

SYSTEM	SERIES	GROUP	THICKNESS (IN FEET)	SECTION	LITHOLOGY	LOCATION	HYDROLOGY		
								QUATERNARY	TERTIARY(?) AND QUATERNARY
	Pleistocene and Recent	Union formation	0-25		Leached and oxidized loess and loam consisting of silt and fine sand. Calcium carbonate content increases with depth. Locally contains iron oxide and calcium carbonate concretions.	Forms a mantle covering alluvial deposits and bedrock over most of the area; is thickest along the Ohio River and thins southward.	Yields practically no water to wells.		
	Pliocene and Pleistocene	Alluvium	0-150		Gravel, sand, silt, and clay. Alluvium in the Ohio Valley contains gravel at the base composed of glacial outwash derived from igneous, metamorphic, and sedimentary rocks, and fragments of sandstone, limestone, chert, shale, and coal bedrock material locally cemented with iron. Alluvium in tributaries generally is fine grained although gravel is present locally along the Green River.	Borders streams and underlies flatland in valleys. Underlies the large flat areas south and west of Owensboro and west of Bon Harbor Hills. Maximum thickness occurs in the Ohio River valley and is 100 feet thick as far south as Mosleyville.	Yields as much as 750 gpm (gallons per minute) to wells in the Ohio Valley. Yields enough water for a modern domestic supply (more than 500 gpd) to wells in larger tributary valleys. Yields practically no water to wells in small valleys, where it is thin and fine grained. Water is hard to very hard and may contain objectionable amounts of iron.		
CARBONIFEROUS SYSTEMS	McLeansboro Lisman formation	Gravel	0-25		Chert and quartz gravel with some sand, silt, and clay.	Occurs on hilltops and hillsides between elevations of about 420 and 600 feet. Covered by loess in many places.	Yields practically no water to wells.		
		Anvil Rock sandstone member No. 12 coal	0-110		Brown to red crossbedded medium- to coarse-grained friable to well-cemented quartz sandstone grading into shale laterally. Unconformity at base locally extends to the sandstone beneath the Kentucky No. 11 coal.	Underlies hills in western Daviess County and Bon Harbor Hills west of Owensboro. Thickens westward.	Yields enough water for a modern domestic supply to wells drilled into Anvil Rock sandstone member. Water is hard to very hard.		
		No. 11 coal			Gray thin to massive locally shaly fossiliferous limestone.				
		Upper sandstone member			Shale and fine- to medium-grained quartz sandstone grading into shale laterally. The No. 11 coal marks the top of the formation.	Crops out below the Lisman formation in western Daviess County and Bon Harbor Hills.	Yields enough water for a modern domestic supply to wells drilled into sandstone. Yields practically no water from shale. Water is hard.		
		No. 9 coal							
		Carbondale formation	0-365		Shale, sandy shale, and thin coal beds.	Crops out west of a line from Thruston to Pleasant Ridge with a few scattered outliers to the east and on the eastern edge of Bon Harbor Hills.	Yields practically no water to wells.		
		Pleasantview sandstone	10-15		White to light-gray fine- to medium-grained locally shaly sandstone.		Yields enough water for a modern domestic supply to wells drilled into sandstone. Water is hard to very hard in outcrop area and is increasingly mineralized down dip.		
		Schultztown coal							
		Sebree sandstone	20-30		Crossbedded coarse- to medium-grained friable to well-cemented locally shaly quartz sandstone; contains iron carbonate nodules. Unconformity at base.				
		Tradewater formation	350-500		No. 7 coal No. 6 coal No. 5 coal Curlew sandstone Curlew limestone Lead Creek limestone Aberdeen sandstone	Shale, sandy shale, carbonaceous shale, sandstone, limestone, and coal. Sandstone units are medium- to coarse-grained, locally shaly, generally range in thickness from 0 to 100 feet, and generally contain iron. Formation thickens to the west.	Crops out in eastern half of Daviess County and most of Hancock County. The Tradewater formation below the Curlew limestone crops out in the southeastern half of Hancock County and in the extreme eastern part of Daviess County. Locally, the Tradewater formation either lies unconformably on rocks of Mississippian age or has been mapped to include shale of the Caseyville sandstone.	Yields enough water for a modern domestic supply to drilled wells that penetrate sandstone. Yields practically no water from limestone and shale. Water is hard to very hard and low in dissolved solids near outcrop area and becomes increasingly mineralized but softer down dip to the west. It is highly mineralized in western Daviess County. Water from the lower part of the formation generally contains objectionable amounts of iron.	
		Caseyville sandstone	100-500		Bee Springs sandstone Battery Rock coal Lower conglomerate member	Massive cliff-forming crossbedded medium-grained sandstone; contains pebbles of quartz; friable to well cemented with silica or limonite; grades into shale laterally. Shale, sandy shale, sandstone, and thin limestone and coal beds. Massive cliff-forming crossbedded conglomeratic medium-grained sandstone with pebbles of vein quartz; friable to well cemented with silica or limonite; grades into shale laterally. Contains more and larger pebbles than the Bee Springs sandstone. Unconformity at base extends to the Menard limestone in places. Formation thickens to the west.	Only the massive sandstone and conglomeratic phases have been identified at the outcrops. Rocks mapped as Tradewater formation along eastern edge of Hancock County may in some places be shale and sandstone of the Caseyville sandstone. Dips westward and underlies the rest of Hancock County and all of Daviess County.	Yields enough water for a modern domestic supply to wells drilled into sandstone. Yields practically no water from shale. Water generally contains objectionable amounts of iron. Water is hard to very hard and low in dissolved solids near outcrop area and becomes increasingly mineralized but softer down dip, to the west. At depth, water becomes too mineralized for use.	
		MISSISSIPPIAN	Upper Mississippian	Formations of late Chester Age	Kinkaid limestone	25			
					Degonia sandstone	70			
					Clore limestone	15			
					Palestine sandstone	40			
Menard limestone	60								
Waltersburg sandstone	60								
Vienna limestone	7								
Tar Springs sandstone	50								
Formations of middle Chester age									
					Shale, sandy shale, limestone, and sandstone.	Crops out along the eastern edge of Hancock County. Underlies the rest of Hancock County and all of Daviess County. Locally, the upper units have been removed.	Yields enough water for a modern domestic supply to wells drilled into sandstone and solution openings in limestone near the outcrop area. Shale yields practically no water. Water is hard to very hard. Water from rocks of Mississippian age underlying younger rocks west of the outcrop area is highly mineralized.		

¹ of Glenn (1912) ² of Owen (1856) ³ of Wanless (1929) ⁴ as used by Wanless (1939) ⁵ of Crider (1915) ⁶ of Norwood (1876) ⁷ of Crider (1913)

GENERALIZED COLUMNAR SECTION IN DAVIESS AND HANCOCK COUNTIES, KENTUCKY (COUNTY GROUP 27)

By
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