An Introduction to the Berea and Rogersville Shales in Kentucky

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Kentucky Geological Survey

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Kentucky Geological Survey

- Research & Public Service Center
- Established 1838
- Focus areas
  - Research in earth resources & processes
  - Disseminate data, knowledge, & experience
- Stakeholders
  - Public
  - Industry
  - Government
  - Educators
• Water wells & springs
• Earthquakes
• Coal
• Minerals
• Mapping
• Karst
Acknowledgements

- Dave Harris
- Steve Greb
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- Cortland Eble
- Tom Sparks
- Rick Bowersox
- Warren Anderson
- Marty Parris

Energy & Minerals Section
Kentucky is Underlain by Gas Shale

At least 100’ thick and 1,000’ deep
Devonian Berea
“Sandstone”

AA Highway near Vanceburg, Lewis County, KY
Development History

- 1879 – 1st producer near Paintsville, Johnson Co.
- 1890s – Blaine Creek, Lawrence Co.
- 1905 – Minor producer with shows of oil & gas
- 1920s – Drilling boom
- 1980s – Section 29 tax credit
- 2011 – Horizontal wells, slickwater fracks
Berea Renaissance

Oil production (barrels) in Greenup, Lawrence, Henderson, and Union counties from 2000 to 2014.
Berea Sandstone Consortium

Marty Parris, Stephen Greb, Cortland Eble, Brandon Nuttall, Dave Harris

Develop a better understanding of the distribution and preservation of organic matter and maturity with respect to occurrence of production.

AA Highway, photo courtesy S. Greb
Consortium Partners

Funding Partners
- Nytis Exploration
- Cimarex Energy
- Abarta Oil & Gas
- Hay Exploration
- EQT Production
- Vinland Energy
- Fireborn
- CountryMark

In-Kind Research Partners
- U.S. Geological Survey
- Ohio Division of Geological Survey
- R.J. Lee Group, Inc.
- Universal Well Services

KGS Principal Investigators
- Marty Parris
- Steve Greb
- Cortland Eble
What are the controls on Berea production where it is thermally immature?
Identified Rogersville as a source rock.

Gamma ray shaded by log-calculated lithologies.

U.S. Signal Elkhorn Coal, Johnson Co., KY, courtesy Dave Harris, KGS
Rogersville

- Dark, organic-rich shale
- Fine-grained white silt
- 5,000 to 10,000 feet deep in eastern Kentucky

Exxon #1 Smith, WV (core)
Photo courtesy Dave Harris, KGS
## Rogersville Activity

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<th>COUNTY</th>
<th>WELL</th>
<th>TYPE</th>
<th>STATUS</th>
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<td>Bruin #1 Young</td>
<td>V</td>
<td>Tested</td>
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<tr>
<td>Lawrence (KY)</td>
<td>Bruin #1 Walbridge</td>
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</table>
Rogersville Play Area (Based on data available in 2004)

- Rome Trough (deep basin)
- Area of possible Rogersville production
  - Vertical Rogersville Shale test well
  - Horizontal Rogersville Shale test well

Courtesy Dave Harris, KGS

(Related to Kentucky Geological Survey)
In Conclusion

- Devonian Berea
  - A demonstrated oil producer
  - Additional potential across much of eastern Kentucky
- Cambrian Rogersville
  - Speculative
  - Limited data suggests potential
- It all depends on the price of oil and gas
Thanks!

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