Directional Drilling
Forced Pooling

Corky DeMarco | Executive Director
WV Oil & Natural Gas Association
ICF Survey

The Importance of Administrative Pooling to Unconventional Oil and Natural Gas Development and Economic Activity in West Virginia: Final Report

West Virginia Oil and Natural Gas Association
Charleston, WV
### Survey Results by Acreage Type

<table>
<thead>
<tr>
<th>Areas with Survey Data</th>
<th>Total Survey Response</th>
<th>Developable Survey With Distributions of Lateral Length</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Acres</td>
<td>Square Miles</td>
</tr>
<tr>
<td>Company net acreage</td>
<td></td>
<td></td>
</tr>
<tr>
<td>With pooling clause</td>
<td>492,079</td>
<td>769</td>
</tr>
<tr>
<td>Without pooling clause</td>
<td>333,706</td>
<td>521</td>
</tr>
<tr>
<td>Total</td>
<td>825,785</td>
<td>1,290</td>
</tr>
<tr>
<td>Other working interest acres</td>
<td>313,737</td>
<td>490</td>
</tr>
<tr>
<td>Additional unleashed acreage</td>
<td>134,665</td>
<td>210</td>
</tr>
<tr>
<td>Total potential acreage</td>
<td>1,274,187</td>
<td>1,991</td>
</tr>
</tbody>
</table>
Origins & Evolution of Pooling

The Rule of Capture

DRILL YOUR OWN DARN WELL!
WV Marcellus Play Area

- Counties with either significant horizontal drilling or adjacent to counties with horizontal drilling
- Approximately 5600 square miles
## Survey Cost Averages

<table>
<thead>
<tr>
<th>Cost Category</th>
<th>Cost</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total pad cost (exclude any cost of gathering lines or compression)</td>
<td>$1,700,000</td>
</tr>
<tr>
<td>Drilling cost in $/foot (excluding stimulation)</td>
<td>$332</td>
</tr>
<tr>
<td>Stimulation cost per stage</td>
<td>$148,000</td>
</tr>
<tr>
<td>Stage spacing in feet for horizontal wells</td>
<td>250</td>
</tr>
<tr>
<td>Annual operating cost excluding taxes and royalties (excluding gathering and processing)</td>
<td>$37,660</td>
</tr>
</tbody>
</table>
## Survey Costs Applied to Lateral Lengths

<table>
<thead>
<tr>
<th></th>
<th>Vertical or Short</th>
<th>1000 – 3000 Ft. Laterals</th>
<th>3000 – 6000 Ft. Laterals</th>
<th>6000 – 9000 Ft. Laterals</th>
<th>Over 9000 Ft. Laterals</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Pad Cost per Well</strong></td>
<td>1,087,500</td>
<td>413,177</td>
<td>241,250</td>
<td>241,250</td>
<td>241,250</td>
</tr>
<tr>
<td><strong>Drilling Cost per Well</strong></td>
<td>2,523,200</td>
<td>2,997,960</td>
<td>3,751,600</td>
<td>4,812,340</td>
<td>5,635,700</td>
</tr>
<tr>
<td><strong>Stimulation Cost per Well</strong></td>
<td>355,200</td>
<td>1,201,760</td>
<td>2,545,600</td>
<td>4,437,040</td>
<td>5,905,200</td>
</tr>
<tr>
<td><strong>Other Cost per Well</strong></td>
<td>124,000</td>
<td>124,000</td>
<td>124,000</td>
<td>141,833</td>
<td>155,674</td>
</tr>
<tr>
<td><strong>G&amp;A per Well (@16%)</strong></td>
<td>654,384</td>
<td>757,904</td>
<td>1,065,992</td>
<td>1,541,194</td>
<td>1,910,052</td>
</tr>
<tr>
<td><strong>Total Capital per Well</strong></td>
<td>4,744,284</td>
<td>5,494,801</td>
<td>7,728,442</td>
<td>11,173,657</td>
<td>13,847,876</td>
</tr>
<tr>
<td><strong>Total Capital in $/Mcf</strong>*</td>
<td>6.54</td>
<td>2.24</td>
<td>1.49</td>
<td>1.23</td>
<td>1.15</td>
</tr>
</tbody>
</table>
Pooling Defined

Combining small tracts of subsurface acreage to create a larger drilling unit for production of oil and gas.

*Allows drilling from one well to extract gas from multiple tracts*
Benefits of Unitization and Pooling

- Reduces waste (conservation)
- Increases production
- Reduces impact on surface
  - Fewer pads, fewer pipelines, fewer roads
- Allows development of small tracts which are otherwise uneconomical to develop
Pooling = Drilling Efficiency

Without Pooling

- Short, inefficient laterals
- 4 well pads required
- 40 acres disturbed
- 30% of 1280 total acreage stranded
Pooling = Drilling Efficiency

With Pooling

- Single pad required
- 10 acres disturbed *temporarily*
Types of Pooling and Unitization

- Voluntary
  - Contractual
- Statutory
  - Deep wells (PA and WV)
  - Secondary recovery of oil (WV)
  - Coalbed methane wells (WV)
Shallow Well

- No statutory pooling of shallow wells other than CBM or secondary oil recovery
- No statutory pooling available for Marcellus shale wells
- Legislative efforts to change that have failed thus far
Deep Well

- Any well other than a shallow well that is drilled “at or below the top of the uppermost” layer of the Onondaga Group. W. Va. Code § 22C-9-2(a)(12)

- *Utica & Rogersville shale wells are deep wells*
Pooling Considerations

Maximum area that can be drained efficiently
Pooling Reform Illustration

Proposed Unit

115 Acres
Pooling Reform Illustration

All acreage inside the unit participates proportionally.

Surface Location

Lateral – roughly 5000 feet
Pooling Reform Illustration

Lateral & entire unit shortened

Refuses to negotiate

Directional Drilling: Forced Pooling
Pooling Reform Illustration

3 owners who want development left out

Refuses to negotiate

Directional Drilling: Forced Pooling
Pooling Reform Illustration

Proposed Unit
115 Acres
Pooling Reform Illustration

Refuses to negotiate

Lateral & entire unit shifted
Pooling Reform Illustration

Refuses to negotiate

9 owners who want development left out
Results?

- Owners possessing mineral rights and want development are excluded from the unit
- Creation of island acreage that may never be developed for Marcellus Shale
- Inefficient and waste of WV natural resources
Pooling Update

- Intense outreach with interested stakeholders in advance of 2015 Regular Session
  - WV Farm Bureau
  - National Association of Royalty Owners
  - WV Land & Mineral Owners
  - Others
- Meetings with key policymakers
- Participation in Joint Judiciary Interim Committee meetings
  - Educational focus
  - Show broad industry support
  - Control the message for the initial legislative hearings
Delegate Zatezalo Says


Mark Zatezalo, The Intelligencer / Wheeling News-Register

“. . . As West Virginians, we must decide if we are truly an energy state or are we just a state that has some energy. [Pooling] is about the optimization of a balance of interest, and this policy represents the next step in West Virginia's energy strategy. . .”

Mark Zatezalo is a Delegate from Hancock County, WV
WV Oil & Natural Gas Association
Energizing West Virginia with Natural Gas

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