Kentucky Geological Survey
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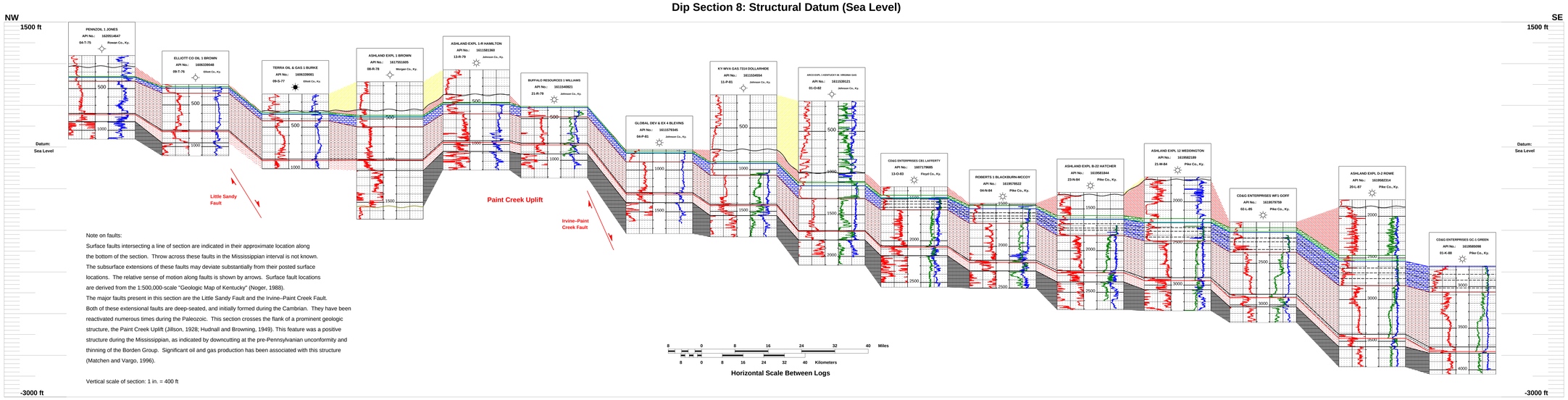
Map and Chart Series 14
Series XII, 2000

Regional Subsurface Geologic Cross Sections of the Mississippian System, Appalachian Basin, Eastern Kentucky

Sheet 8 of 14

David C. Harris and
Thomas N. Sparks

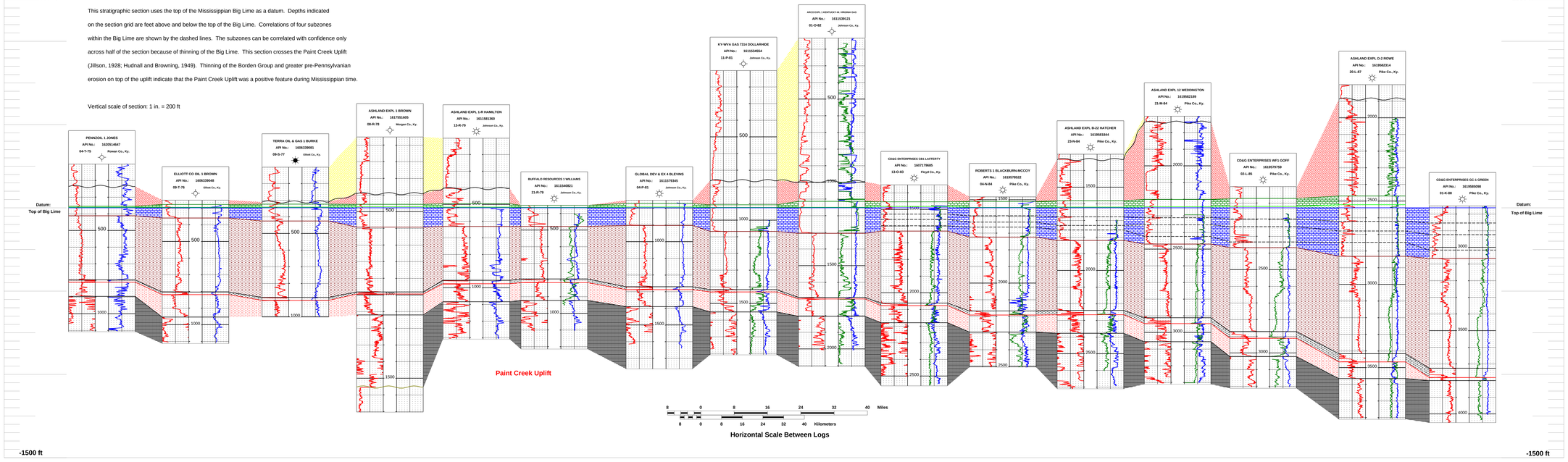
Dip Section 8: Structural Datum (Sea Level)



Note on faults:
Surface faults intersecting a line of section are indicated in their approximate location along the bottom of the section. Throw across these faults in the Mississippian interval is not known. The subsurface extensions of these faults may deviate substantially from their posted surface locations. The relative sense of motion along faults is shown by arrows. Surface fault locations are derived from the 1:500,000-scale "Geologic Map of Kentucky" (Noger, 1988).
The major faults present in this section are the Little Sandy Fault and the Irvine–Paint Creek Fault. Both of these extensional faults are deep-seated, and initially formed during the Cambrian. They have been reactivated numerous times during the Paleozoic. This section crosses the flank of a prominent geologic structure, the Paint Creek Uplift (Jillson, 1928; Hudnall and Browning, 1949). This feature was a positive structure during the Mississippian, as indicated by downcutting at the pre-Pennsylvanian unconformity and thinning of the Borden Group. Significant oil and gas production has been associated with this structure (Matchen and Vargo, 1996).

Vertical scale of section: 1 in. = 400 ft

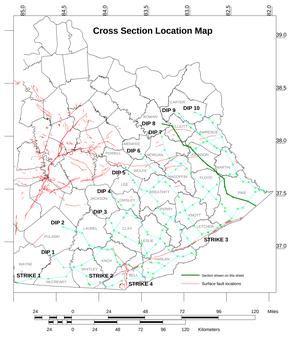
Dip Section 8: Stratigraphic Datum (Top of Big Lime)



This stratigraphic section uses the top of the Mississippian Big Lime as a datum. Depths indicated on the section grid are feet above and below the top of the Big Lime. Correlations of four subzones within the Big Lime are shown by the dashed lines. The subzones can be correlated with confidence only across half of the section because of thinning of the Big Lime. This section crosses the Paint Creek Uplift (Jillson, 1928; Hudnall and Browning, 1949). Thinning of the Borden Group and greater pre-Pennsylvanian erosion on top of the uplift indicate that the Paint Creek Uplift was a positive feature during Mississippian time.

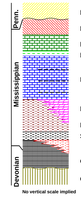
Vertical scale of section: 1 in. = 200 ft

Cross Section Location Map

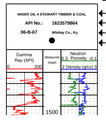


Explanation

Horizons



Geophysical Logs



- Well operator, well number, lease
- Well API code (last 5 digits=permit no.)
- Carter coordinate location and county
- Well completion symbol
  - Gas well
  - Oil well
  - Oil and gas well
  - Dry and abandoned well
  - Injection well

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