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Stratigraphy, Petrography, and Sedimentary Facies of Lower Pottsville Sandstone (Lower Pennsylvanian) in the Greasy Ridge Oilfield, Southeastern Ohio

The Greasy Ridge Oilfield is an area of anomalous, shallow (550-800 ft) oil production. The field was discovered in 1985 and was estimated to have 3,040,000 STB of original in place oil, with about 10% recoverable by primary methods. A detailed stratigraphic, structural and petrographic analysis of the field has been undertaken to develop a better understanding of the reservoir and trap. This preliminary analysis is based on 34 geophysical logs, 4 cores, and 7 thin sections and comparison of this subsurface data with outcrops 25 to 50 miles from the oilfield. The pay sand ranges from 2 to 30 feet, has an average thickness of 15.9 ft, and consists of fine to very fine sandstone. The base occurs about 75 feet above the top of the Sharon Sandstone. The pay sand overlies black sideritic shale containing *Lingula* and burrowed siltstone with *Teichichnus* and is overlain by a series of coals. Mean framework grain composition is Q₉₄F₁L₅. Porosity averages 14.4% but varies substantially due to the patchy nature of the cement. Most of the porosity appears to be secondary and formed by selective dissolution of feldspar grains and carbonate cement, as evidenced by grain corrosion, oversized pores, and honeycombed grain fabric. Structural contours drawn on top of pay sand indicate 2 or 3 structural highs elongated ENE-WSW with relief of 20-30 ft. Depositional cycles exhibited by Lower Pottsville strata in the region involve fluvial incision followed by aggradation of fluvial-to-estuarine sands, which are capped by coals and restricted marine shales.