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Characteristics of Reservoir Rocks in Kentucky

Petroleum geologists engaged in research and in the exploration and development of hydrocarbon resources need detailed knowledge about the rock strata in which the deposits occur, as well as information about associated deposits. Hydrocarbon accumulations in Kentucky are recognized in both carbonate and clastic reservoirs throughout the stratigraphic section. The reservoirs exist in rocks ranging in age from Cambrian to Pennsylvanian. Several different reservoir traps are recognized including, stratigraphic and structural. Styles of structural traps include domes, anticlines and fault blocks. Combination traps are more complex and were formed by more than one mechanism.

Although many tools are available for exploration, the examination of cores and well samples is the greatest single source of information for hydrocarbon and mineral exploration and stratigraphic and structural investigations. Cores and well samples also provide the best source of geologic information concerning the nature, occurrence, and extent of rocks in the subsurface. This knowledge of rock strata beneath the earth's surface can only be gained through in-depth examination of well cuttings and cores.

A detailed and accurate understanding of the reservoir rocks in Kentucky is possible through identification and study of sedimentary structures, lithologic characteristics, and fossils found in cores and well samples. Polished core samples and well cuttings on display show different types of mega- and micro features, color patterns and staining, primary structures, secondary features, grain size, clasts, matrixes, stratification, fossil content and accessory constituents, bedding, mineralogy, particle characteristics, cements, solution and tectonic structures, penecontemporaneous deformation structures, porosity and permeability, and textures.