

# Geology of the Bluegrass Pipeline

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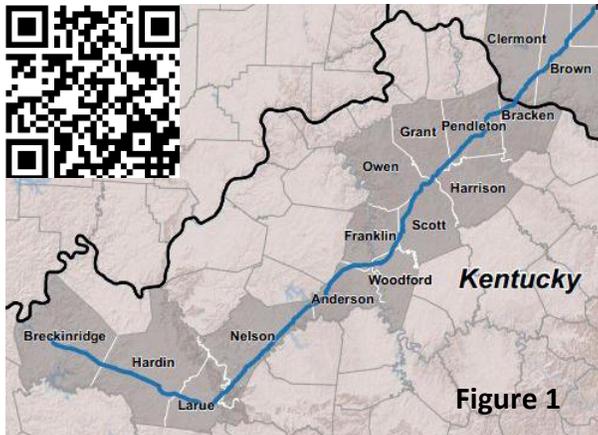


Figure 1

- The proposed route of the Bluegrass natural gas liquids pipeline crosses 13 counties in Kentucky (Fig. 1). Geology along the pipeline route is varied but some segments will be underlain by limestone, a rock susceptible to the formation of caves and sinkholes—features referred to as karst (Fig. 2). Karst features can create special problems for construction and increase vulnerability to groundwater contamination. KGS has additional information on karst and related issues at [www.uky.edu/KGS/water/general/karst](http://www.uky.edu/KGS/water/general/karst).

- Karst development varies throughout the state, depending on the geologic formations present at or near the surface. Much of the Bluegrass pipeline will be in areas with low to moderate potential for karst (Fig. 3), but the potential is higher in the Inner Bluegrass Region (including Scott, Franklin, and Woodford Counties) and the Western Pennyroyal Region (Breckinridge, Larue, and Hardin Counties). A detailed map of karst occurrence is available on the KGS website at [kgs.uky.edu/kgsweb/olops/pub/kgs/mc33\\_12.pdf](http://kgs.uky.edu/kgsweb/olops/pub/kgs/mc33_12.pdf).

- The types of surface and underground features in karst vary by region across Kentucky. Several karst diagrams illustrating these features are available at KGS; an example is shown on the back of this sheet. Generalized geologic maps for land-use planning, available for all 120 Kentucky counties, are an excellent tool for evaluating geologic conditions for development sites. These maps can be downloaded at [kgs.uky.edu/kgsweb/download/geology/landuse/lumaps.htm](http://kgs.uky.edu/kgsweb/download/geology/landuse/lumaps.htm).

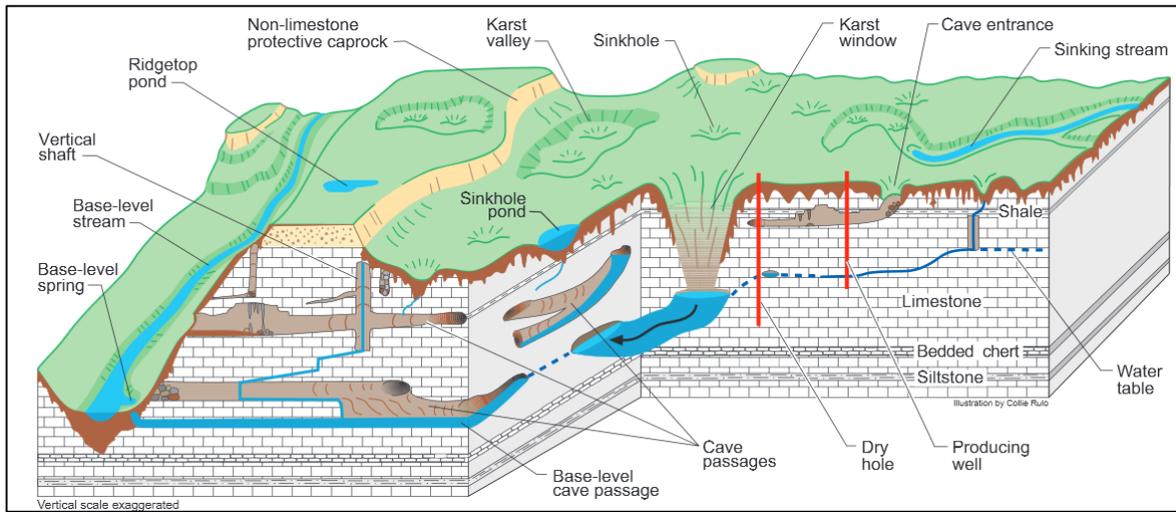
- A small part of the pipeline would require additional precautions during construction to avoid contact with pyrite in organic-rich black shales. When pyrite in shale oxidizes, it can cause problems with sulfate formation and soil expansion, and with accelerated corrosion of steel pipelines because of acidic soil and water. For more information, see [www.uky.edu/KGS/announce/pub/swellingshales.htm](http://www.uky.edu/KGS/announce/pub/swellingshales.htm).

- The pipeline will transport natural gas liquids, not hydraulic fracturing fluids or waste products. Natural gas liquids are components of natural gas that are heavier than methane. In the event of a leak, some NGL components may vaporize into the atmosphere, but other hydrocarbons may remain as liquids and could pose a groundwater contamination risk.

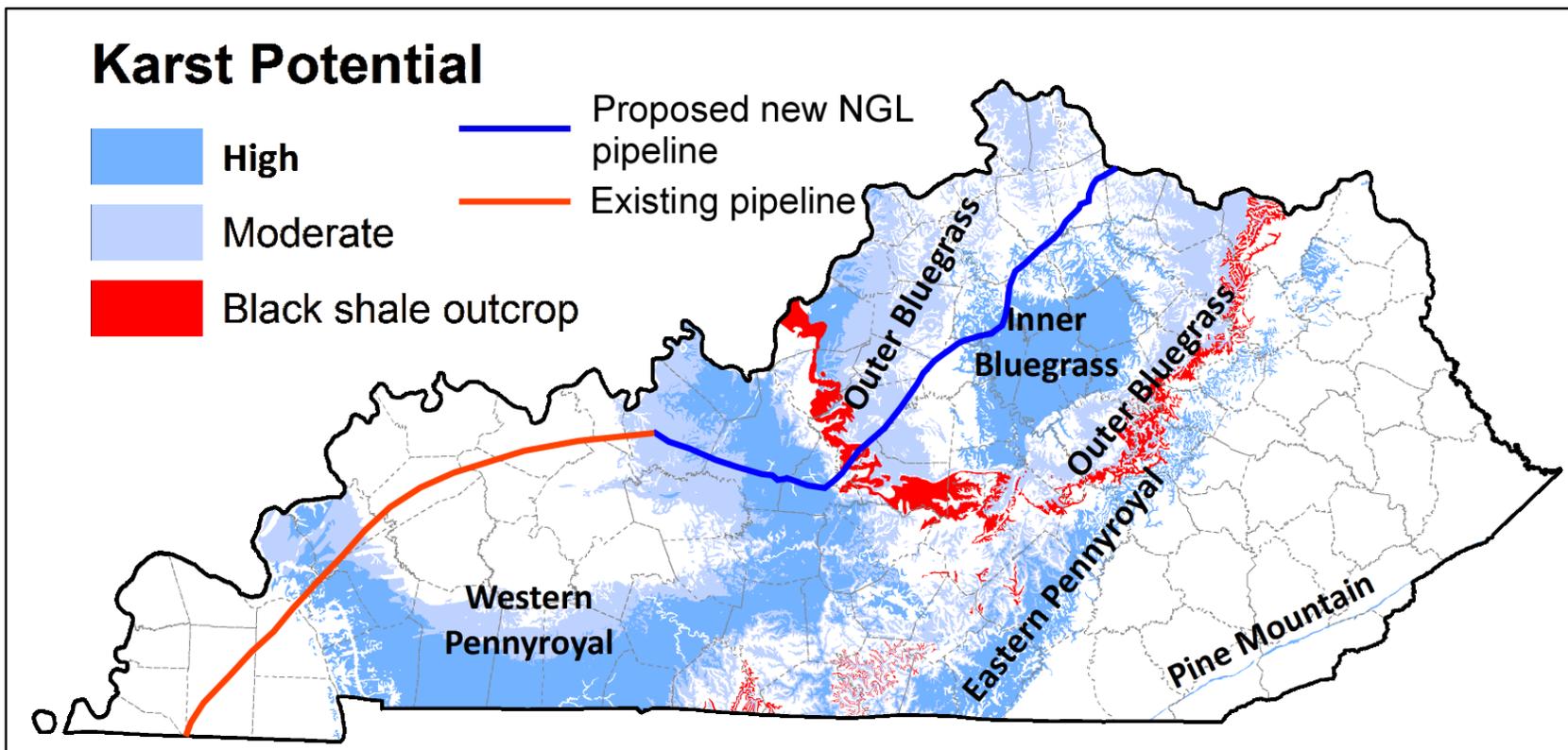
- For information on existing pipelines in Kentucky, visit the U.S. Energy Information Administration State Energy Profile page for Kentucky: [www.eia.gov/state/?sid=KY](http://www.eia.gov/state/?sid=KY) (this website is not maintained by the Kentucky Geological Survey and requires Adobe Flash).

- The Kentucky Geological Survey recognizes the need to develop and utilize our energy resources in a sustainable and environmentally responsible manner. Careful design and appropriate pipeline construction and maintenance, incorporating the detailed geologic information available, will help minimize risks.

*This fact sheet contains two-dimensional high-density “quick response” (QR) codes that provide direct access to selected pages on the Kentucky Geological Survey website. Download a QR code reader application for your mobile device and scan these codes to automatically visit the referenced page.*



**Figure 2. Karst features typical of the Western Pennyroyal area. For more information, or to view and print the generalized karst block diagrams, please visit [www.uky.edu/KGS/water/general/karst/karstgis.htm](http://www.uky.edu/KGS/water/general/karst/karstgis.htm).**



**Figure 3. Generalized karst potential, karst regions, and black shale outcrop areas in Kentucky. Proposed route of new pipeline and existing natural gas pipeline to be converted are shown.**

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