formation. Horizontal wells within federally supervised units are exempt from these rules and exceptions in other locations may be approved upon application.
 - Indiana: No portion of horizontal drainhole shall be closer than 330 feet from the unit boundary.
- B. Other states utilize the same setbacks as for all wells.
 - Kansas: Completion intervals for horizontal wells are subject to the same setback requirements as directional and vertical wells (330 feet from lease or unit boundaries, or 165 feet in certain counties in eastern Kansas).
 - Kentucky: Establishes property line and interwell setbacks based on the depth of wells.

5. Cross unit development.

Issue: Depending on how drilling and spacing units have been established (and particularly if units are pre-existing for prior vertical or directional development), mineral ownership and other considerations may justify a horizontal wellbore that crosses from one unit into another.

Questions:

- A. How should unit boundaries be determined for cross-unit development? For example, should “overlapping” units be allowed depending on proximity of the producing intervals of a horizontal lateral to a unit boundary?
- B. How should costs and proceeds be allocated for cross unit wells?

State approaches:

- Colorado: Within the Greater Wattenberg Area, Colorado allows creation of “wellbore spacing units” for individual horizontal wells. A wellbore unit consists of each governmental quarter-quarter section through which a producing interval of the horizontal lateral passes directly and the quarter quarter sections within 460 feet of the wellbore. Individual wellbore units may overlap and a mineral owner may participate in more than one unit, even if a wellbore does not penetrate his minerals.
- Arkansas: Establishes “cross-unit” wells that extend across or encroach upon adjoining drilling units, and are shared based upon a formula between all affected drilling units. The formula is determined by creating a 560’ radius around the entire length of the wellbore. Arkansas’ rules also contain protections to keep operators from holding or land grabbing acreage with cross-unit wells.
- Utah: The Board has allowed “boundary line” or “section line” wells that share based on the per acres share of the adjoining drilling units.

6. Unit Operator and development requirements.

Issue: Effective development of a large unconventional formation spacing unit may take a long time and require substantial capital investment. Assuming a single horizontal well does not effectively drain a large unit, allowing that unit to be held by production by a single well has the potential to harm correlative rights and perhaps create waste.

Questions:

- A. Should development requirements, such as a requirement to drill a well within a time certain following approval of the unit, or to drill a minimum number of wells within the unit within a defined time, be imposed?
- B. What are the consequences for failing to meet any such requirements?
- C. What criteria determine who will operate a unit if there is more than one significant working interest owner within a proposed unit?

State approaches:

- A. Some states do not outline unit operator and development requirements, but review the development of large unconventional units, or set limits on an order-by-order basis.
 - Utah: Some requests to establish units are identified as prototype developments, and the Board may require a report after a period of development, usually one year.

- Colorado: Commission periodically reviews large unconventional resource units, APDs expire after 2 years.
- Ohio: Drilling to commence within one year of unitization order, all proposed wells must be producing within a certain number of years according to the order.

B. Most states rely on the expiration of APDs to limit timeframes for development.

- Illinois: One year expiration unless drilling is commenced.
- See also: Arizona (180 days to complete proposed well), Indiana (drill within one year of permit issuance), Kansas (one year expiration), Kentucky (one year expiration), Nevada (two year expiration), New Mexico (two year expiration), New York (commence operations within 180 days of permit), North Dakota (one year expiration), Oklahoma (6 month expiration with opportunity for extension), Texas (two year expiration), Virginia (two year expiration without construction), West Virginia (two year expiration).

Statutory Pooling of Mineral Interests Within a Large Horizontal Spacing Units

Statutory or “forced” pooling of mineral interests within a large spacing unit raises issues related to providing all mineral owners a just and fair opportunity to recover their minerals. Permitting multiple wells within a drilling and spacing unit can complicate these issues.

1. If multiple wells are initially permitted in a unit and statutory pooling is sought, when must a mineral owner elect whether to participate in each well?

Issues: Requiring a mineral owner to make an election to participate in multiple wells before the first well is drilled carries risks related to changing economic conditions over the time the wells will be drilled (which could be years).

Participating in multiple horizontal wells may be prohibitively expensive for some owners. Depending on the statutory “risk penalty” imposed, a well may never reach payout for non-participating owners.

Conversely, allowing an owner to evaluate the performance of early wells and then participate in later wells without any risk penalty may be inequitable to participating owners who bore the capital risks on the early wells.

Questions:

- A. Should numeric or temporal limits on the wells for which non-participating owners must pay a risk penalty be imposed? For example, should a non-participating owner be given a second chance to participate after the first “X” number of wells has been completed in the unit? Or, a non-participating owner would be subject to risk penalties on all wells drilled within “X” months of entry of a pooling order, but would be given another opportunity to participate in all later-drilled wells.
- B. Should non-participating owners be allowed to make a separate election on every well drilled? If so, should substantial risk penalties be imposed for non-participation, so that a non-consenting owner would never back into a working ownership interest, but would not be precluding from participating in one or more later-drilled wells?

State approaches:

- Ohio: The applicant receives 200% reasonable interest charge on the initial well and 150% on each subsequent well.
- Utah: An opportunity to join in the well prior to entry of an order allowing for cost recovery is required; consent is per well rather than per drilling unit. However, a current case is forcing the review of this policy and it has recently been argued that the offer must be prior to the drilling of the well.
- Colorado: Colorado has imposed either temporal or numeric limits on the wells for which an owner will be subject to risk penalties as a result of electing not to participate when multiple horizontal wells are permitted with a spacing unit. A non-consenting owner must be allowed another opportunity to participate in any additional wells drilled after the initial number of wells or time limit (typically two years) is reached.
- Oklahoma: Owners electing to participate pursuant to a forced pooling order make such an election on a unit basis. Statutory amendments are pending which would alter the unit pooling concept as it would apply to proposals for subsequent horizontal wells pursuant to forced pooling orders.

- North Dakota: Election to participate is only binding if the well is spud on or before 90 days of election.
- New Mexico: Infill wells within a pooled unit may be proposed by the operator subsequent to the completion of the initial well. Pooled working interest owners are required to be notified of the infill well proposal and be provided a schedule of estimated well costs. A pooled working interest owner then has 30 days to participate and pay its share of well costs to the operator. If a pooled working interest owner elects not to participate in the infill well, that owner is subject to the same risk penalty established for the initial well.

2. Minimum ownership percentage required to pool by statute.

Issue: If any mineral owner within a spacing unit may statutorily pool interests, an owner with a small percentage interest in a unit potentially could permit a well and compel majority owners to participate in that well or pay risk penalties that would exceed the minority owner's total costs.

Questions:

- A. Should an owner with a minority interest in a unit be allowed to pull a drilling permit and seek to statutorily pool owners with larger interests in the unit?
- B. Should it matter if the minority interest owner is prepared to begin development and the majority owners are not prepared to commence development?

State approaches:

- A. Many states do not require a minimum percentage ownership to pool.
 - North Dakota: Any "interested person" can file an application pooling all interests in a spacing unit.
 - New Mexico: Operator must own in an interest in some portion of the project area, but no minimum percentage is required.
 - Arkansas: No minimum required for an interested owner to pool an established drilling unit, but 50% interest in the right to drill and produce required to pool an exploratory drilling unit.
- B. Some states require a minimum percentage ownership to pool.
 - Virginia: Any owner who is authorized to drill and operate a well may pool, however except in the case of coalbed methane wells, operators must have the right to conduct operations on at least 25% of the acreage included in the unit.
 - Nevada: Plan of unitization to pool requires minimum of 62.5% vote by owners of record.
 - See also: Ohio (65%), New York (60%), Kansas (63% working interest owner approval and 75% royalty interest approval), Alabama (majority if risk compensation fee, no minimum if no fee).

3. What information must be provided to mineral owners prior to statutory pooling?

Issue: Prior to statutory pooling, an operator typically must provide other working interest owners and unleased mineral owners within a spacing unit information about drilling costs to allow them to make informed decisions about participating in proposed wells. Development in a large unit may span many months or years, during which drilling costs or commodity prices may change.

Questions:

- A. For how long should an AFE be “valid” or “current”?
- B. Must an AFE consider cost of building infrastructure to move product to market?
- C. Should an operator be required to disclose its expected development plan, including timing of drilling proposed wells?
- D. Should an operator be required to disclose its own economic analysis for a well?

State approaches:

- A. Many states require (at least in practice) a current AFE prior to statutory pooling.
 - Utah: No statute, but case law requires “a knowing determination whether to participate” and in practice this has resulted in the use of a current AFE.
 - Virginia: Requires information including an estimate of production over the life of the well or wells, and, if different, an estimate of the recoverable reserves of the unit.

4. What is the appropriate risk penalty for non-consenting owners in large spacing units permitted for multiple wells?

Issue: Statutory pooling provisions typically impose a “risk penalty” on non-consenting owners, who do not bear up-front capital risk of drilling a well. Risk penalties may be a fixed percentage or may be a range within which the regulatory agency can set the penalty in each case. The capital risk borne by participating owners for a given well arguably varies depending on the location, anticipated costs, development history, and other factors.

Questions: Should risk penalties for horizontal wells for unconventional development differ from conventional wells?

State approaches:

- A. In some states, the risk penalty is fixed by statute.
 - Colorado: Statutory risk penalty is 200% for all circumstances, with no discretion afforded the Commission.
- B. In some states, the risk penalty is determined within an established range.
 - Utah: The Board has discretion to set the penalty within a given range under the law: 150% to 400%. The upper limit was recently increased from 300%.
- C. In some states, the risk penalty differs based on the status of the interest owner.
 - North Dakota: A 50% risk penalty is assessed on unleased mineral interest owners, while a 200% risk penalty is assessed on unleased working interest owners.

5. Timing of completion of proposed wells.

Issue: Correlative rights of mineral owners within a large unit in which mineral interests have been pooled may be harmed if the operator fails to timely and prudently develop the unit.

Questions:

- A. Should there be a regulatory requirement to drill an initial well or to continue development of the unit?
- B. Should an operator of a large, multi-well unit be required to submit a detailed development plan? If so, what should be included in the development plan (e.g., the number and size of surface locations; reclamation requirements)?
- C. What are the regulatory consequences of failing to abide by a required development plan?
- D. If the operator who spaced and pooled the unit is not proceeding with development, may another owner within the unit commence operation?
- E. If an operator does not proceed with development on a reasonable time-frame, should the unit be dissolved?
- F. If one or more producing wells have been completed in the unit, should proceeds from those wells be re-allocated if the unit is dissolved or modified?

State approaches: (See I.6 above for expirations related to APDs)

- A. Many states set time limits on pooling orders linked to either commencement of work, drilling, or completion.
 - New Mexico: Compulsory pooling orders require that the well be drilled within one year from the date the pooling order was issued, unless an extension is approved (usually 90 days). Pooling orders also require that the well be drilled and completed within 120 days of commencement thereof. Extensions are granted for good cause.
 - See also: Alabama (forced pooling orders expire if a well is not spud within six months), Arkansas (one year to complete or forced pooling expires), North Dakota (election to participate only binding if well is spud on or before 90 days of election).
- B. Other states have case by case time limits or no requirement to drill or complete a well in a certain time frame under state law.
 - Oklahoma: Authority to commence a well pursuant to a forced pooling order, and thus causing an effect under the order on the interests of the owners impacted by it, is limited by the time period provided by the order. If operations are not commenced in the designated timeframe, the order shall terminate except as to the payment of cash bonuses.
 - Wyoming: No requirement to drill or complete a well in a certain time frame.

6. Joint Operating Agreements

Issue: To the extent a state regulatory agency establishes a default spacing unit size and determines which owner (among many) will conduct operations in the unit, it may be inequitable to subject other working interest owners to statutory risk penalties for electing to go non-consent.

Question: If all working interest owners within a unit do not voluntarily pool their interests, should the state participate in establishing terms under which development will proceed, by way of a default joint operating agreement?

State approaches:

- Arkansas has adopted a uniform operating agreement. http://www.aogc.state.ar.us/JOA_Archive.htm.

7. Payout to non-consenting working interest owners.

Issue: Unleased mineral owners who are pooled by statute are compensated in different ways under different states' statutes. In some states, those unleased mineral owners will back into a full working ownership once their share of costs plus risk penalties has been paid to the consenting owners. Being a full working interest owner may expose these owners to liability associated with operations at the well. Additionally, once pooled, arguably a surface location could be placed on their land without their consent.

Questions:

1. Should unleased mineral owners who "back into" a working owner interest be treated the same as other working interest owners?
2. Should unleased mineral owners who are pooled by statute be exempt from allowing surface locations on their property without their consent?

State approaches:

- Utah: Provides for paying the average of the private lands owners royalty to non-consenting working interest owners. This payout calculation excludes federal and Indian lands.
- Colorado: A non-consenting unleased mineral owner receives a 1/8 royalty on production and the risk penalty is paid out of the value of production of its remaining 7/8 interest. Upon payout, the unleased owner backs into a full working interest ownership. Colorado currently has no provisions limiting such an owner's liabilities once it backs into a full working owner interest. Whether a surface location could be placed on the unleased mineral owner's property as a result of a statutory pooling is an unsettled question.
- Ohio: Non-participating working interest owners receive compensation in accordance with the applicant's JOA. Unleased mineral owners receive a 1/8 landowner royalty on gross proceeds and a 7/8 share of net proceeds from production after the applicant receives 200% reasonable interest charge on the initial well and 150% on each subsequent well.

8. Unwinding a unit that has not been fully developed.

Issue: Waste and harm to correlative rights may result if a large, multi-well unit is not timely developed. At the same time, if one or more producing well was developed and proceeds distributed, dissolving the unit can be extremely complicated.

Questions:

- A. Should a spacing or pooling order for large unconventional units contain specific provisions for shrinking or unwinding the unit if development stalls?
- B. Can another working interest owner take over operation of the unit if the operator who spaced and pooled the lands fails to timely develop the unit?

- C. If development stalls but some proceeds have been paid on a unit basis, how should owners whose minerals were produced be compensated if the unit is either reduced or eliminated?

State approaches:

- A. Several states would require a Commission or Board order to unwind a drilling and spacing unit and pooling orders.
- Utah: A unit could be unwound by a Board order based on evidence regarding the resource and drainage area. This would be difficult if sharing has been previously established on a certain size. Instead of unwinding, drilling units usually continue with modifications to allow infill drilling.
 - See also: Illinois (all interests pooled until the well is plugged), Oklahoma (Commission pooling order remain in effect as long as subsequent wells are proposed and commenced pursuant to the terms of the order).

Appendix A

State Identification of Potential Issues, Statutory Conflicts

Alabama

Identification of potential issues, statutory conflicts

- Number of wells allowed within unit - Section 9-17-12(b), Code of Alabama (1975) (“Code”)
 - o Only one well per drilling (i.e., wildcat) unit. See also State Oil and Gas Board Administrative Code (“Rules”) 400-1-2-.02
 - o After drainage or production units are established for a field (which is done when special field rules are adopted for the field), the Board may, by amendment to the special field rules, allow more than one well on a drainage or production unit for a shale gas reservoir and up to two wells on an 80 acre drainage or production unit for a coalbed methane reservoir. Otherwise, only one well is allowed per drainage or production unit. Drainage or production units (some times referred to as “production units”) are the spacing units established by the Board for wells in a field as to which the Board has adopted special field rules. No well may produce, except on a test basis, until special field rules have been adopted for the reservoir into which the well is completed.

- Unit size – Code 9-17-12(b)
 - o Drilling Units (for Wildcat Wells) Rule 400-1-2-.02.
 - Vertical or directional oil well
 - Not less than 40-acres (or a quarter quarter section) nor more than 160 acres (or a quarter section)
 - Vertical, directional or horizontal gas well
 - Not less than 40 acres (or a quarter quarter section) nor more than 640 acres (or one section). Within these limits, the size of the drainage units can vary depending on the county in which the well is located.
 - Horizontal oil well
 - not to exceed 640 acres (or two half sections)
 - o Drainage or Production Units (for wells in an Established Field)
 - Board sets spacing units (referred to as “drainage or production units”) when adopting special field rules for a reservoir subject to the maximum size limits below:
 - Vertical or directional well in an oil field – maximum of 160 acres or one quarter section but can go up to 240 acres in certain limited circumstances
 - Horizontal wells in an oil field – maximum of 640 acres or two half sections
 - Vertical, directional or horizontal wells in a gas field - maximum of 640 acres or one section but can go up to 960 acres in limited circumstances

- Minimum percentage ownership required to force-pool - Code 9-17-13
 - A majority, if a risk compensation fee (which is an additional 150% of certain costs) is sought

- No minimum if a risk compensation fee is not requested
- Timing of WIO and unleased owner's decisions to participate or be pooled when risk compensation fee is sought
 - o Force-pooled owner can avoid risk compensation fee by agreeing in writing to pay its share of costs before the well is spudded or by actually paying its share of costs prior 30 days after well is spudded or prior to the well reaching total depth, whichever is first
 - Prior to obtaining a forced-pooling order, the operator must have made a good faith effort to negotiate to reach a voluntary agreement with each force-pooled party for drilling the well and must have met certain other statutory requirements
- Timing of completion of proposed wells
 - o A forced-pooling order will expire if a well is not spudded within 6 months.
 - o There is no time limit for completion of the well
- What is pooled and when
 - o All interests are pooled for the development and operation of the drilling (wildcat) or production (established field) unit
 - o Effective from the date of the pooling order

Alaska

Identification of potential issues, statutory conflicts

- Number of wells allowed within drilling unit
 - o Alaska Administrative Code (AAC) Section 20 AAC 25.055. Drilling units and well spacing
 - Allows only one well per drilling unit
 - o Alternate well spacing requirements may be specified by the commission after public notice and opportunity for public hearing on spacing units

- Well setback, drilling unit size and inter-well distances
 - o AAC 20 AAC 25.055. Drilling units and well spacing
 - For a well drilling for oil, a wellbore may be open to test or regular production within 500 feet of a property line only if the owner is the same and the landowner is the same on both sides of the line.
 - For a well drilling for gas, a wellbore may be open to test or regular production within 1,500 feet of a property line only if the owner is the same and the landowner is the same on both sides of the line.
 - If oil has been discovered, the drilling unit for the pool is a governmental quarter section
 - o A well may not be drilled or completed closer than 1,000 feet to any well drilling to or capable of producing from the same pool
 - o Alternate well spacing requirements may be specified by the commission after public notice and opportunity for public hearing
 - If gas has been discovered, the drilling unit for the pool is a governmental section.
 - o A well not be drilled or completed closer than 3,000 feet to any well drilling to or capable of producing from the same pool
 - o Alternate well spacing restrictions requirements may be specified by the commission after public notice and opportunity for public hearing

- Minimum percentage ownership required to pool
 - o 20 AAC 25.055. Drilling units and well spacing
 - [No minimum ownership percentage needed to pool]
 - A well may not begin regular production of oil from a property that is smaller than the governmental quarter section upon which the well is located or begin regular production of gas from a property that is smaller than the governmental section upon which the well is located, unless the interests of the persons owning the drilling rights in and the right to share in the production from the quarter section or section, respectively, have been pooled under Alaska Statute (AS) 31.05.100
 - o Alaska Statute (AS) 31.05.100. Establishment of drilling units for pools
 - For the prevention of waste, to protect and enforce the correlative rights of lessees in a pool, and to avoid the augmenting and accumulation of risks arising from the drilling of an excessive number of wells, or the reduced recovery which might result from too small a number of wells, the commission shall, after a hearing, establish a drilling unit or units for each pool

- Timing of completion of proposed wells
 - o Permits issued
 - If drilling operations are not commenced within 24 months after the commission approves an application for a Permit to Drill, the Permit to Drill expires

- What is pooled and when
 - o AS 31.05.100. Establishment of drilling units for pools
 - When two or more separately owned tracts of land are embraced within an established drilling unit, persons owning the drilling rights in it and the right to share in the production from it

- may agree to pool their interests and develop their lands as a drilling unit
- If the persons do not agree to pool their interests, the commission may enter an order pooling and integrating their interests for the development of their lands as a drilling unit for the prevention of waste, for the protection of correlative rights, or to avoid the drilling of unnecessary wells.
- If pooling is effectuated, the cost of development and operation of the pooled unit chargeable by the operator to the other interested lessee is limited to the actual and reasonable expenditures for this purposes, including a reasonable charge for supervision
- o Appropriate risk penalty for non-consenting owners
 - As to lessees who refuse to agree upon pooling, the order shall provide for reimbursement for costs chargeable to each lessee out of, and only out of, production from the unit belonging to such lessee.
- Cross unit development-Unitization and unitized operation of pools and integration of interests by agreement
 - o AS 31.05.110. Unitization and unitized operation of pools and integration of interests by agreement
 - Owners may integrate their interest to provide for the unitized management, development and operations of such tracts of land as a unit
 - Where owners have not agreed to integrate their interests, the commission, upon proper petition, after notice and hearing, has jurisdiction, power and authority, and it is its duty to make and enforce orders and do the things necessary or proper to carry out the purposes of the section.
 - o 20 AAC 25.520. Field and pool regulation and classification
 - The commission has used these regulations to integrate a pool across large unit boundaries, (e.g. Kuparuk River Field-Kuparuk River Oil Pool, Milne Point Field-Kuparuk River Oil Pool, Southern Miluveach Field-Kuparuk River Oil Pool), to define the pool, to establish drilling unit size, and to establish intra-pool well spacing requirements. Note: Injection orders remain on an operator by operator basis and are not integrated
 - Wellbore setbacks are retained to protect correlative rights in that a wellbore will be more than 500 feet and 1,500 feet from an external property line where ownership or landownership changes, for oil and gas wells, respectively
 - Following public notice and opportunity for public hearing, the commission has allowed a horizontal injection wellbore for an oil pool to be closer than 500 feet from an external property line where ownership or landownership changes
- Unit development requirements and timing
 - o For voluntary units, the Alaska Department of Natural Resources holds this responsibility
 - o For compelled units, development would be done in accordance with an order issued by the commission that contains a plan of unit development in accordance with AS 31.05.110(c)
- Drilling units and well spacing for unconventional oil-shale or gas-shale
 - o Statewide drilling unit and spacing requirements specified in AAC 25.055 currently apply to all wells within Alaska, including unconventional oil-shale, gas-shale, coal gasification, and geothermal
- Timing of working interest owners' and unleased mineral right owners' decisions to participate or be pooled

Arizona

Identification of potential issues, statutory conflicts

- Number of wells allowed within unit
 - o One: A.A.C. R12-7-104

- Unit size
 - o 80 acres oil: A.A.C. R12-7-107
 - o 160 acres oil: A.A.C. R12-7-107

- Minimum percentage ownership required to pool
 - o None: A.R.S. 27-505

- Timing of WIO and unleased owner's decisions to participate or be pooled
 - o NA

- Timing of completion of proposed wells
 - o 180 days: A.A.C. R12-7-104

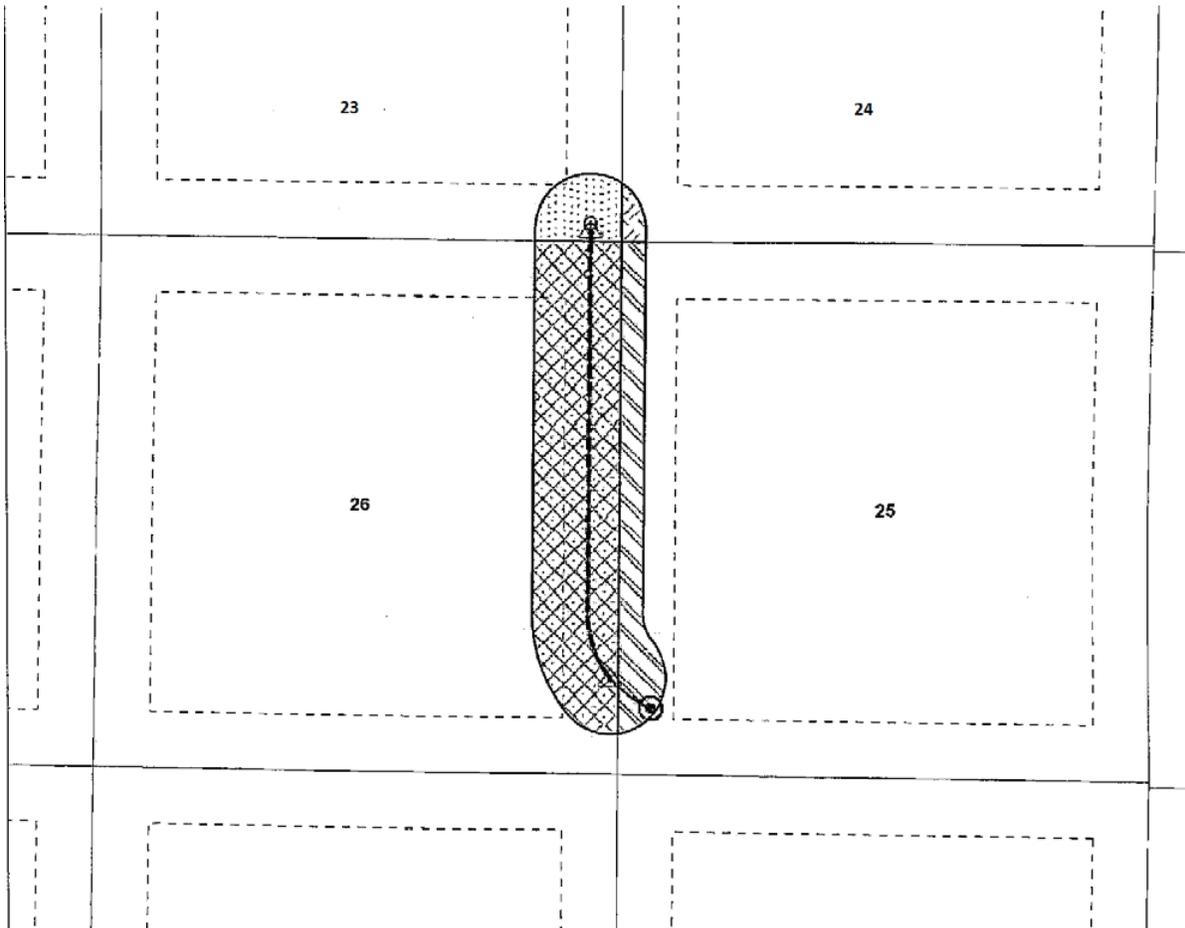
- What is pooled and when
 - o Drilling rights and share in production: A.R.S. 27-505
 - o After notice and hearing

Arkansas

Identification of potential issues, statutory conflicts

- Number of wells allowed within unit
 - o No more than 16 wells per unconventional reservoir in a unit unless an exception is granted by the Commission. General Rule B-43 (i). (Ark Code Ann. § 15-72-302 authorizes Commission to designate number of wells and regulate spacing within a drilling unit)

- Unit size
 - o Governmental sections (640 acres) are designated as drilling units. General Rule B-43 (f). (Ark Code Ann. § 15-72-302 states that drilling units are comprised of governmental sections unless a larger or smaller unit is requested by an owner and approved by the Commission)
 - o Commission has authority to omit lands from a drilling unit owned by governmental entities. Commission also has authority to combine two or more drilling units, although this has not been necessary as this type of action was addressed by "cross-unit" wells. "Cross-unit" wells are wells that extend across or encroach upon adjoining drilling units, and are shared based upon a formula between all affected drilling units. (See below for further illustration)



Section	Area	% Allocation	Length (2D)	Legend
10N-13W-26	93.5 ac.	67.56 %	4388.63 ft.	Sections 560ft Offset
10N-13W-25	30.61 ac.	22.12 %		Surveyed Sections
10N-13W-23	11.82 ac.	8.53 %	118.27 ft.	First & last Perf Locations
10N-13W-24	2.48 ac.	1.79 %		Surface Hole
				Bottom Hole

- Minimum percentage ownership required to pool
 - o "Exploratory Drilling Unit" - at least an undivided fifty percent (50%) interest in the right to drill and produce. Exploratory Drilling Unit is any drilling unit that is not an established drilling unit
 - o "Established Drilling Unit" – no minimum acreage requirement, provided that one or more persons owning an interest in the right to drill and produce oil or gas requests. Established Drilling Unit is one that contains a well that has a well (conventional or unconventional) that has been drilled and completed and for which the Commission has issued a certificate of compliance. Once the certificate of compliance is issued, the exploratory drilling unit where the well is located and all contiguous governmental sections become exploratory drilling units

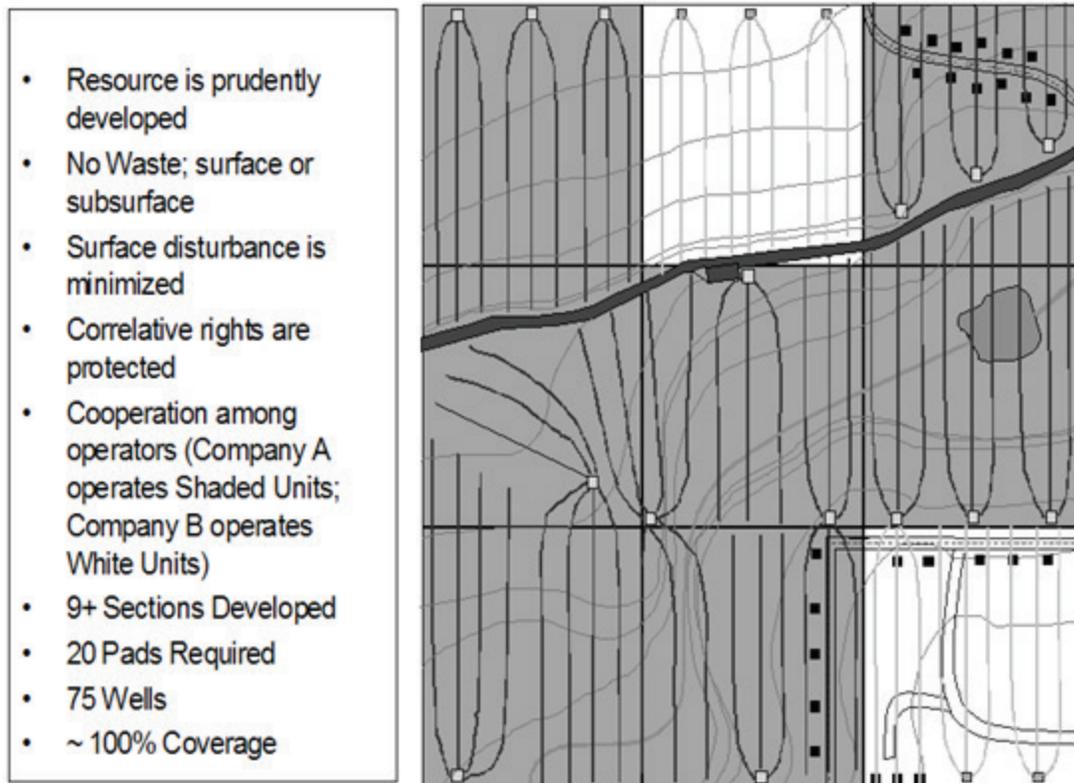
- Timing of WIO and unleased owner's decisions to participate or be pooled
 - o Typically 15 days after date of integration (forced pooling) order

- Timing of completion of proposed wells:
 - o Arkansas has adopted a uniform Operating Agreement.
http://www.aogc.state.ar.us/JOA_Archive.htm

- What is pooled and when
 - o Working interests and mineral interests are pooled when the Commission enters an integration order. If unit is 100% voluntarily leased, a Declaration of Pooling is filed by the Operator in the county land records

Paradigm Shift. Regulating and protecting correlative rights rather than focusing on shale reservoir itself. Above diagram represent a well that is shared between four (4) different drilling units. Formula is determined by creating a 560' radius around the entire length of the perforated wellbore. Also, General Rule B-43 contains protections to keep operators from simply "holding" or "land-grabbing" acreage by "cross-unit" wells.

Below diagram is an example of use of "cross-unit" wells for full development, even with different operators of units.



Colorado

Identification of potential issues, statutory conflicts

- Number of wells allowed within unit
 - o Colorado Revised Statutes (CRS) Section 34-60-116
 - Allows Commission to establish drilling units. C.R.S. § 34-60-116(1), (2)
 - Only one well shall be drilled and produced from the drilling unit. C.R.S. § 34-60-116(3)
 - The drilling unit may be increased or decreased in size, or additional wells may be permitted within the unit after notice and hearing. C.R.S. § 34-60-116(4)
 - Exploratory drilling units may be established for various sizes and shapes based on other units established by the Commission for the same formation in other areas of the basin
 - C.R.S. § 34-60-116(2)
 - Special Rules for Greater Wattenberg Area (GWA), located within the Denver Julesberg Basin
 - Rule 318 a.(4) allows creation of a “wellbore spacing unit” comprised of each quarter-quarter section through which producing portions of a proposed wellbore passes and all quarter-quarter sections within 460 feet of the producing portions of the wellbore
 - Rule 318A.e. allows wellbore spacing units to be approved administratively, provided an operator provides notice to all other working interest owners within the proposed unit and there are no objections
 - Wellbore spacing units are for a single well (by definition) and can be “cross border” wells
 - o COGCC is approving drilling units for development of unconventional resources in which more than one well is approved at the time the unit is established
 - o COGCC has approved a small number of large (2560+ acres) “Unconventional Resource Units” (URUS) in unproven unconventional development areas, in which an unspecified number of wells have been approved at the time the unit is established. Operators of URUs are required to update the Commission annually on development progress
 - o Operators may drill on a lease basis, provided lease is “not smaller than the maximum area that can be efficiently and economically drained by one well.” C.R.S. § 34-60-116(2); Rules 318.a,b
- Unit size
 - o Variable, determined by the Commission based upon the prevention of waste, protection of correlative rights, and efficient and economic development of each unit. C.R.S. § 34-60-116
 - Within the GWA, most operators have opted for wellbore spacing units, ranging between 160 and 640 acres
 - 640-acre up to 1280-acre drilling units are common outside of the GWA
 - COGCC has approved drilling units up to 3200-acres in URUs outside of GWA
- Minimum percentage ownership required to space/pool
 - o No minimum percentage ownership is required to establish a drilling unit or to pool interests within a unit
 - o Two or more separately owned tracts, not voluntarily pooled, may be pooled by Commission Order. Any “interested person” can file an application to establish a unit and to pool all interests in a spacing unit. C.R.S. § 34-60-116(6)
- Timing of WIO and unleased owner’s decisions to participate or be pooled
 - o Absent an agreement to lease, an unleased owner is deemed to be nonconsenting 35 days after a “reasonable offer to lease.” Rule 530
 - o Absent consent, a WIO is deemed to be nonconsenting 35 days after an offer to participate. Rule 530
 - o Statutory risk penalty:
 - 100% of intangible costs (separators, treaters, piping, cost of operation of the well after first production until cost recovery) are assessed on a nonconsenting owner. C.R.S. § 34-60-116(7)(b)(I)

- 200% risk penalty for tangible costs (drilling, reworking, completing) are assessed on a non-consenting owner. C.R.S. § 34-60-116(7)(b)(II)

- Timing of completion of proposed wells

- o No deadline for well to be spud after pooling, except for expiration of APD
- o Commission may determine reasonableness of costs during cost recovery period. 34-60-116(7)(d), CRS

- What is pooled and when

- o "All interests in the drilling unit" are pooled upon order of the Commission. C.R.S. § 34-60-116(6)
- o Pooling is effective from the date costs are first incurred for the drilling of the well

Illinois

Identification of potential issues, statutory conflicts

- Number of wells allowed within unit
 - o Illinois Administrative Code 62 (ILAC) Section 240.410
 - o Allows only one well per drilling unit
 - o (EOR) Activity removes internal spacing units

- Unit size
 - o 62 ILAC Section 240.410
 - o Oil
 - Vertical or directional oil well in a limestone/dolomite formation not deeper than 4000 Ft. - 20 acre drilling unit
 - Vertical or directional oil well in a formation other than limestone/dolomite not deeper than 4000 Ft. - 10-acre drilling unit
 - Vertical or directional oil well in any formation, the top of which lies below 4000 Ft. - 40 acre drilling unit
 - o Gas
 - Vertical or directional gas well in a limestone/dolomite formation not deeper than 2000 Ft. – 20 acre drilling unit
 - Vertical or directional gas well in a formation other than limestone/dolomite not deeper than 2000 Ft. – 10 acre drilling unit
 - Vertical or directional gas well in any formation, the top of which lies below 2000 Ft but above 5000 Ft. or top of the Trenton Formation. - 40 acre drilling unit
 - Vertical or directional gas well in any formation, the top of which lies below 5000 Ft. or top of the Trenton Formation.-160-acre drilling unit for the exploratory well then Spacing for any additional wells in the reservoir set by hearing
 - o Horizontal Drilling 62 ILAC 240.455
 - Primary Recovery
 - A Horizontal unit may be designated consisting of two or more drilling units of the same size, shape and location as that required for a well of the same depth in accordance with Section 240.410 set out in a north-south or east-west pattern. The north-south or east-west pattern of a horizontal drilling unit may cross section lines
 - Post –Primary Recovery
 - A horizontal drilling unit may be designated consisting of two or more drilling units of the same size, shape and location as that required for a well of the same depth in accordance with Section 240.410 and located in the same reservoir. At least one-half of the drilling units used to make up the horizontal drilling unit are required to contain at least one plugged or non-producing well
 - The Department shall set spacing units (225 ILCS 725/21.1) Oil and Gas Act
 - (a) The Department is authorized to issue permits for the drilling of wells and to regulate the spacing of wells for oil and gas purposes. For the prevention of waste, to protect and enforce the correlative rights of owners in the pool, and to prevent the drilling of unnecessary wells

- Minimum percentage ownership required to Integrate
 - o (225 ILCS 725/22.2)
 - o Any “interested person” can file a petition to integrate all interests in a spacing unit

- o No minimum percentage needed to integrate
- o Two or more separately owned tracts, not voluntarily pooled, must be integrated
- Timing of WIO and unleased owner's decisions to participate or be Integrated
 - o (62 ILAC 240.132)
 - o Must make "good faith" offer to lease
 - o Department determines if the owner surrenders the leasehold interest or becomes a Carried Working Interest Owner through an Integration Hearing
 - o 100 to 300% penalty for a Carried Working Interest Owner
- Timing of completion of proposed wells
 - o One year expiration unless drilling is commenced
- What is pooled and when
 - o (62 ILAC 240.132)
 - o Effective within the spacing unit from the issue date of the Administrative Order
 - o All interests are pooled for the development and operation of the spacing unit until the well is plugged

Indiana

Identification of potential issues, statutory conflicts

- Number of wells allowed within unit
 - o Only one (1) well is allowed within a drilling unit. The boundary of the drilling unit currently is required to conform to the boundary of a $\frac{1}{4}$, $\frac{1}{4}$ Section, or a uniform fraction thereof, depending on the type, depth, and configuration of the well. Multiple laterals from the same vertical would be considered one (1) well
 - o Multiple wells are allowed on larger, voluntarily pooled spacing units
- Unit size
 - o Horizontal drilling units currently vary from between 40 to 320 acres depending on depth and well configuration. Larger unit sizes are permissible for extended reach horizontal wells. No portion of horizontal drainhole shall be closer than 330 feet from unit boundary
- Minimum percentage ownership required to pool
 - o Indiana law does not specify a minimum percentage ownership required to pool
- Timing of WIO and unleased owner's decisions to participate or be pooled
 - o The applicant must make a good faith effort to lease all interest owners. Thereafter, the applicant may submit a petition for involuntary integration at any time. Where owners of two or more tracts are unable to reach agreement, the interests shall be integrated under IC 14-37-9-1 in order to prevent waste or the drilling of unnecessary wells
- Timing of completion of proposed wells
 - o Drilling must commence within 1 year of permit issuance
- What is pooled and when
 - o All interests are pooled for the drilling and operation of the wells within the involuntary pooled unit effective from the date of first operations from the pooled unit

Kansas

Identification of potential issues, statutory conflicts

- Number of wells allowed within unit
 - o The Kansas Administrative Regulations (K.A.R.) and Kansas Statutes Annotated (K.S.A.) do not differentiate between vertical and horizontal well drilling units.
 - o K.A.R. 82-3-207 establishes a standard* 10-acre drilling unit for oil wells. And K.A.R. 82-3-312 establishes a 10-acre drilling unit for gas wells.
 - Pursuant to K.A.R. 82-3-108 there are 28 counties in Eastern Kansas which allow for 2.5 acre drilling units for shallow oil wells.

- Unit size
 - o K.A.R. 82-3-207 establishes a standard* 10-acre drilling unit for oil wells with a minimum 330 foot setback from lease or unit boundaries.
 - Pursuant to K.A.R. 82-3-108 there are 28 counties in Eastern Kansas which allow for 2.5-acre drilling units for shallow oil wells with a minimum 165 foot setback from lease or unit boundaries.
 - o K.A.R. 82-3-312 establishes a standard 10-acre drilling unit for gas wells with a minimum 330 foot setback from lease or unit boundaries.
 - o K.A.R. 82-3-1401 states the completion intervals for horizontal wells are subject to the same setback requirements outlined in K.A.R. 82-3-108, 82-3-207, and 82-3-312.
 - o K.A.R. 82-3-109 allows any interested party to file an application for special spacing units and requires a Commission hearing on the application.

- Minimum percentage ownership required to pool
 - o Kansas does not have forced pooling; however, K.S.A. § 55-1300 et seq. allow for the Commission to unitize acreage to prevent waste and protect correlative rights within a pool or part of a pool after application, notice, and hearing.
 - Any working interest owner may file an application for unitization pursuant to K.S.A. § 55-1303.
 - K.S.A. § 55-1304(a)(2) requires the Commission to find in part “the unitized management, operation and further development of the pool or the part thereof sought to be unitized is economically feasible and reasonably necessary to prevent waste within the reservoir and thereby increase substantially the ultimate recovery of oil or gas.”
 - o For a Commission ordered unitization to be effective, K.S.A. § 55-1305(l) requires 63% of working interest owner approval and 75% royalty (excluding overriding royalty ownership) interest approval within six months of the Commission order authorizing the unit.
 - o If 100% of the royalty interest owners and at least 90% of the working interest owners agree to unit operations, no application and hearing is necessary per K.S.A. § 55-1317.
 - A copy of the proposed contract must still be provided to the Commission and all working interest owners who then still have the right to initiate proceedings before the Commission within 30 days.

- Timing of WIO and unleased owner’s decisions to participate or be pooled
 - o K.A.R. 82-3-103a requires an application, notice, and potential hearing for all non-Mississippian formation horizontal wells.
 - o Participation in the hearing on the application for unitization is governed by the Kansas Administrative Procedures Act, K.S.A. § 77-501 et seq.
 - o When practicable, a hearing on the application shall be heard within 90 days of filing per K.S.A. § 77-511.
 - K.S.A. § 55-1310 requires notice of the application with the time and date of the hearing must be provided to all interested parties at least 10 days prior to the hearing. Notice of the date and time of the hearing must also be published in all county newspapers of record where lands affected by the unitization application are located at least 10 days prior to the hearing.

- Timing of completion of proposed wells
 - o Drilling permits expire within one year of issuance per K.A.R. 82-3-103 and completion reports must be filed within 120 days of the spud date per K.A.R. 82-3-130.

- What is pooled and when
 - o All interests contemplated by the unit application and unit operating agreement as approved by Commission Order per K.S.A. § 55-1305.
 - o The unitization order is effective upon issuance and subject to appeal for 30 days plus 3 for mailing per K.S.A. § 77-530. After the order is effective, the timing of operations is controlled by the unit operating agreement.

- Additional regulations pertaining specifically to horizontal wells in Kansas can be found in K.A.R. 82-3-1400 *et seq.*

Kentucky

Identification of potential issues, statutory conflicts

- Number of wells allowed within unit
 - o Shallow wells: Kentucky Revised Statutes (KRS)353.590
 - Allows only one well per drilling unit
 - o Deep wells: 805 Kentucky Administrative Regulations (KAR) 1:100
 - Allows for more than one on a single well pad

- Unit size
 - o Shallow wells: KRS 353.610
 - Measured from any point along the productive leg of the well
 - Gas wells: 500' from property line, 1000' between other gas wells
 - Oil wells: 200' from property line, 400' from other oil wells (down to 2000' TVD)
 - Oil wells: 330' from property line, 660' from other oil wells (from 2000'-6000' TVD)
 - Oil wells: 330' from property line, 660' from other oil wells (in coal areas)
 - o Deep wells: 805 KAR 1:100
 - Unit size shall be set by the Oil and Gas Conservation Commission after a hearing

- Minimum percentage ownership required to pool
 - o Shallow wells: KRS 353.630
 - At least 51% of mineral owners
 - o Deep wells: KRS 353.652
 - At least 75% of the minerals owners

- Timing of WIO and unleased owner's decisions to participate or be pooled
 - o After hearing and recommended order, parties have 15 days until final order is signed
 - o KRS 35.640: 200% penalty clause for nonparticipating working interest owner

- Timing of completion of proposed wells
 - o KRS 353.590
 - All drilling permits expire after one year, unless an extension is requested

- What is pooled and when
 - o KRS 353.640 and KRS 353.645
 - All interest are pooled for the development and operation of the unit

Louisiana

Identification of potential issues, statutory conflicts

- Number of wells allowed within unit
 - o Normally one (1) for a drilling and production unit (R.S. 30:9) but others (alternates & substitutes) can be added by hearing. With reservoir wide units (R.S. 30:5(C)) there is no limit

- Unit size
 - o Varies depending on the bases for the creation the unit. A reservoir wide unit (R.S. 30:5(C)) is normally based on geology, the size is dependent on what that geology shows. Drilling and Production Units (R.S. 30:9) could be geographic or geological and could depend on 3-D, existing patterns of units in the same field, horizontal or vertical well plan, or depth

- Minimum percentage ownership required to pool
 - o These issues are only considered in the forming of a reservoir wide unit (R.S. 30:5(C)). Rules would require 75% of both owners and royalty owners

- Timing of WIO and unleased owner's decisions to participate or be pooled
 - o WIO would face a Risk Fee Penalty of 200% (R.S. 30:10). Unleased owners are not subject to the Risk Fee charge. All interests in the drilling unit are pooled upon order of the Commissioner effective the date of the Order

- Timing of completion of proposed wells
 - o Drilling permits are issued for 6 months or 1 year. Once drilled there is no time limit for completion of the well but we would expect the filing of a completion report within three (3) days of a successful completion

- What is pooled and when
 - o All interests in the drilling unit are pooled upon order of the Commissioner effective the date of the Order

Nevada

Identification of potential issues, statutory conflicts

- Number of wells allowed within unit
 - Nevada Revised Statutes (NRS) 522.060: Number of wells allowed within a unit is established through the hearing process

- Unit size
 - Nevada Administrative Code (NAC) 522.235
 - In a proven oil and gas field the spacing of wells is governed by special rules for each particular field to be adopted by the Division after notice and hearing.
 - In the absence of an order by the Division establishing drilling units or authorizing different densities of wells, the following per well requirements apply:
Oil ≤ 5000' 40 acres Gas ≤ 5000' 160 acres
Oil > 5000' 160 acres Gas > 5000' 640 acres

- Minimum percentage ownership required to pool
 - NRS 522.0834.1 a: Plan of unitization to pool requires minimum of 62.5% vote by owners of record.
 - NRS 522.084: Unit area of a unit may be enlarged to include adjoining portions of the same pool

- Timing of WIO and unleased owner's decisions to participate or be pooled
 - NRS 522 and NAC 522 do not address risk penalties for unleased MIO and WIO property. Interested parties can request a hearing pertaining to forced pooling (NRS 522.0828)
 - NRS 522.060.4: A 300% back-in penalty is assessed to those who refuse to agree on pooling
 - NRS 522.060.0: If parties fail to agree on pooling, and without a forced pooling order from the Division, parties can only produce proportional amount on each of their separate tracts as compared to what would be produced if unit was established

- Timing of completion of proposed wells
 - NRS 522 and NAC 522 do not address risk penalties in the 'election to participate' in terms of a time frame where an election to participate is to be made
 - NAC 522.220: Two year expiration unless operations have been commenced prior to expiration date

- What is pooled and when
 - NRS 522.060.1: The Division shall, after a hearing, establish a drilling unit or units for each pool
 - Effective date for unit and spacing unit operations begins on date of Division approval, through the hearing process

New Mexico

Identification of potential issues, statutory conflicts

- Number of wells allowed within unit
 - o There is no limit on the number of horizontal wells that can be drilled within a project area (19.15.16.15(D) NMAC)
 - o Existing wells in spacing units or project areas that are included in newly designated project areas remain dedicated to their existing spacing units or project areas and are not part of the new project area unless otherwise agreed to by all working interest owners in the existing and newly designated project areas (19.15.16.15(C)(1) NMAC)
 - o Subsequent wells drilled within a project area may be drilled only with the approval of all working interest owners in the project area, or by order of the Oil Conservation Division (“OCD”) after notice and opportunity for hearing (19.15.16.15 (C)(2) NMAC)

- Unit size
 - o General statewide spacing is established at 40-acres for oil, 320-acres for deep gas and 160-acres for shallow gas (19.15.15.9 & 19.15.15.10 NMAC) unless larger spacing has been established for a particular pool by OCD hearing
 - o Standard horizontal project areas may be formed by combining one or more contiguous standard spacing units in one section or in more than one section, provided that the resulting project area is substantially in the form of a rectangle. Also, all spacing units included in the project area must be “developed” by the horizontal well (19.15.16.7 NMAC)
 - o To form a non-standard horizontal project area, the operator must apply to the OCD and provide notice to the affected parties in the tracts being excluded, and to the affected parties in offset acreage that adjoins the non-standard horizontal project area (19.15.16.15 (E)(2)NMAC)

- Minimum percentage ownership required to pool
 - o In order to compulsory pool a standard or non-standard spacing unit/horizontal project area, the operator must own an interest in some portion of the proposed spacing unit/horizontal project area, however, the OCD does not have a requirement that specifies minimum percentage of ownership (19.15.13 NMAC)

- Timing of WIO and unleased owner’s decisions to participate or be pooled
 - o Prior to filing for compulsory pooling, the operator must propose the well to the interest owners and make a reasonable attempt to secure voluntary agreement
 - o Subsequent to the compulsory pooling hearing and the issuance of a pooling order, the applicant must provide the interest owners an AFE for the proposed well. The interest owner then has 30-days from the date the AFE was sent to elect to participate in the well by paying to the operator its share of well costs
 - o Non-consenting working interest owners are assessed a 300% (Its share of well costs + 200%) penalty. (19.15.13 NMAC)
 - o Infill Wells: After completion of the initial well on a pooled unit, the operator or owner of a pooled working interest may propose the drilling of an infill well. The operator or party proposing the infill well is required to provide notice and an AFE to each pooled working interest owner. The pooled working interest owner then has 30-days from the date the proposal was received to elect to participate in the well by paying to the operator its share of well costs (19.15.13.9 & 19.15.13.10 NMAC)

- Timing of completion of proposed wells
 - o Drilling permits expire two years after issuance. A one year extension may be granted
 - o Compulsory pooling orders require that the well be drilled within one year from the date that the pooling order was issued, unless an extension is approved by the OCD (usually 90-days)

- o The pooling order also requires that the well be drilled and completed within 120-days of commencement thereof. An extension may be granted for good cause (19.15.13 NMAC)
- What is pooled and when
 - o All uncommitted mineral interests are pooled for the development and operation of the standard or non-standard spacing unit/horizontal project area
 - o Pooling is effective the date of the compulsory pooling order

New York²

Identification of potential issues, statutory conflicts

- Number of wells allowed within unit
 - o ECL §23-0503(4)
 - Allows infill wells in the spacing unit only after the Department determines that infill wells are necessary to prevent waste, protect correlative rights and achieve greater ultimate recovery – ECL §23-0301 Policy Objectives
 - o ECL §23-0501(1)(b)(1)(vi)
 - A commitment to drill infill wells is required to establish a unit up to 640 acres for a horizontal gas well in shale

- Unit size
 - o ECL §23-0501(1)(b)(1)
 - Medina gas pools at any depth
Vertical: 40-acres +/- 10% with the wellbore within the target formation no less than 460 feet from unit boundary.
Horizontal: 40-acres +/- 10% plus the number of additional acres necessary and sufficient to ensure the wellbore within the target formation is not less than 460 feet from unit boundary.
 - Onondaga reef or Oriskany gas pools at any depth
Vertical: 160-acres +/- 10% with the wellbore within the target formation no less than 660 feet from unit boundary.
Horizontal: 160-acres +/- 10% plus the number of additional acres necessary and sufficient to ensure the wellbore within the target formation is not less than 660 feet from unit boundary.
 - Fault-bounded Trenton and/or Black River hydrothermal dolomite gas pools
Majority of pool between 4,000 and 8,000 feet deep 320-acres +/- 10% with the wellbore within the target formation no less than one-half mile from any other well in another unit in the same pool and no less than 1,000 feet from any unit boundary that is not defined by a field-bounding fault but in no event less than 660 feet from any unit boundary.
 - Fault-bounded Trenton and/or Black River hydrothermal dolomite gas pools
Majority of pool below 8,000 feet
640-acres +/- 5% with the wellbore within the target formation no less than one mile from any other well in another unit in the same pool and no less than 1,500 feet from any unit boundary that is not defined by a field-bounding fault but in no event less than 660 feet from any unit boundary.
 - Vertical – Shale gas pools at any depth
40-acres +/- 10% with the wellbore within the target formation no less than 460 feet from unit boundary.
 - Horizontal – Shale gas pools at any depth (with written agreement from operator to drill infill wells)
Up to 640-acres with initial horizontal wellbore or wellbores within the target formation approximately centered in the unit and no wellbore in the target formation less than 330 feet from unit boundary.
 - Horizontal – Shale gas pools at any depth (without written agreement from operator to drill infill wells)
40-acres +/- 10% plus the number of additional acres necessary and sufficient to ensure the wellbore within the target formation is not less than 330 feet from unit boundary.

² Statutory amendments in 2005 and 2008 are in effect although they have not yet been codified in rules and regulations. Hearings are conducted pursuant to DEC Program Policy DMN-1:Public Hearing Processes for Oil and Gas Well Spacing and Compulsory Integration

- For all other gas pools
Majority of pool is above 4,000 feet
Vertical: 80-acres +/- 10% with the wellbore within the target formation no less than 460 feet from unit boundary.
Horizontal: 80-acres +/- 10% plus the number of additional acres necessary and sufficient to ensure the wellbore within the target formation is not less than 460 feet from unit boundary.
- For all other gas pools
Majority of pool is between 4,000 and 6,000 feet deep
Vertical: 160-acres +/- 10% with the wellbore within the target formation no less than 660 feet from unit boundary.
Horizontal: 160-acres +/- 10% plus the number of additional acres necessary and sufficient to ensure the wellbore within the target formation is not less than 660 feet from unit boundary.
- For all other gas pools
Majority of pool is between 6,000 and 8,000 feet deep
Vertical: 320-acres +/- 10% with the wellbore within the target formation no less than 1,000 feet from unit boundary.
Horizontal: 320-acres +/- 10% plus the number of additional acres necessary and sufficient to ensure the wellbore within the target formation is not less than 1,000 feet from unit boundary.
- For all other gas pools
Majority of pool below 8,000 feet
Vertical: 640-acres +/- 5% with the wellbore within the target formation no less than 1,500 feet from unit boundary.
Horizontal: 640-acres +/- 5% plus the number of additional acres necessary and sufficient to ensure the wellbore within the target formation is not less than 1,500 feet from unit boundary.
- Bass Island, Trenton, Black River, Onondaga reef oil pools or other oil-bearing reefs at any depth
Vertical: 40-acres +/- 10% with the wellbore within the target formation no less than 460 feet from unit boundary.
Horizontal: 40-acres +/- 10% plus the number of additional acres necessary and sufficient to ensure the wellbore within the target formation is not less than 460 feet from unit boundary.
- All other oil pools at any depth
Unit size not specified; wellbore within target formation must be no less than 165 feet from any lease boundary

- Minimum percentage ownership required to pool

- o ECL §23-0501(2)
- Applicant for permit to drill must control through fee ownership, voluntary agreement, or integration pursuant to ECL §23-0701 or ECL §23-0901, no less than sixty percent of the acreage within the proposed spacing unit
- o ECL §23-0901(2)
- In the absence of voluntary integration, the Department must issue, after notice and hearing, an order integrating all tracts (interests) in the spacing unit for development and operation

- Timing of WIO and unleased owner's decisions to participate or be pooled

- o ECL §23-0901(3)(c)(2)
- Within 21 days of receiving notice of an integration hearing, each uncontrolled owner, i.e. owner who has not reached a voluntary agreement with the well operator, must select one of three integration options: integrated non-participating owner, integrated participating owner or integrated royalty owner
 - Participating owners must pay their estimated share of drilling, operating and completion costs attributable to their acreage in the spacing unit to the well operator by the conclusion of the integration hearing
 - Non-Participating owners receive the full share of production attributable to their acreage in the spacing unit following the recoupment by the operator of well costs plus a risk penalty of 200%

- Timing of completion of proposed wells
 - o 6 NYCRR Part 552.2(c)
 - Permits issued – 180 days expiration unless operations were commenced before expiration of the permit
 - o 6NYCRR Part 555.3(a)
 - No time limit for completing wells as long as well owner maintains legal temporary abandonment status on the wells
 - o ECL §23-0501(1)(b)(1)(vi)
 - For shale gas pools at any depth for a horizontal well (Up to 640 acre spacing unit) – Operator must submit a written commitment to drill all horizontal infill wells within three years of the date of commencement of the first well in the spacing unit

- What is pooled and when

Spacing units established for gas or oil wells pursuant to ECL §23-0501(1)(b) only apply to the target formation

 - o ECL §23-0901(3)
 - All tracts or interests within the spacing unit are integrated upon the date of issuance of the final order of integration
 - o ECL §23-0901(3)(d)
 - If substantive and significant and significant issues are raised during the integration hearing the department shall schedule an adjudicatory hearing. Any order would be issued after the conclusion of the adjudicatory process
 - o ECL §23-0901(3)(e)
 - If no substantive and significant issues are raised at the hearing, the department issues the order at the conclusion of the hearing
 - o ECL 23-0901(3)(f)
 - Activities including drilling or operation of a well upon any portion of the spacing unit is deemed the conduct of such operation upon each separately owned tract wholly or partially within the spacing unit

North Dakota

Identification of potential issues, statutory conflicts

- Number of wells allowed within unit
 - o North Dakota Administrative Code (NDAC) Section 43-02-03-18
 - Allows only one well per drilling unit
 - o Unlimited wells allowed after notice and hearing on spacing units
 - Currently some orders allow up to 28 wells / spacing unit

- Unit size
 - o NDAC Section 43-02-03-18
 - Vertical or directional not deeper than Mission Canyon Formation
 - 40-acre drilling unit
 - Vertical or directional deeper than Mission Canyon Formation
 - 160-acre drilling unit
 - Horizontal wells not deeper than Mission Canyon Formation
 - 320-acre or 640-acre drilling unit
 - Horizontal wells deeper than Mission Canyon Formation
 - 640-acre drilling unit
 - o North Dakota Century Code (NDCC) Section 38-08-07
 - Commission shall set spacing units
 - To prevent waste, avoid drilling unnecessary wells, or to protect correlative rights
 - Size and shape to result in efficient and economical development

- Minimum percentage ownership required to pool
 - o NDCC Section 38-08-08
 - Any “interested person” can file an application pooling all interests in a spacing unit
 - No minimum percentage needed to pool
 - Two or more separately owned tract, not voluntarily pooled, must be pooled

- Timing of WIO and unleased owner’s decisions to participate or be pooled
 - o 50% risk penalty assessed on unleased MIO—NDAC Section 43-02-03-16.3
 - Must make “good-faith” offer to lease
 - Operator must notify the MIO that they intend to assess a risk penalty
 - No hearing necessary to obtain risk penalty if follow rule
 - o 200% risk penalty assessed on unleased WIO—NDAC Section 43-02-03-16.3
 - Operator must notify the WIO that they intend to assess a risk penalty
 - No hearing necessary to obtain risk penalty if follow rule

- Timing of completion of proposed wells
 - o Risk Penalty—NDAC Section 43-02-03-16.3
 - Election to participate only binding if well is spud on or before 90 days of election
 - o Permits issued—NDAC Section 43-02-03-16
 - One year expiration unless drilling below surface casing

- What is pooled and when
 - o All interests are pooled for the development and operation of the spacing unit—NDCC Section 38-08-08

Ohio

Identification of potential issues, statutory conflicts

- Number of wells allowed within unit
 - o Unrestricted, subject to spacing requirements set forth in OAC 1501:9-1-04
- Unit size
 - o Must be greater than 40 acres – no maximum size
- Minimum percentage ownership required to pool
 - o 65%
- Timing of WIO and unleased owner's decisions to participate or be pooled
 - o Any time prior to filing of unitization application. Further, the unitization order allows for unleased mineral interest owners to lease after the order is issued.
- Timing of completion of proposed wells
 - o Drilling to commence within 12 months of unitization order. All proposed wells in the application must be drilled, completed and producing within X years (varies depending on the number of wells proposed within the unit) of completion of the initial well according to the order.
- What is pooled and when
 - o Non-participating WIO and unleased mineral owners. Non-participating WIO's receive compensation in accordance with the applicant's JOA. Unleased mineral owners receive a 1/8 landowner royalty on gross proceeds and a 7/8 share of net proceeds from production after the applicant receives 200% reasonable interest charge on the initial well and 150% on each subsequent well.

Oklahoma

Identification of potential issues, statutory conflicts

- Number of wells allowed within unit
 - o Oklahoma Statutes, tit. 52, Section 87.1:
 - One well initially permitted in each spacing unit; however, increased density authority is available
 - Numerous additional wells are typically drilled in 640 acre units, which are the most common size units for natural gas wells (horizontal or vertical); horizontal oil wells; and dewatering oil wells
 - o Oklahoma Statutes, tit. 52, Section 87.6 through 87.9:
 - One well initially permitted for development of spacing units with horizontal multiunit wells testing shales and associated common sources of supply (as defined by the Corporation Commission)
 - Typically multiunit horizontal wells are drilled in two adjoining 640 acre oil and/or natural gas spacing units; although, increased density drilling of multiunit wells is very common
- Unit size
 - o Oklahoma Administrative Code (OAC) 165:10-1-21 and 10-1-22, Oil and Gas Conservation Rules:
 - 10, 20, 40, 160, 640 acre square units; 20, 40, 80, 320 rectangular units
 - o Oklahoma Administrative Code (OAC) 165:10-3-28, Oil and Gas Conservation Rules:
 - Horizontal wells are permitted in standard square units – 10, 20, 40, 160, or 640 acres
 - Horizontal wells are permitted in standard rectangular units – 20, 40, 80, or 320 acres
 - Horizontal wells are permitted in non-standard spacing units such as “stacked 640 acre units” thus allowing for an extended lateral well (example: 10,000 foot laterals)
 - Horizontal wells can be drilled in any drilling and spacing unit; non-standard horizontal spacing units may not exceed 640 acres plus tolerances and variances provided in Okla. Stat., tit. 87.1; horizontal spacing units for common sources of supply previously spaced for non-horizontal development may exist concurrently with one or more non-horizontal spacing units and the units may be developed concurrently
 - o Oklahoma Statutes, tit. 52, Section 87.1:
 - The Corporation Commission establishes by order oil and gas well drilling and spacing units according to the requirements of the statute after notice and hearing:
 - “To prevent or to assist in preventing the various types of waste of oil or gas prohibited by statute, or any wastes, or to protect or assist in protecting the correlative rights of interested parties...”
 - The spacing units cannot exceed 640 acres in size except for tolerances and variances provided in the statute. Except for oil dewatering spacing units, oil units cannot exceed 40 acres in size above 4,000 feet; cannot exceed 80 acres in size from 4,000 to 9,990 feet; and can be 160 acres in size below 9,990 feet. Oil dewatering spacing units cannot exceed 640 acres in size at any depth
 - Horizontal oil wells are permitted to be spaced on units up to 640 acres in size plus tolerances and variances provided in the statute
- Minimum percentage ownership required to pool
 - o Oklahoma Statutes, tit. 52, Section 87.1:
 - The Corporation Commission by order may pool owners that cannot reach agreement to develop a drilling and spacing unit

- “When two or more separately owned tracts of land are embraced within an established spacing unit, or where there are undivided interests separately owned, or both such separately owned tracts and undivided interests embraced within such established spacing unit, the owners thereof may validly pool their interests and develop their lands as a unit. Where, however, such owners have not agreed to pool their interests and where one such separate owner has drilled or proposes to drill a well on the unit to the common source of supply, the Commission, to avoid the drilling of unnecessary wells, or to protect correlative rights, shall, upon a proper application therefore and a hearing thereon, require such owners to pool and develop their lands in the spacing unit as a unit.”
- No minimum percentage of ownership is required for the standing of an owner to apply for a forced pooling order
- Timing of WIO and unleased owner’s decisions to participate or be pooled
 - o Oklahoma Administrative Code (OAC) 165:5-15-3, Rules of Practice:
 - The Corporation Commission’s forced pooling order shall provide an election pursuant to Rules of Practice, OAC 165:5-15-3(d):
 “A pooling order shall contain language to the effect that the respondents shall have at least twenty (20) days from the date of the order in which to communicate an election to the applicant or other responsible person as to the option selected under the order, unless the Commission directs otherwise.”
- Timing of completion of proposed wells
 - o Oklahoma statutes and Corporation Commission regulations do not require completion of wells within a specified time after proposal. Authority for certain forms of relief pursuant to statute, obtained through Corporation Commission orders, must be secured by commencement of operations within time periods provided by regulation (Rules of Practice, OAC 165:5-15-5, one year to commence a well pursuant to an increased density order ; OAC 165:5-15-6, one year to commence a well pursuant to a location exception order)
 - Form 1000 Intent to Drill expires pursuant to regulation, Oil and Gas Conservation Rules, OAC 165:10-3-1 (j):
 - “(1) Six-month period. Except as provided in (2) of this subsection for expiration after submission of a completion report, a permit to drill shall expire six months from the date of issuance, unless drilling operations are commenced and thereafter continued with due diligence to completion. (2) Six-month extension. A six month extension may be granted without fee providing the Conservation Division staff determines that no material change of condition has occurred, if written request for such extension is received from the operator prior to the expiration of the original permit. Only one extension may be granted. (3) If Form 1002A is filed. If the operator of the well submits to the Conservation Division a Completion Report (Form 1002A) for the well, the Permit to Drill for the well shall expire on the date the Completion Report is approved by the Conservation Division.”
 - Authority to commence a well pursuant to a forced pooling order, and thus causing an effect under the order on the interests of owners impacted by it, is limited by the time period provided by the order. Corporation Commission regulation, Rules of Practice, OAC 165:5-15-3(a) provides:
 - “Termination of order. A pooling order shall contain language to the effect that if operations for the drilling of the well are not commenced within the time designated, the order shall terminate except as to the payment of cash bonuses.”

- What is pooled and when
 - o Oklahoma Statutes, tit. 52, Section 87.1:
 - Owners of mineral interests not subject to agreement are forced pooled on a spacing unit basis pursuant to Corporation Commission order, which remains in effect as to those interests as long as (1) a well is commenced within the time period of the order; (2) the operations of the initial well are continued with due diligence to completion; and (3) subsequent wells are proposed and commenced pursuant to the terms of the order. Again, owners electing to participate pursuant to a forced pooling order make such an election on a unit basis. Statutory amendments to Okla. Stat., tit. 52, Section 87.1 are proposed in current bills pending before the Oklahoma Legislature, which would alter the unit pooling concept as it would apply to proposals for subsequent horizontal wells pursuant to forced pooling orders.

Texas

Identification of potential issues, statutory conflicts

- Number of wells allowed within unit
 - o Gas wells: Texas allows one well per regulatory lease
 - o Oil wells: Texas allows unlimited wells completed in the same field per regulatory lease. All acreage must be contiguous. Each well must comply with drilling unit requirements by assignment of acreage within the base lease/unit to each well
 - o Note: for horizontal wells drilling within a shale formation, parallel bores within a specified horizontal displacement are considered one well for purposes of acreage assignment

- Unit size
 - o Variable; General rule is 40 acres per well. Many fields have individualized rules in which the minimum standard unit size is determined by drainage characteristics of the reservoir and set out in field rules for the specific field
 - o In the absence of a special field rule setting unit size, 16 TAC 3.38(b)(2)(A) sets the size based upon the spacing rules in that field:
 - 150/300 spacing 2 acre units
 - 200/400 spacing 4 acre units
 - 330/660 spacing 10 acre units
 - 330/933 spacing 20 acre units
 - 467/933 spacing 20 acre units
 - 467/1200 spacing 40 acre units
 - 660/1320 spacing 40 acre units

- Minimum percentage ownership required to pool
 - o Voluntary pooling of interests is at lessee's discretion based upon the terms of the individual tract leases. The Texas Mineral Interest Pooling Act or "MIPA" [Tex. Nat. Res. Code § 102.001, et seq.] does not set a minimum percentage and the Railroad Commission has no regulations setting a minimum percentage ownership

- Timing of WIO and unleased owner's decisions to participate or be pooled
 - o Under the MIPA, there is no set time period. However, the applicant seeking compulsory pooling must have made a reasonable voluntary pooling offer before seeking compulsory pooling and all parties are entitled to at least 30 days advance notice of the hearing on the compulsory pooling application

- Timing of completion of proposed wells
 - o There is no statutory deadline for drilling or completing wells. Any deadlines are contractual and contained in the lease, operating agreement or other contractual agreements among the operator, WI, and mineral owners. 16 TAC 3.5 specifies that drilling permits are valid for a period of 2 years from issuance. 16 TAC 3.16 specifies that Completion reports must be submitted within 90 days of completion of the well or within 150 days following cessation of drilling, whichever comes first

- What is pooled and when
 - o Voluntary pooling is governed by the lease agreement – there is no statutory limitation on the size or timing of voluntary pooled units. Pooled units approved under the MIPA by the Railroad Commission are limited to the approximate size of a standard unit for a single well in the field for which the MIPA well is proposed

Utah

Identification of potential issues, statutory conflicts

- Number of wells allowed within unit
 - o One horizontal well per temporary spacing unit. Vertical wells can also be drilled in temporary spacing if 1320 feet from horizontal well bore completed in the same producing formation
- Unit size
 - o The temporary spacing unit is 640 acres
- Minimum percentage ownership required to pool
 - o None stated in rule. Pooling issues are brought before the board as individual petitions before the Board
- Timing of WIO and unleased owner's decisions to participate or be pooled
 - o None stated in rule. Pooling issues are brought before the board as individual petitions before the Board
- Timing of completion of proposed wells
 - o Once the well is perforated, the well is considered completed. A completion report must be submitted in 30 days to the Division
- What is pooled and when
 - o The horizontal well is shared on a lease basis. Pooling is only obtained once the area is permanently spaced and a pooling order is brought before the Board

Virginia

Identification of potential issues, statutory conflicts

- Number of wells allowed within unit
 - o In areas where field rules have not been established by the Virginia Gas and Oil Board (Board), the statewide spacing rules apply, which simply specify the distance that must be maintained between wells (§ 45.1-361.17. Statewide spacing of wells).
 - o For areas where field rules have been established, additional wells may be allowed by a provision of the field rules or by approval from the Virginia Gas and Oil Board. However, appropriate spacing between wells must be maintained.
 - o Horizontal conventional gas well units are custom shaped for each individual well, so they only apply to the well for which they were designed. However, horizontal well unit areas may overlap.

- Unit size
 - o For coalbed methane wells, the Board has established field rules for seven major fields, with unit sizes ranging from 40 to 80 acres.
 - o No field rules have been established for vertical conventional gas wells or oil wells, so they are all sited based on statewide spacing rules.
 - o The horizontal conventional gas well field rules established a grid consisting of 20 acre blocks and custom drilling units are established for each well by combining multiple 20 acre grid blocks encompassing the well lateral(s).
 - o § 45.1-361.20. Field rules and drilling units for wells; hearings and orders.
 - A. In order to prevent the waste of gas or oil, the drilling of unnecessary wells, or to protect correlative rights, the Board on its own motion or upon application of the gas or oil owner shall have the power to establish or modify drilling units. Drilling units, to the extent reasonably possible, shall be of uniform shape and size for an entire pool. Any gas, oil, or royalty owner may apply to the Board for the establishment of field rules and the creation of drilling units for the field.

- Minimum percentage ownership required to pool
 - o Any owner who is authorized to drill and operate a well may pool, however except in the case of coalbed methane wells, operators must have the right to conduct operations on at least 25% of the acreage included in the unit (§ 45.1-361.21).
 - o For directional drilling in the Tidewater Region of Virginia, the operator must have permission from all owners of land to be directionally drilled into (§ 62.1-195.1).

- Timing of WIO and unleased owner's decisions to participate or be pooled
 - o After the time for election provided in any pooling order has expired, the unit operator shall file an affidavit with the board stating whether or not any elections were made. If any elections were made, the affidavit shall name each respondent making an election and describe the election made. The affidavit shall state if no elections were made or if any response was untimely. The affidavit shall be accompanied by a proposed supplemental order to be made and recorded to complete the record regarding elections. The affidavit and proposed supplemental order shall be filed by the unit operator within 45 days of the last day on which a timely election could have been delivered or mailed, or within 45 days of the last date for payment set forth in the pooling order, whichever occurs last.

- Timing of completion of proposed wells
 - o Permits expire within two years if construction is not started (§ 45.1-361.33).
 - o No regulation on timing to complete a well.

- What is pooled and when
 - o Units are established specific to the type of well to be drilled, whether it be a horizontal or vertical well; or whether it be a coalbed methane, conventional gas, or oil well. All interests within the unit boundary for the type of hydrocarbon to be produced are pooled. If the well is outside of the established fields, interests within half the minimum spacing distance are pooled.
 - o Applications to pool interests in a drilling unit must include the following (4VAC25-160-70):
 - A statement of the names of owners and the percentage of interests to be escrowed under § 45.1-361.21 D of the Code of Virginia for each owner whose location is unknown at the time the application for the hearing is filed;
 - A description of the formation or formations to be produced;
 - An estimate of production over the life of well or wells, and, if different, an estimate of the recoverable reserves of the unit;
 - An estimate of the allowable costs;
 - For a coalbed methane gas unit, a statement of the percentage of the total interest held by the applicant in the proposed unit at the time the application for the hearing is filed.

West Virginia

Identification of potential issues, statutory conflicts

- Number of wells allowed within unit
 - o Number of wells allowed within unit
 - Not specified as long as the unit acreage conforms and does not exceed 640 acres plus 10%
- Unit size
 - o Maximum is 640 acres plus 10%
- Minimum percentage ownership required to pool
 - o There is no minimum
- Timing of WIO and unleased owner's decisions to participate or be pooled
 - o 30 days
- Timing of completion of proposed wells
 - o Drilling permits expire in 2 years if well work has not begun; and there is a five year reclamation period for drilling pad
- What is pooled and when
 - o The Oil and Gas Conservation Commission deep well pooling is specific to the formation and unit covering specific lease when requested by operator.

Wyoming

Identification of potential issues, statutory conflicts

- Number of wells allowed within unit
 - o Wyoming Statute 30-5-109 (b) allows for the drilling of one well in establishing a drilling and spacing unit by hearing. After establishing a drilling and spacing unit, operators may file an application for additional wells in the unit and must show, by engineering and geologic exhibits, that the additional wells are necessary to drain the minerals within the drilling and spacing unit. The evidence must show that the drainage of the combined wells is equal to or less than the area of the spacing unit.

- Unit size
 - o Wyoming's statutes do not limit the size of a drilling unit and currently 1280 acres is the largest drilling and spacing unit (horizontal wells). The "default" spacing for horizontal wells is 640 acres by rule (Chapter 3, Section 2) with a 660 ft setback to the exterior boundary of the spacing unit.

- Minimum percentage ownership required to pool
 - o None

- Timing of WIO and unleased owner's decisions to participate or be pooled
 - o There are no timing constraints but a hearing and Order is necessary to pool separately owned tracts. Parties who are pooled may elect to join in the drilling of the well up to the spud date.

- Timing of completion of proposed wells
 - o After the Order for spacing is approved, there are no deadlines for the drilling of the initial well and any interest owner may file a drilling permit within the spaced area, ie Company "A" applies for the drilling and spacing unit but Company "B" files a drilling permit, which is allowed.

- What is pooled and when
 - o The Force Pooling Order is specific to a formation and is well specific. The party drilling the rule can recover certain costs before the non-consenting party joins in the production of the well including 100% of production equipment costs, 100% of operating costs of the well, 200% of downhole equipment costs and up to 300% of the costs for drilling the well.

