Latest deep formation tops at the Blan well site based on seismic data

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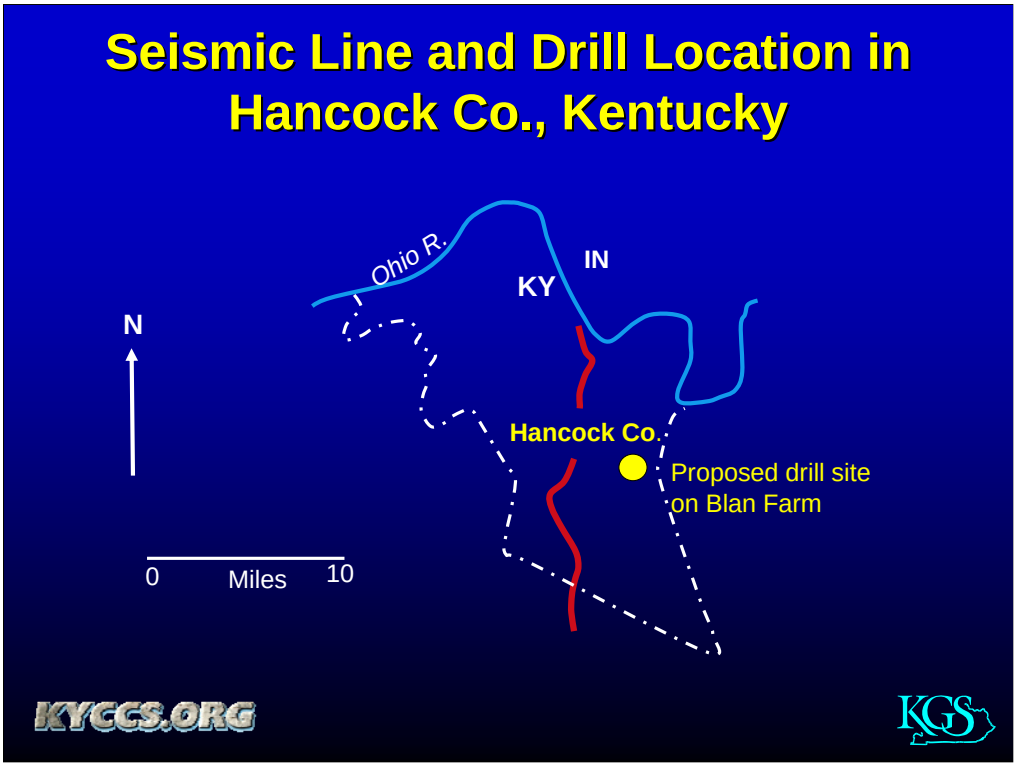
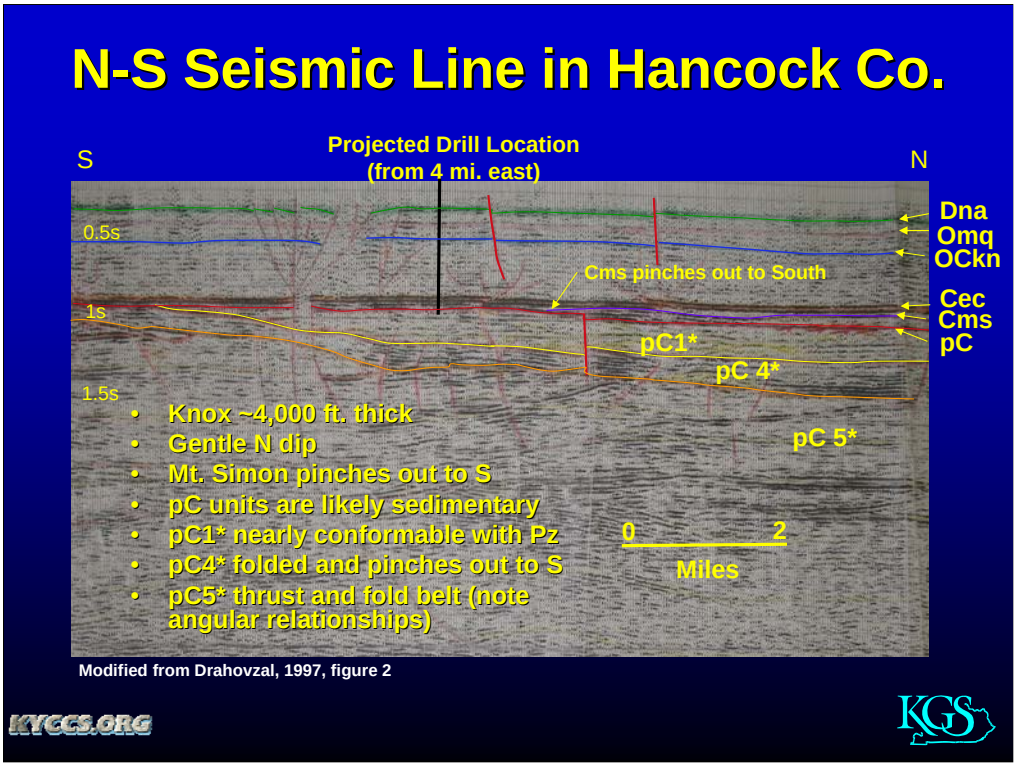
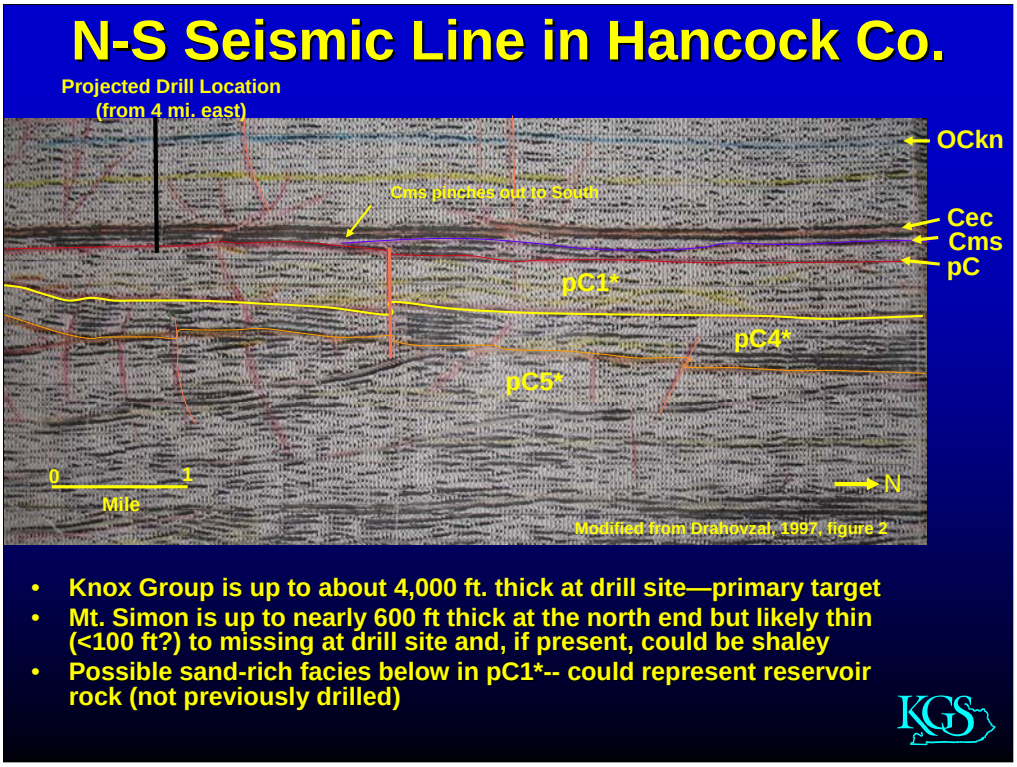


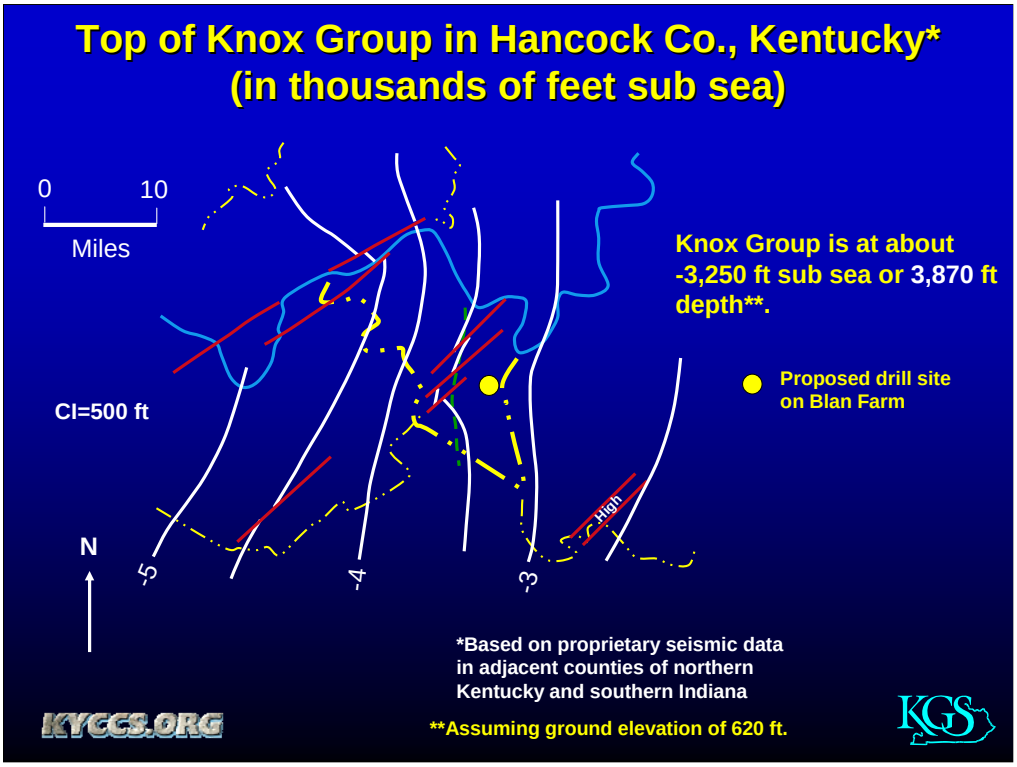
The proposed drill site (yellow dot) on the Blan Farm in eastern Hancock Co., Ky. The red line is the Gulf Oil and Production Co. Line 7 C, the nearest seismic data to the proposed site. The drill site lies approximately 4 miles to the east of the seismic line.



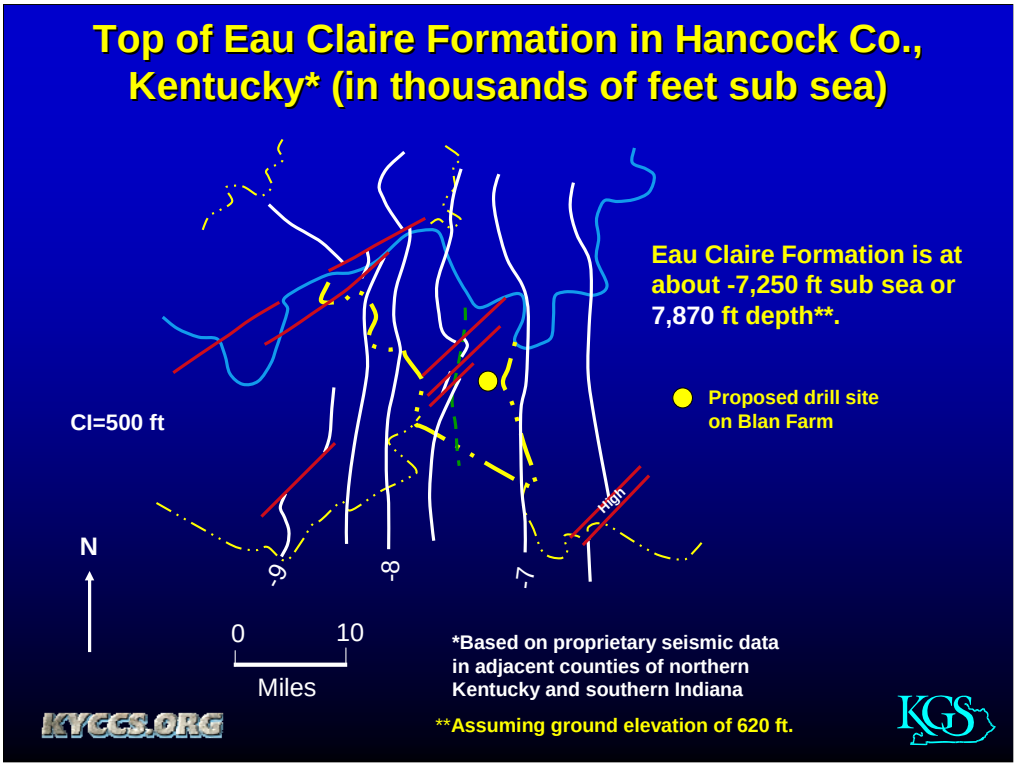
Gulf Oil and Production Co. Line 7C showing the interpretation of stratigraphic tops and the proposed drill site projected into the line from 4 miles to the east. The faulting shown on the line is associated with the Indian Creek fault zone (Mayfield and Chisholm, 1931; Bergendahl, 1965) that lies more than 2 miles to the west of and downdip from the proposed drill site. Based on the geologic mapping of the surface, no faults exist in the area of the proposed drill site. The seismic line was originally interpreted by Drahovzal (1997, fig. 2) and has been modified here to include several updated stratigraphic horizons. Interpreted horizons in the Paleozoic include the New Albany Shale (Dna), the Maquoketa Shale (Omq), the Knox Group (OCkn), the Eau Claire Formation (Cec), the Mt. Simon Sandstone (Cms) and the Precambrian Unconformity (pC). Note that the Mt. Simon appears to pinch out north of the projected well site. The units below the unconformity are interpreted to be part of the Proterozoic layered reflectors and have been mapped on available propriety seismic data west of the Louisville area in western Kentucky and southern Indiana (Drahovzal, 2002). The pC1* unit is likely siliciclastic in nature and could represent a reservoir facies. It is nearly conformable with the overlying Paleozoic rocks but onlaps onto and pinches out against the pC4* along an unconformable surface where pC2* and pC3* have been previously eroded. The pC4* unit reflects an earlier folding phase and also pinches out to the south. Note the sharp angular truncations of pC5* at its contact with pC4*. The pC5* unit is interpreted to be part of a fold and thrust belt referred to as the Hoosier Thrust Belt (Stark and others, 2002).



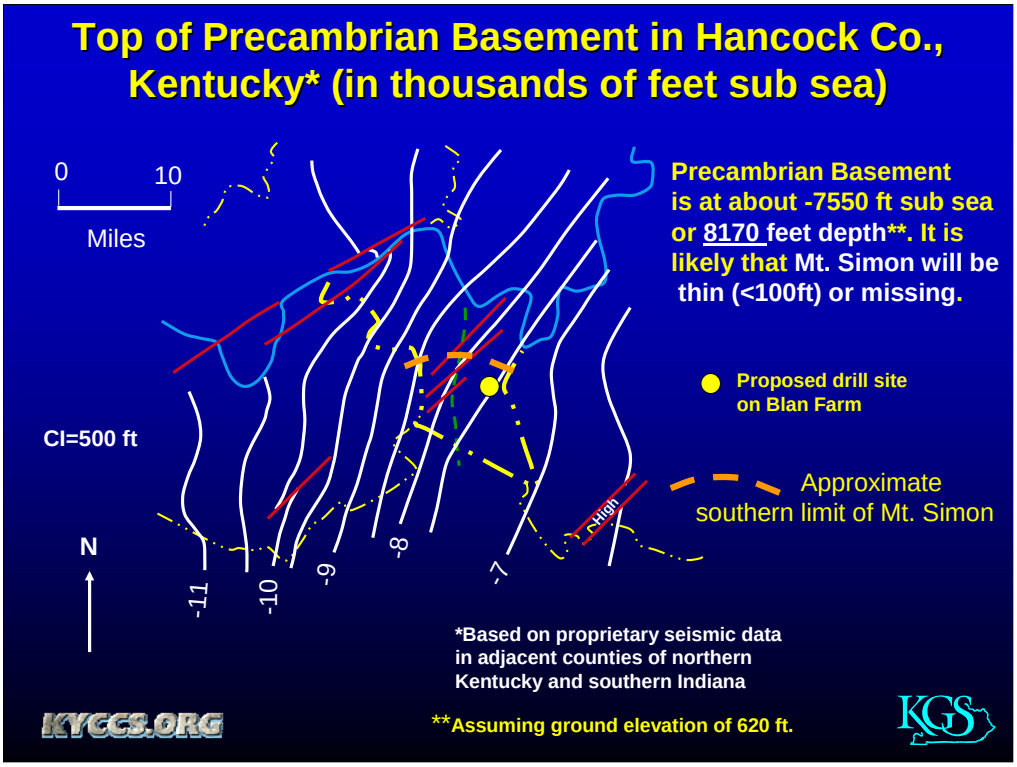
Close up of the previous slide, showing the details of the Mt. Simon pinchout relative to the projected well. Knox, the primary target, is about 4,000 feet thick at the drill site. Interpretation of the Mt. Simon on the seismic data suggests that it pinches out to the north of the drill site and is likely missing there. Due to the limited seismic resolution, however, it could be present at the proposed drill site but less than 100 feet thick. The change from opaque reflector character near the north end to strong reflectors near its pinchout may reflect a change in Mt. Simon facies, suggesting that the Mt. Simon may be shalier to the south. If the Mt. Simon is present at the drill site, it may also be less permeable due its possible shaley nature.



The elevation of the unconformity surface of the Knox Group in Hancock Co. (bold yellow outline) based on the interpretation of proprietary seismic data in northern Kentucky and southern Indiana. At the proposed well site, the top of the Knox is estimated to be about 3,870 feet below the surface (-3,250 feet subsea), assuming a ground elevation of 620 feet above sea level. The near-north orientation of the contour lines with the deeper elevations to the west reflects the west dip away from the crest of the Cincinnati Arch to the east and into the center of the Illinois Basin to the west. Red lines represent faults from published surface geology (Mayfield and Chisholm, 1931; Bergendahl, 1965) and seismic interpretations.



The structure of the top of the Eau Claire Formation in Hancock Co. (bold yellow outline) based on the interpretation of proprietary seismic data in northern Kentucky and southern Indiana. At the proposed well site, the top of the Eau Claire is estimated to be about 7,870 feet below the surface (-7,250 feet subsea), assuming a ground elevation of 620 feet above sea level. The near-north orientation of the contour lines with the deeper elevations to the west reflects the west dip away from the crest of the Cincinnati Arch to the east and into the center of the Illinois Basin to the west. Red lines represent faults from published surface geology (Mayfield and Chisholm, 1931; Bergendahl, 1965) and seismic interpretations.



The elevation of the Precambrian unconformity surface in Hancock Co., Kentucky (bold yellow outline) based on the interpretation of proprietary seismic data in northern Kentucky and southern Indiana. At the proposed well site, the top of Precambrian basement is estimated to be about 8,170 feet below the surface (-7,550 feet subsea), assuming a ground elevation of 620 feet above sea level. The north to northeast orientation of the contour lines with the deeper elevations to the west reflects the west dip away from the crest of the Cincinnati Arch to the east and into the center of the Illinois Basin to the west, as well as some differential uplift along the north edge of the Rough Creek Graben. Red lines represent faults from published surface geology (Mayfield and Chisholm, 1931; Bergendahl, 1965) and seismic interpretations.

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