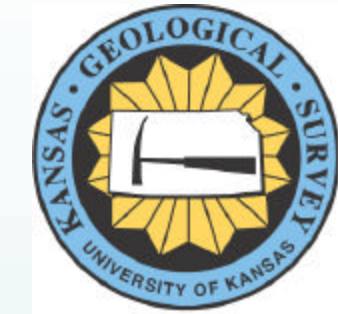




Stratigraphy, Depositional Environments, and Coalbed Methane Potential of Pennsylvanian Coals -- Bourbon Arch Region, Eastern Kansas

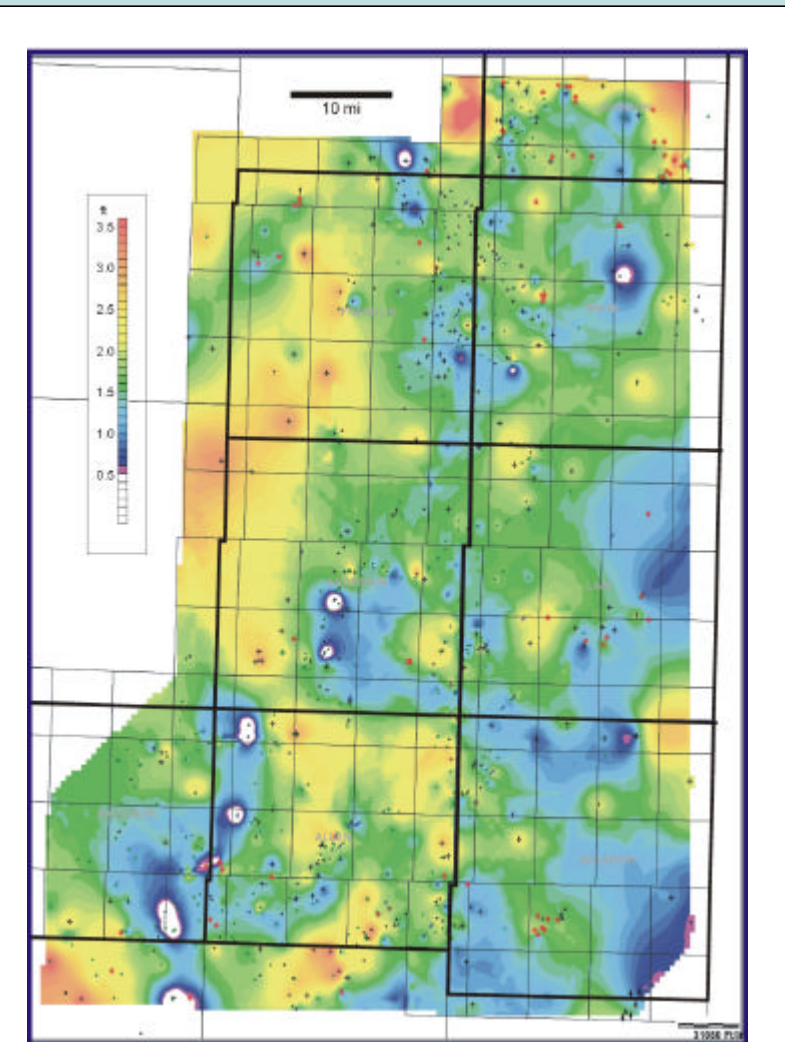
T. A. JOHNSON¹, J. P. LANGE¹, T. R. CARR¹, and K. D. NEWELL¹



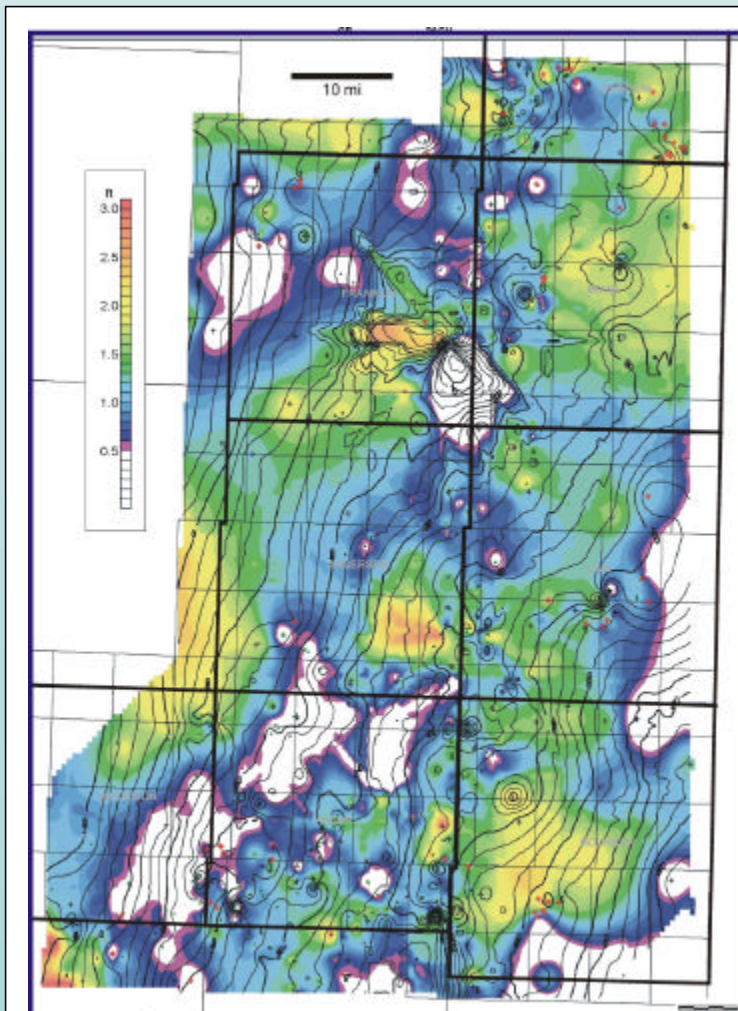
BEVIER & CROWBURG COALS

The Bevier coal tends to be elongate and parallel to the paleoshoreline, and is extensive and very continuous. In Miami County, the Bevier rests on laminated, bioturbated siltstone and shale interpreted to be the deposits of a low-energy, dissipative, muddy coast similar to the modern-day Orinoco delta and Venezuelan coast (van Andel, 1967; Wells and Coleman, 1981). Regional ash and sulfur data indicate that the Bevier possibly formed as raised mires in some areas.

The Crowburg coal tends to also be elongate, but less continuous than the Bevier, and also parallels the paleoshoreline. In this particular core location the Crowburg overlies a heterolithic, tide-influenced sand, which in turn overlies laminated sandy-silt and siltstone. This interval is interpreted to represent a prograding tidal flat overlain by a low to slightly raised mire with possible coast-oriented tidal-barrier sands within the region. This would be analogous to the modern-day Snuggedy Swamp of South Carolina (Staub and Cohen, 1979).

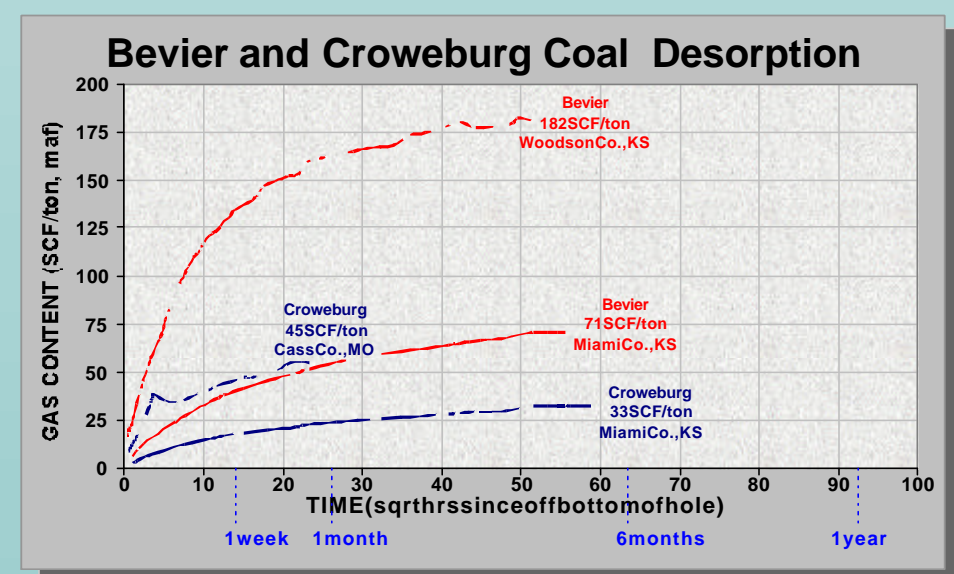
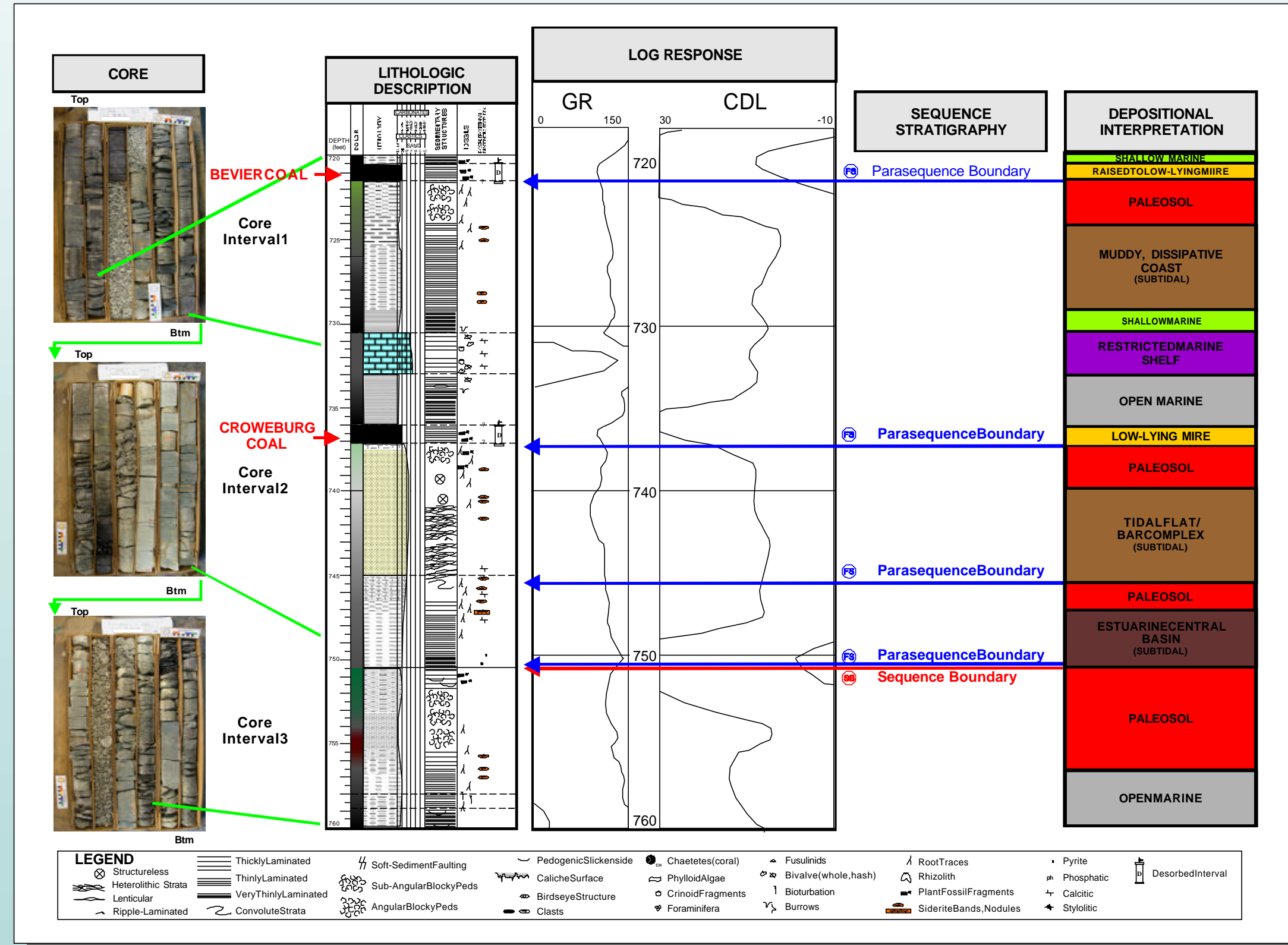


Bevier Coal Isopach (C.I. = 0.1 ft)



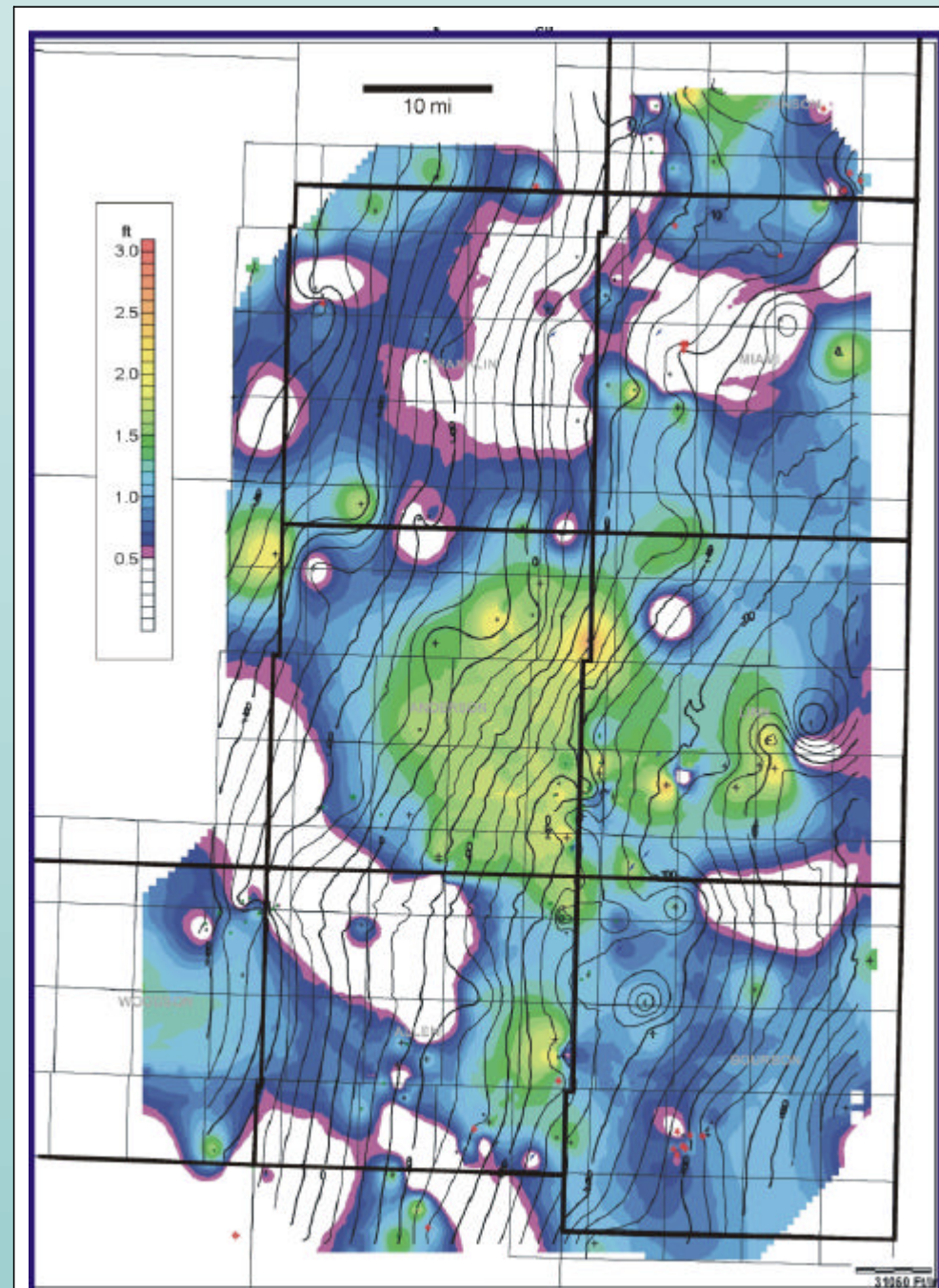
Crowburg Coal Isopach (C.I. = 0.1 ft) with Crowburg Structure Contour Overlay (C.I. = 25 ft)

Coal	Depth (below surface)	Orientation	Geometry	Extent	Thickness	Ash	S	Btu(k)/lb	Depositional Environment	Gas Content scf/ton
Bevier (Regional)	510-989 ft 800ft avg	Strike	Elongate, continuous	Entire study area	<3.5ft	15-33%; 27% avg	1.9-5.6%; 3.6% avg	13.9-14.1; 14.0 avg	Chenier plain-muddy dissipative coastline	27-208; 102 avg
Bevier (Miami Co.)	721ft				1.0ft	26-32%; 29% avg	5.6%	13.9		71-81; 76 avg
Crowburg (Regional)	480-942ft; 875ft avg	Strike	Elongate, isolated	Several townships	<3.0ft	7.72%; 20% avg	2.9-7.8%; 4.8% avg	14.6-14.9; 14.7 avg	Tidal coastline	33-94; 52 avg
Crowburg (Miami Co.)	737 ft				1.0ft	7-15%; 11% avg	2.9%	14.7		33-39; 36 avg

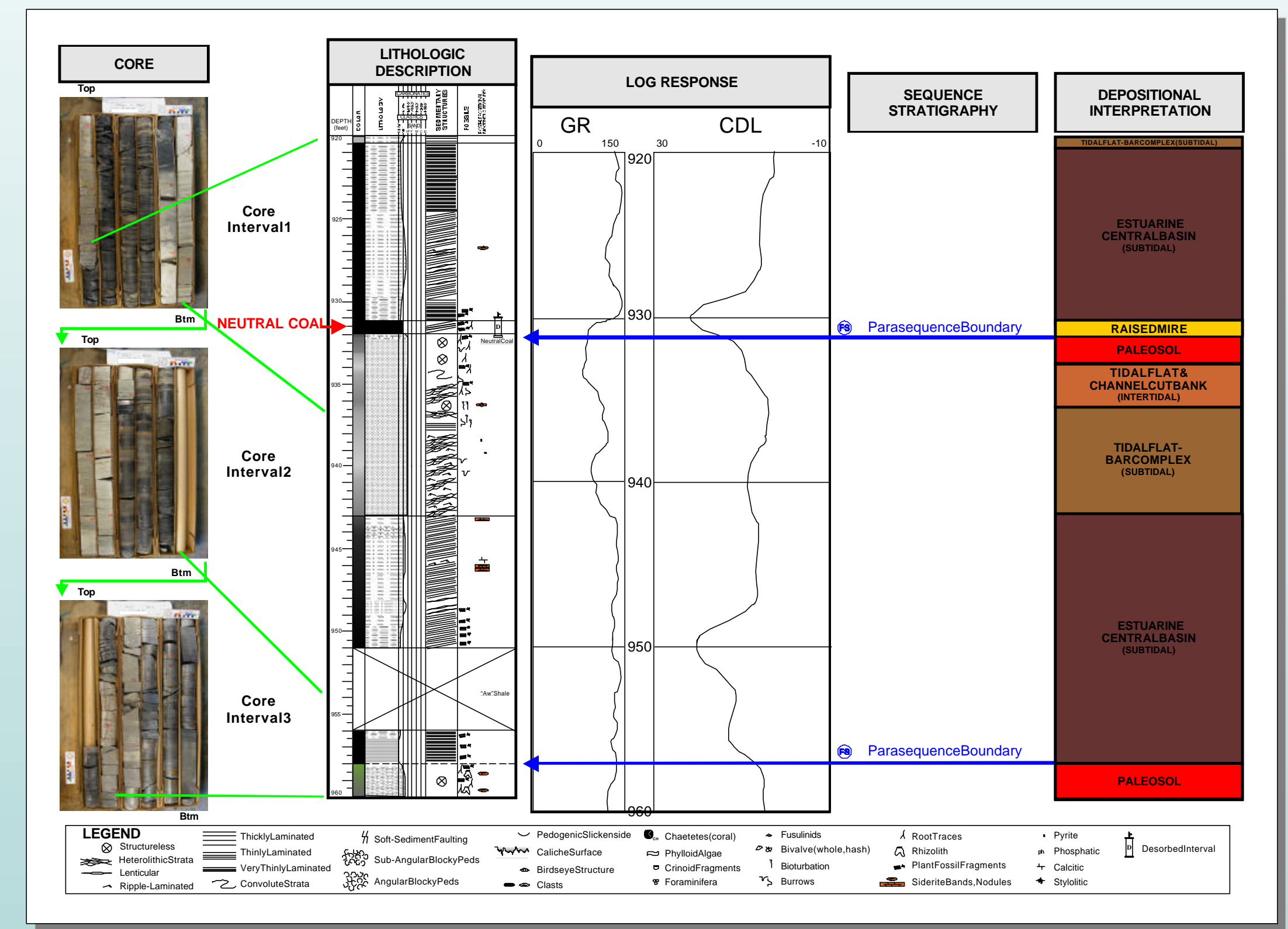


NEUTRAL COAL

The Neutral appears continuous over the study area except where it was eroded by the incised lower Bartlesville sandstone. In Miami County, the Neutral coal overlies bar and channel deposits of a tidal flat prograding over a near-coastal estuarine central basin—a cycle repeated once directly beneath and twice directly above this interval. Ash from this core and sulfur data from a Cass County, Missouri, core indicate that the peat likely formed as a slightly raised mire. The mire was somewhat protected from detrital influx with little marine influence upon flooding. Possible modern analogue would be the Malaysian tidal coastlines and mires of Coleman et al. (1970).

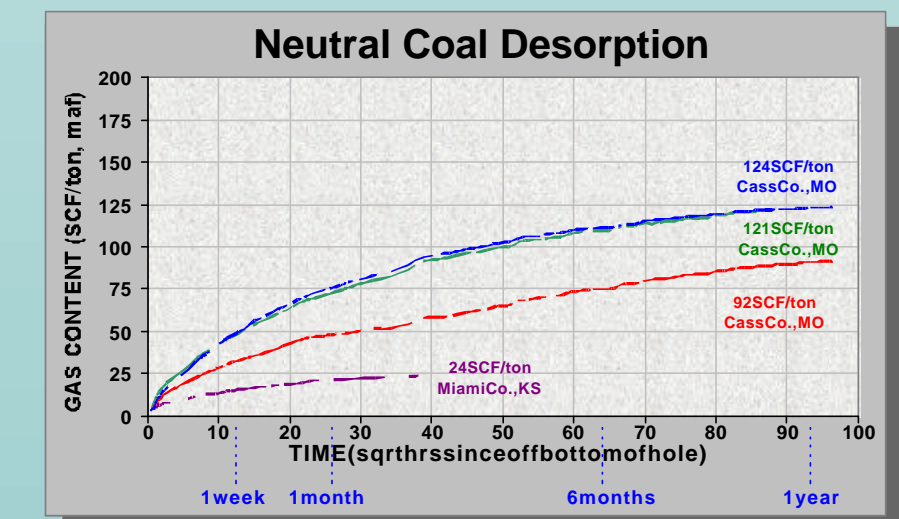


Neutral Coal Isopach Map (C.I. = 0.1 ft) with Neutral Structure Overlay (C.I. = 25 ft)



Coal	Depth (below surface)	Orientation	Geometry	Extent	Thickness	Ash	S	Btu(k)/lb	Depositional Environment	Gas Content scf/ton
Neutral (Regional)	688-931ft; 810 ft avg	Dip	Broad, circular	Several townships	<3.0ft	11-22%; 16% avg	2.0%	14.9	Tidal coastline	24-124 90 avg
Neutral (Miami Co.)	931feet				1.0ft	15%	2.0%	14.9		24

This core interval is currently being displayed for another poster, "Cores of Pennsylvanian Coal Sequences," by Timothy R. Carr, K. David Newell, Jonathan P. Lange, and Troy A. Johnson



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