

SYSTEM	SERIES	GROUP	THICKNESS (IN FEET)	SECTION	LITHOLOGY	LOCATION	HYDROLOGY			
								FORMATION		
CARBONIFEROUS SYSTEMS PENNSYLVANIAN	QUATERNARY	Pleistocene and Recent	Union formation ¹	0-10		Loess and loam, leached and oxidized.	Forms a thin mantle over alluvial deposits and bedrock over much of the area.	Yields practically no water to wells.		
			Alluvium	0-90		Sand, gravel, silt, and clay; thinner and finer in the tributaries than in the Green River valley. Gravel consists of chert fragments from Pliocene(?) and Pleistocene gravel.	Borders streams and underlies most flat land along streams. Gravel occurs locally along the Green and Rough Rivers.	May yield as much as 100 gpm (gallons per minute) from sand and gravel along the Green and Rough Rivers. Wells along the Rough River between Taffy and Dundee yield over 10 gpm. Water is hard.		
	TERTIARY(?) AND QUATERNARY	Pliocene(?) and Pleistocene	Gravel	0-10		Chert gravel, with some sand and clay. Locally gravel has been reworked into the alluvium.	Occurs on tops and flanks of hills at elevations of 420 to 500 feet. Occurs on ridge northwest of Morgantown.	Yields enough water for a modern domestic supply (more than 500 gpd) to dug wells. Water is generally soft and low in dissolved solids but may contain objectionable amounts of iron.		
	McLeansboro	Lisman formation	180±	Anvil Rock sandstone member		Shale, sandy shale, and sandstone lenses, thin coal and limestone beds. The Madisonville limestone member occurs near the top of the section in Ohio County.	Crops out in small area in western Ohio County west of Centertown to the Green River and south of Mantanzas to the Green River. This sequence is absent in Butler County.	Yields practically no water except to wells penetrating sandstone. Water may be hard but is suitable for domestic use.		
				Providence Is member						
				No 11 coal						
		Carbondale formation	275±	No 9 coal		Fine- to medium-grained locally shaly quartz sandstone. The No. 11 coal marks the top of the formation.	Crops out in the southwestern quarter of Ohio County at base of hills below Lisman formation. Dips westward and wherever it is present underlies the Lisman formation. Absent in Butler County.	Yields enough water for a modern domestic supply to wells penetrating sandstone. Yields practically no water to wells penetrating only shale. Water is hard.		
				No 7 coal						
				Shale, sandy shale, and thin coal beds.					Crops out northwest of Morgantown in Butler County. In Ohio County crops out west of Hartford in the valley of the Rough River and midway between Beaver Dam and McHenry southward toward Prentiss and Cromwell. Scattered outcrops occur in northwestern Ohio County north of the Shawneetown-Rough Creek fault zone.	Yields practically no water to wells.
				Sebree sandstone ¹						
				Tradewater formation					500	No 7 coal
		Curlew sandstone ²								
		Curlew limestone ³								
		Aberdeen sandstone ⁴								
		Caseyville sandstone	100-450	Aberdeen coal		Massive crossbedded coarse- to medium-grained friable to well-cemented quartz sandstone; contains fragments of silicified wood. Shaly in some areas. Unconformity at base.	Crops out at Aberdeen, from Morgantown to Banock in Butler County, north of Baizetown to Horton, Beda, and northwest of Heflin in Ohio County. Unmapped north of Shawneetown-Rough Creek fault zone, but occurs in northwestern part of Ohio County. Underlies all younger rocks to the west.	Yields enough water for a modern domestic supply to wells penetrating sandstone. Some wells produce over 20 gpm. The water is fresh near outcrop areas in both Butler and Ohio Counties but may become highly mineralized in the deeper part of the Moorman syncline in Ohio County.		
Elm Lick coal										
1A coal										
Lower conglomerate	100-450		Shale, sandy shale, sandstone lenses, and thin coal beds. In the northwest quarter of Ohio County, this sequence consists mostly of shales. To the west, sandstone becomes more prevalent in subsurface.	Crops out from the Mud River near Huntsville to the Green River near Woodbury and Banock. Crops out in northeastern Ohio County north of the Shawneetown-Rough Creek fault zone and from near Arnold and Rosine to north and west of Rosine.	Generally yields only small quantities of water to wells. May yield enough water for a modern domestic supply to wells penetrating a sufficient thickness of sandstone. Water is fresh near outcrop areas but becomes increasingly mineralized with depth.					
						Lower conglomerate				
MISSISSIPPIAN	Upper Mississippian	Formations of late Chester age		Limestone, shale, sandy shale, and sandstone.	Crops out from the Mud River west of Quality to the Barren River and along the fault. Crops out in Ohio County east and southeast of Fordsville, along the Shawneetown-Rough Creek fault zone from south of Buford east to Grayson County. Underlies all younger rocks to the west.	Yields only small quantities of water to most wells. May yield fairly large quantities of water to wells penetrating solution channels in limestone. Water is fresh near the outcrop areas but becomes salty at depth.				

¹ of Glenn (1912) ² of Owen (1856) ³ as used by Wanless (1939) ⁴ of Crider (1915)

GENERALIZED COLUMNAR SECTION IN BUTLER AND OHIO COUNTIES, KENTUCKY (COUNTY GROUP 26)

By

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