

# Shale Oil and Gas Development in Colorado: Regulatory & Policy Landscape

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# Colorado



# Why are we hearing from Colorado?

- Because oil and gas regulations are primarily under the purview of the states.
  - The Federal Government has rules for mineral development on their lands, but that is less than 25% of Colorado production and operators must still comply with state rules.
- And because Colorado has rules that are among the strongest in the United States.

The biggest unconventional shale oil play is in the Niobrara which is mostly in the northeast.



# Colorado is both a major oil & gas producer

- 150 year history of production
- 52,000 active wells
- 5<sup>th</sup> in the U.S. for natural gas production
- 9<sup>th</sup> in the U.S. for oil production



# Colorado is also an international outdoor destination

- 55 14,000-foot mountains
- 4 national parks and 41 wilderness areas
- World class wildlife populations
- 12 million skier visits
- 1 million+ fishing licenses and 650,000+ hunting licenses



# This creates a tension

- Mineral resource development vs. conservation



# The Colorado Brand

- Responsible, balanced development of Colorado's oil & gas resources in a manner consistent with the protection of public health, safety and welfare, including the environment and wildlife resources



# The Conversation

## Hydraulic Fracturing:

- Fact or Fiction?

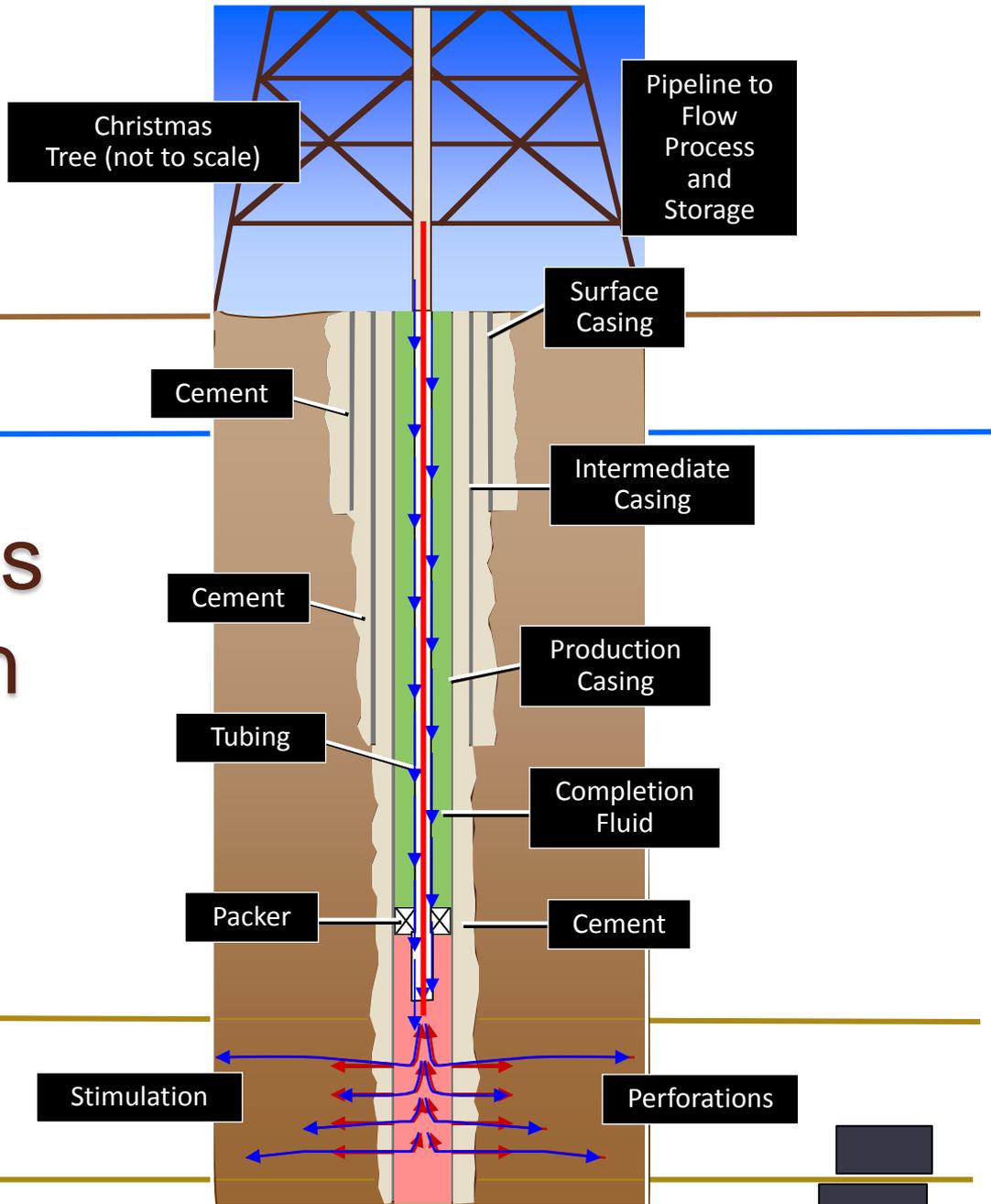


- Fiction, unless the conversation is about gas production generally.

# Wellbore isolates oil/gas formation from water

*Ground Water Protected*

*Producing Formation*



# Who is part of the conversation?

- Industry
- Conservation Community
- Local Governments
- Homebuilders
- Agriculture....and others



# Regulatory Reform

## Primary concerns:

- Groundwater
- Surface Water
- Air
- Nuisance



# 2008 Rulemaking

- Environmental Protection
- Transparency
- Efficiency in permitting



# Developing Draft Rules

- 8 months
- 40+ staff involved at 3 agencies (oil and gas, health and environment, and wildlife)
- Public participation
  - 5 public meetings attended by 1,700 people
  - 37 technical meetings attended by 250 specialists
  - 2000+ written comments
- 150-page cost benefit analysis

# Adopting Final Rules

- Numerous iterations of draft rules
- 24 days of commission hearings
  - 12+ hours of public comment
  - 80+ hours of testimony by 160 witnesses
  - 80+ hours of deliberations
  - 20,000+ pages of documents

# Several things helped make this process successful:

- Legislatively authorized
- Inclusive
- Unanimously approved



# Environment: Water

- Updated pit lining requirements and encouraged the use of pitless drilling
- Increased secondary containment requirements
- Revised spill reporting requirements
- Tightened soil and ground water standards



# Environment:

## Air

- Green completion practices to reduce odors and emissions required where feasible



# Environment: Wildlife

## Landscape Scale Vision:

- **Avoid** the most critical habitat if feasible
- **Minimize** by consulting with the State on sensitive habitat
- **Mitigate** by implementing best-management practices and compensatory mitigation efforts



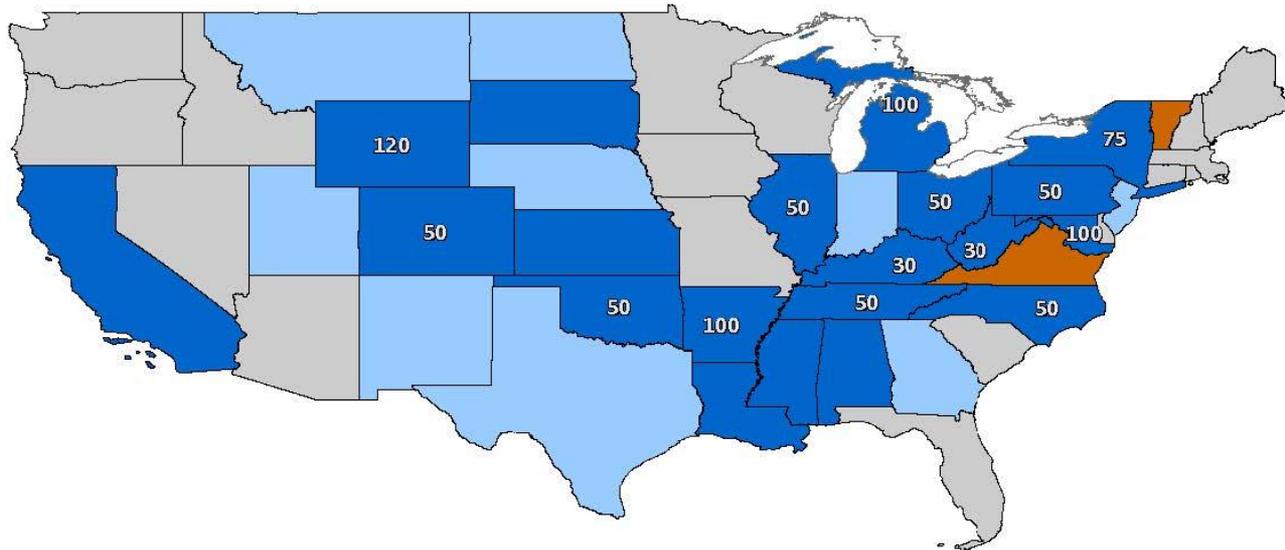
# Transparency

- Permit applications posted to the internet
- Notice to local governments and nearby surface owners
- Opportunity for public comment
- Reduced number and influence of industry representatives on the Commission



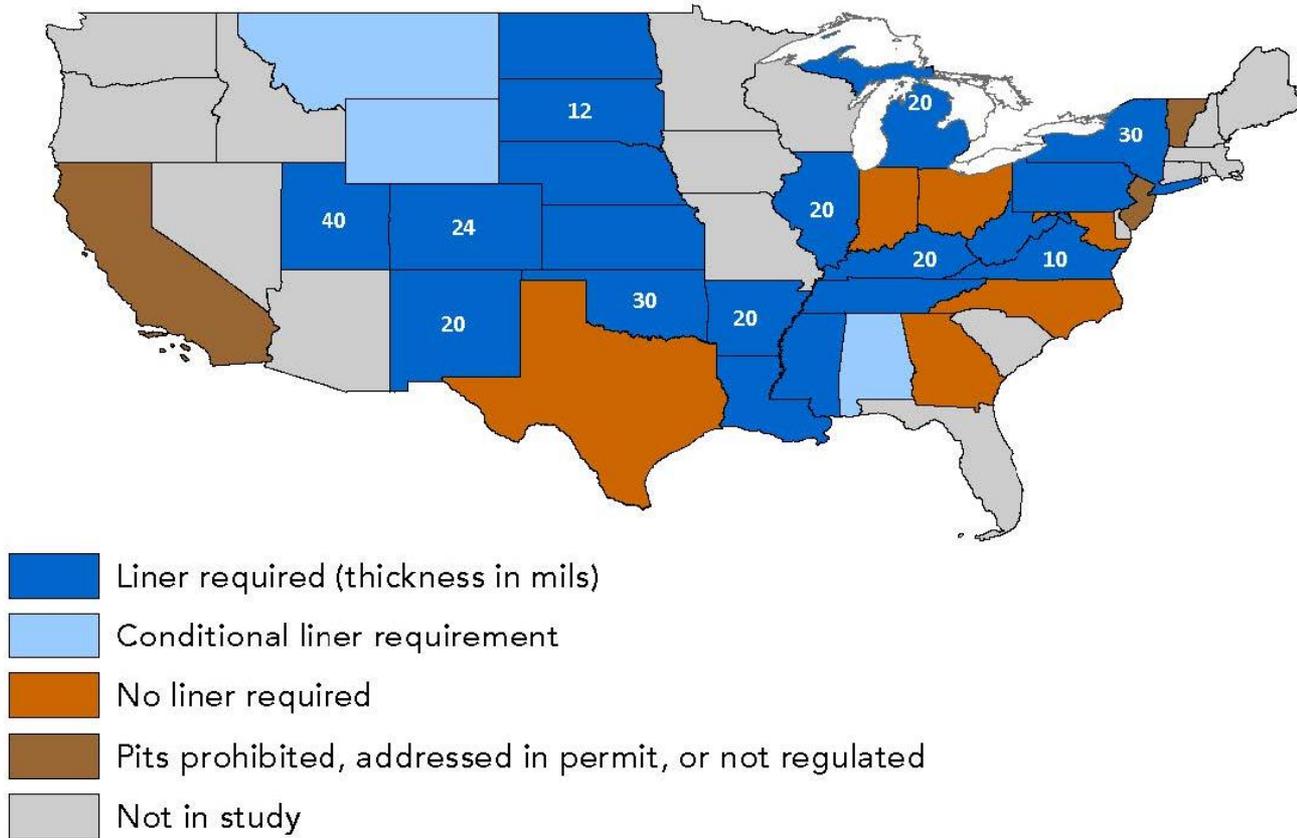


# State Casing and Cementing Depths

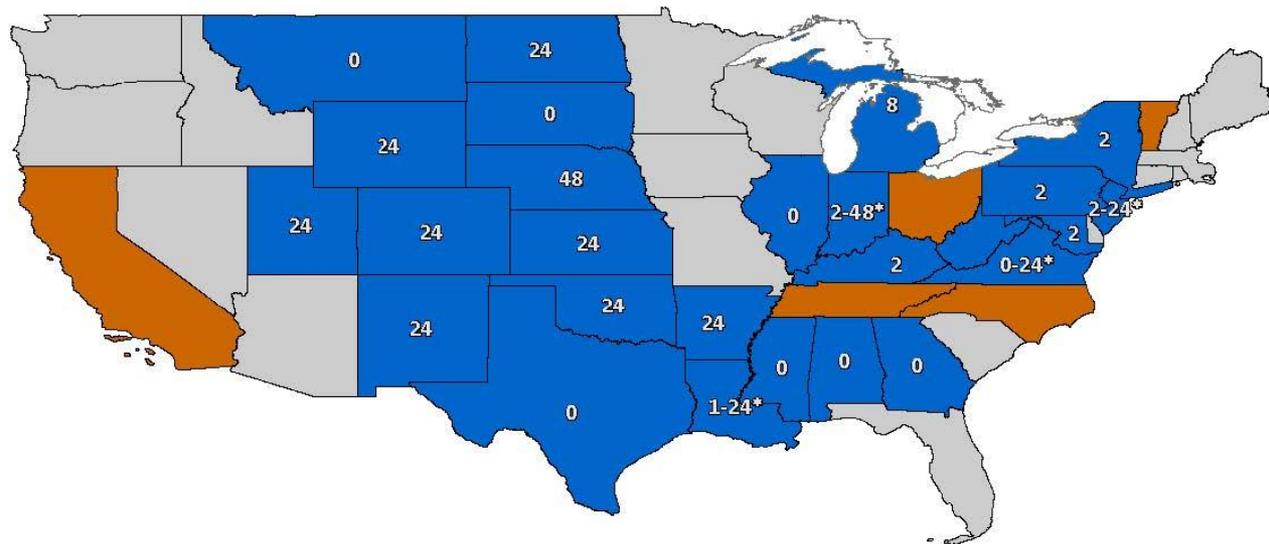


-  Specified casing and cementing depth requirements (ft. below water table)
-  Well-specific casing and cementing depth
-  Addressed in permit or not regulated
-  Not in study

# State Pit Liner Requirements



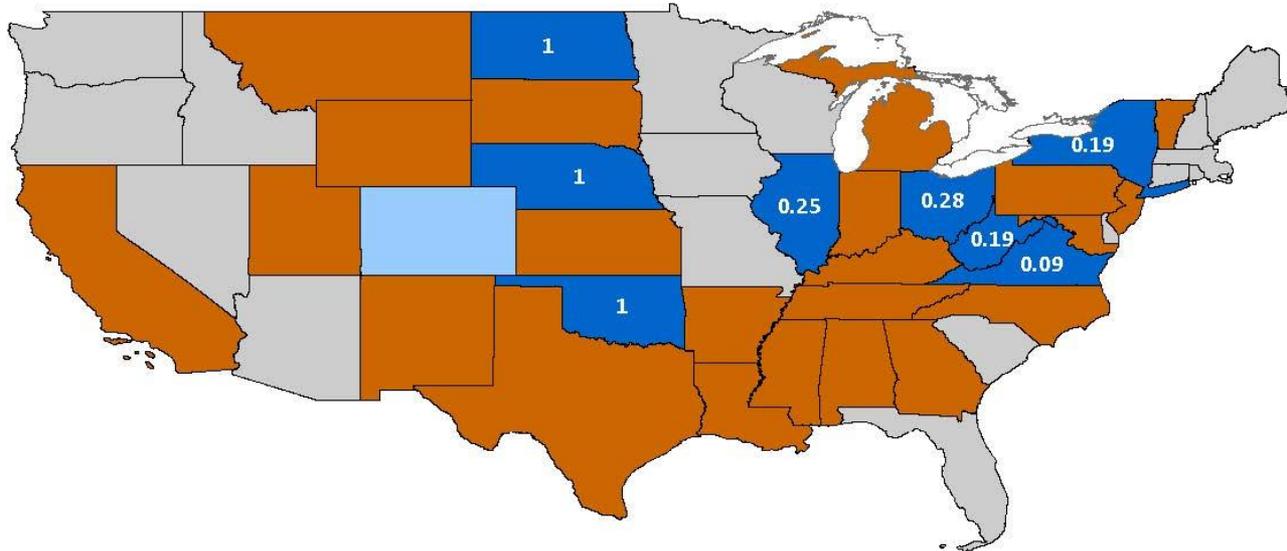
# State Spill Reporting Requirements



- Accident reporting required (maximum hours after discovery)
- Addressed in permit or not regulated
- Not in study

\* Required reporting time varies depending on the severity of the accident.

# State Groundwater Testing



-  Required testing (miles from well)
-  Zone- or well-specific requirements
-  Addressed in permit or not regulated
-  Not in study

# Results

<b>More Energy Production</b>	<b>More Environmental Protection</b>
<ul style="list-style-type: none"><li>– 30% increase in oil production;</li><li>– 10% increase in gas production; and</li><li>– more new wells started than surrounding states.</li></ul>	<ul style="list-style-type: none"><li>– Pitless drilling systems increased from 31% to 70%;</li><li>– 61% of fracturing fluid recycled</li><li>– 85% green completions</li><li>– Wellsites &gt; 1,000 feet from the closest building increased from 68% to 76%; and</li><li>– 14 wildlife mitigation plans covering of 1,943 square kilometers of habitat</li></ul>

# 2011 Rulemaking

## Hydraulic Fracturing Disclosure

- Other states followed in 2012
- BLM used as model



# 2013 Rulemaking

- Mandatory groundwater monitoring
- Setbacks
- Notice and engagement
- Spill reporting



# Mandatory Groundwater Testing

- 1 pre-drilling test
- 2 post-drilling tests



# Setbacks: Distance between Rig and Buildings

- Mitigation starts at 305 meters
  - This includes closed loop drilling, green completions, pit ban, and plans for nuisance impacts
  - Further mitigation at 152 meters including steel rim berms around tanks and separators, as well as liners beneath crude oil, condensate and produced water tanks.

# Notice

- To building owners within 305 meters
- Operators must coordinate with local governments
- Within 305 meters, operators must meet with anyone who asks from



# Spill Reporting

- Must report any spill greater than one barrel that leaves secondary containment



# 2014 Rulemakings

- Air Quality
- Penalties for Violations



# Air Quality

- First in the U.S. to require detection and reduction of methane emissions by identifying and repairing leaks from production facilities
- Will result in reduction of volatile organic compound emissions by over 93,000 tons per year and methane by over 65,000 tons per year



# Penalties

- Increased maximum penalties for violations from \$1,000/day to \$15,000/day



# Creative ways to encourage wildlife mitigation plans

- Colorado Habitat Exchange



# Regulations

## Who has Jurisdiction?

- Technical operations-State
- Land use planning- Local

When not sure



# Local Community Outreach and Engagement

- Hired Local Government Liaisons to train and coordinate with local governments
- Work with Local Government Designees
  - Get notice of drilling permits
  - Can request hearing before the full Commission
- Encourage Memorandums of Understanding between the Commission and local governments

# Local Governments Benefit

- Operators pay local property taxes
  - Roads, schools, etc.
- Operators pay severance taxes: \$241 million last year
  - Impacts from energy development
  - Water projects
  - Other government programs



# Our Story Comes Full Circle Back to the Colorado Brand

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# QUESTIONS?



# Contact Information

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