Natural Gas Assessment of the Arkoma Basin, Ouachita Thrust Belt, and Reelfoot Rift
Arkoma Basin Coalbed Gas

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Desmoinesian Series – *Thickness & Dominant Lithology*

Rascoe & Johnson, 1990; mod. From Adler et al., 1971 and McKee et al., 1975
### Generalized Stratigraphy of Coal-Bearing Strata, Arkoma Basin

<table>
<thead>
<tr>
<th>Stratum</th>
<th>Thickness</th>
</tr>
</thead>
<tbody>
<tr>
<td>Spaniard coal</td>
<td>0-0.1</td>
</tr>
<tr>
<td>Keota coal</td>
<td>0.1-0.4</td>
</tr>
<tr>
<td>Tamaha coal</td>
<td>0.1-0.3</td>
</tr>
<tr>
<td>Upper McAlester (Stigler) coal</td>
<td>0.2-1.7</td>
</tr>
<tr>
<td>McAlester (Stigler) coal</td>
<td>1.0-5.0</td>
</tr>
<tr>
<td>Unnamed coal</td>
<td>0.1-0.2</td>
</tr>
<tr>
<td>Kefston coal</td>
<td>0.1-1.5</td>
</tr>
<tr>
<td>Unnamed coal</td>
<td>0.3-1.0</td>
</tr>
<tr>
<td>Unnamed coal</td>
<td>0.2-0.8</td>
</tr>
<tr>
<td>Upper Hartshorne coal</td>
<td>0.2-4.5</td>
</tr>
<tr>
<td>Lower Hartshorne coal</td>
<td>0.7-7.0</td>
</tr>
<tr>
<td>Unnamed coal</td>
<td>0.0-0.5</td>
</tr>
<tr>
<td>Unnamed coal</td>
<td>0.0-0.5</td>
</tr>
</tbody>
</table>

**Graphical Representation**

The graph shows the stratigraphic sequence of coal-bearing strata in the Arkoma Basin, with specific emphasis on the McAlester and Hartshorne formations. The thicknesses of various coal layers are indicated, with the McAlester and Hartshorne strata being prominently highlighted.

**Source**

Houseknecht et al., 1984

**Note**

The thickness values are approximate and may vary based on local geologic conditions.
Distribution of Hartshorne Formation

Data from Arkansas and Oklahoma Geological Surveys
Thermal Maturity of Hartshorne Coalbed

Basinwide Map of Hartshorne Coalbed Vitrinite Reflectance (%) - Contours highlighted in RED

Houseknecht et al., 1992

More Detailed Map of Hartshorne Coalbed Vitrinite Reflectance (%) in Oklahoma Part of Arkoma Basin – VR (%) Contours in RED

Cardott, 2009

(Oklahoma Geological Survey website)
Hartshorne Facies & Potential for Thick, Laterally Continuous Coalbeds

Wide channel belts
Narrow interfluves
Thin, discontinuous coal

Large channels
Wider interfluves
Thicker, continuous coal

Narrower channels
Wide interfluves
Thick, continuous coal

Narrow, locally stacked channels
Wide interfluves
Thick, continuous coal

Houseknecht et al., 1984
Hartshorne Coal* Thickness & Areas of Concentrated Coalbed Gas Development

*Undivided North of Split Line; Lower Coal South of Split Line

Data from Iannacchione et al., 1983; Gossling, 1994; Cardott, 2009 (Oklahoma Geological Survey)
Hartshorne Coal* Thickness & Channel Sandstone Distribution

*Undivided North of Split Line; Lower Coal South of Split Line
Recent Development of Coalbed Gas Resources

Assessment Focus:
- Character of undeveloped area
- Estimation of EUR distribution
- Drainage area of horizontal wells
- How similar is undeveloped area?