



WATER-BEARING FORMATION

- Qal Quaternary alluvium
- K Cretaceous rocks
- P Pennsylvanian rocks
- Mc Chester rocks
- Mm Meramec rocks
- Mmo Meramec and Osage rocks
- D Devonian rocks

----- Contact

- - - - - Fault
Dashed where approximately located;
dotted where concealed

EXPLANATION

Water in Mississippian rocks of Chester age
Most drilled wells are inadequate for a domestic supply with power pump (less than 500 gpd). Maximum yields probably do not exceed 20-30 gpm. Some wells in sandstone formations yield enough water for a domestic supply with power pump (more than 500 gpd). These formations increase in thickness to the east, and yields increase proportionately. The major aquifer from Todd County eastward is the Big Clifty sandstone. Where it crops out, the water body in it is perched.
Most dug wells obtain water from perched bodies. Yields are generally low, but some wells in the Big Clifty sandstone are adequate for a domestic supply with a power pump (more than 500 gpd).
A spring horizon is present at the shale-limestone contact of the Harbinsburg sandstone and the Glen Dean limestone. Flows are as much as 40 gpm. Seepage springs occur at other horizons, but most are seasonal.

Water in Mississippian rocks of Meramec age
Springs with low flows ranging from less than 10 gpm to 1,500 gpm occur at or near stream level. Maximum flows range from less than 100 gpm to more than 100,000 gpm. Minimum flows generally occur in early fall, maximum flows in late winter. A few drilled wells in this area that intercept major solution openings may yield as much as the flow of the springs that discharge from these openings, but most wells are inadequate for domestic use (less than 100 gpd).
Dug wells are inadequate for a domestic supply with bailer or bucket (less than 100 gpd) except where water levels are not high above perennial streams.

Water in Recent and Pleistocene alluvium
Drilled wells in alluvium in the Ohio River valley yield several hundred gallons per minute. Compound horizontal wells yield as much as 5,000 gpm (gallons per minute). Nearly all wells yield more than 500 gpd (gallons per day), enough for domestic use with a power pump. The alluvium in Crittenden County contains less clay and silt than that in the counties to the west and south and generally yields more water to wells. Alluvium in stream valleys tributary to the Ohio River is fine grained and thin. Most drilled wells are inadequate; dug wells generally yield enough for a bailer.

Water in rocks of Cretaceous age
Most drilled wells in gravel of the Tusculosa formation of Upper Cretaceous series do not yield enough water for a domestic supply with power pump (less than 500 gpd) but are adequate for bucket or bailer (more than 100 gpd). Some wells adjacent to Kentucky Lake yield more than 5 gpm. The overlying Ripley formation crops out mostly on hills and is too thin to supply water to drilled wells.
Dug wells generally yield enough water for a domestic supply with bailer or bucket (more than 100 gpd) when adjacent to drainage. Most wells in upland areas are inadequate.

Water in rocks of Pennsylvanian age
Most drilled wells in the upland are inadequate for power pumps (less than 500 gpd). About half the wells yield enough water for a domestic supply where a bailer or bucket is used (less than 100 gpd). Drilled wells in lowland areas bordering streams generally yield enough water for a domestic supply with power pump (more than 500 gpd).
Dug wells in lowlands bordering streams yield enough water for a domestic supply with bailer or bucket (more than 100 gpd) if adequate storage is provided for peak needs. Very few dug wells are adequate for power pumps (more than 500 gpd).

Water in Mississippian rocks of Chester age
Most drilled wells that obtain water from fault zones are adequate for a domestic supply with power pump (more than 500 gpd). Yields are as much as 100 gpm. Many wells that penetrate fault zones flow as much as 20 gpm. More than half the wells drilled into the Bethel and Cypress sandstone formations yield enough water for a domestic supply with power pump (more than 500 gpd). Wells that obtain water from one of the many perched water bodies generally are inadequate for a domestic supply with a power pump (less than 500 gpd) but are adequate for a bailer or bucket (more than 100 gpd).
Most dug wells obtain water from perched bodies. Yields are generally low, and most wells yield only enough water for a domestic supply with bailer or bucket (more than 100 gpd).
Two spring horizons are present. The most important is in the Kinkaid limestone of late Chester age with springs that discharge as much as 60 gpm near the tops of hills and ridges. The second is at the shale-limestone contact of the Harbinsburg sandstone and the Glen Dean limestone. Flows are as much as 40 gpm. Seepage springs occur at other horizons, but most are seasonal.

Water in Mississippian rocks of Meramec age
More than three-fourths of the drilled wells in this area yield enough water for a domestic supply with a power pump (more than 500 gpd). Very few wells are inadequate for domestic use with bailer or bucket (less than 100 gpd). Wells that encounter large solution channels yield more than 5 gpm, and some yield more than 50 gpm.
Dug wells are inadequate for a domestic supply (less than 100 gpd) except where water levels are not high above perennial streams.

Water in Mississippian rocks of Meramec age
Most drilled wells in this area yield 5 gpm. Wells that encounter large solution channels yield more than 50 gpm. Very few wells are inadequate for domestic use with power pump (less than 500 gpd). Most dug wells are inadequate for domestic use with power pump (less than 500 gpd).
Yields from fault zones generally are greater than shown by the availability pattern; however, some wells yield much less than is shown by the pattern.

Water in Mississippian rocks of Meramec and Osage ages
More than three-fourths of the drilled wells in this area yield enough water for a domestic supply with a power pump (more than 500 gpd). Very few wells are inadequate for domestic use with bailer or bucket (less than 100 gpd). Wells that encounter large solution channels yield more than 5 gpm, and some yield more than 50 gpm. Adjacent to Kentucky Lake, the chert rubble of the Fort Payne chert of Osage age (included with the Meramec of Lyon and Trigg Counties) generally yields more than 5 gpm to drilled wells, and some yields are more than 20 gpm. Dug wells are inadequate for a domestic supply (less than 100 gpd) except where water levels are not high above perennial streams.

Water in Devonian rocks
Wells generally yield little or no water.

YIELD

- 60 Gallons per minute, where known
- S Satisfactory supply for domestic use
- I Inadequate supply for domestic use
- T Yield not determined
- SB Minimum yield of well reported 100 gallons per day
- SP Minimum yield of well reported 500 gallons per day
- IB Will not yield a minimum supply with type of lift installed

YIELD

5000 Gallons of flow per minute

TYPE OF LIFT

- B Bailer or bucket
- H Hand force pump
- P Power pump
- N No pump, bucket, or bailer

METHOD USED TO DETERMINE YIELD

- E Estimated on basis of one observation
- M Measured with pygmy meter or flume more than one time. Minimum measured flow shown
- O Measured with pygmy meter or flume one time. Observed measured flow shown

Base maps are county highway maps and adjacent county groups may not match

AVAILABILITY OF GROUND WATER IN CALDWELL, CHRISTIAN, CRITTENDEN, LIVINGSTON, LYON, TODD, AND TRIGG COUNTIES, KENTUCKY

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