

WATER-BEARING FORMATION

Quaternary alluvium

Pennsylvanian

Chester age

Meramec age

Osage age

Devonian

Ordnovician

Contact

Fault

Dashed where approximately located; dotted where concealed

EXPLANATION

Water in Mississippian rocks of Meramec age
About 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 (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 except where water levels are close to perennial stream levels. Springs are present in a few areas where there are minor surface streams. Low flows are as much as 500 gpm. Many of these discharge on top of relatively impermeable shale and silt layers and go dry during extended dry periods in late summer and fall.

Water in Recent and Pleistocene alluvium
Most drilled wells yield less than 100 gpd (gallons per day) and are inadequate for a domestic supply with bucket or bailer. Water is obtained from fine sand, silt, and clay in most places. Most dug wells are inadequate for a domestic supply with bucket or bailer (less than 100 gpd).

Water in rocks of Pennsylvanian age
Nearly all drilled wells are inadequate for power pumps (less than 500 gpd). Most wells do not yield enough water for a domestic supply with bailer or bucket (less than 100 gpd). Dug wells are inadequate for a domestic supply with bucket or bailer (less than 100 gpd) except in areas bordering streams where a few wells are adequate if storage is provided for peak needs.

Water in rocks of Pennsylvanian age
Less than half the drilled wells in this area yield enough water for a domestic supply with power pump (more than 500 gpd), but most are adequate for a domestic supply with bailer or bucket (more than 100 gpd). Drilled wells in lowland areas bordering streams generally yield enough water for a domestic supply with bailer or bucket (more than 100 gpd). Dug wells in lowland areas 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 a domestic supply with power pump (more than 500 gpd), and a few are adequate for a domestic supply with power pump (more than 500 gpd).

Water in Mississippian rocks of Chester age
Most drilled wells are adequate for a domestic supply with power pump (more than 500 gpd). Adequate wells are as much as 200 feet in depth. Yields of more than 5 gpm (gallons per minute) are obtained from wells that penetrate large solution channels in the limestones of early Chester age. Nearly all wells are adequate for a domestic supply with bailer or bucket (more than 100 gpd). Most dug wells in which water level is close to perennial stream level is adequate for bailer or bucket (more than 100 gpd), and a few are adequate for a domestic supply with power pump (more than 500 gpd).

Water in Mississippian rocks of Chester age
About half the drilled wells are adequate for a domestic supply with bucket or bailer (more than 100 gpd). Very few wells yield enough for a domestic supply with power pump (more than 500 gpd). Nearly all wells in the upper part of the Chester in the Wayne County area are inadequate for a domestic supply (less than 100 gpd). Most dug wells are inadequate for a domestic supply (less than 100 gpd). An adequate domestic supply with bucket or bailer (more than 100 gpd) may be obtained in some places close to streams if perched water bodies are intercepted. Nearly all wells in the Pennsylvanian shale are inadequate for a domestic supply (less than 100 gpd). Small springs discharge from perched water bodies at numerous horizons in the limestones of early Chester age. Flows range up to about 5 gpm. The springs are generally inadequate for domestic use.

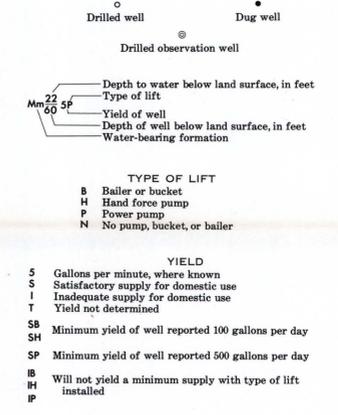
Water in rocks of Mississippian-Devonian age
Most drilled wells are inadequate for domestic use with bailer or bucket (less than 100 gpd). In eastern Casey County some wells may yield as much as 1/4 gpm. Where limestones are present, a few wells are adequate for domestic use with bucket or bailer (more than 100 gpd) in lowland areas bordering streams. Nearly all dug wells are inadequate for domestic use with bucket or bailer (less than 100 gpd). Seepage springs are present along much of the area in which the Chattanooga shale crops out. Flows are generally less than 1 gpm and most dry up during late summer and fall.

Water in rocks of Ordovician age
Yields enough water for a domestic supply with a power pump (more than 500 gpd) to drilled wells in lowland areas near the Cumberland River. In tributary valleys, most wells are dry. Dug wells are generally inadequate for a domestic supply with a bucket or bailer (less than 100 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 age
Springs with low flows ranging from less than 10 gpm to about 1,500 gpm occur in the lower part of the Meramec. Most of the springs are perched high above perennial stream levels. One major horizon is close to normal pool stage of Lake Cumberland; another is about 50 feet above pool stage. The springs have great variability and many go dry during extended dry periods in late summer and fall. A few drilled wells in this area that intercept springs may yield as much as the flow of the springs, but most wells are inadequate for domestic use (less than 100 gpd). Dug wells are inadequate for a domestic supply (less than 100 gpd) except where perched water bodies are intercepted. Many of these perched water bodies go dry during extended dry periods in late summer and fall, but a few are extensive and support a perennial water body.

Water in Mississippian rocks of Meramec age
More than half the drilled wells in this area are inadequate for a domestic supply (less than 100 gpd). Very few wells yield enough water for a domestic supply with power pump (more than 500 gpd). Nearly all dug wells are inadequate for a domestic supply (less than 100 gpd). Small springs and wet weather seeps occur at several horizons. Flows generally do not exceed several gallons a minute and most go dry during extended dry periods in late summer and fall.

Water in Mississippian rocks of Osage age
Most drilled wells are adequate for a domestic supply with bailer or bucket (more than 100 gpd). A few wells in lowland areas bordering streams yield enough for a domestic supply with power pump (more than 500 gpd). A few wells obtain water from fractures and small solution openings in limestone. Where large quantities of shale or siltstone are penetrated, yields are lower. Most dug wells in lowland areas bordering streams are adequate for a domestic supply with bailer or bucket (more than 100 gpd). A few wells in lowland areas bordering streams yield enough for a domestic supply with power pump (more than 500 gpd). In about half the wells, water from these perched water bodies migrates below any openings in the wells during rainless periods. These wells are then dry until rainfall recharges a perched water body. In Casey County and northeastern Taylor County, the Osage is dissected into "knobs" or small steep hills. The perched water bodies are small in this area and many wells go dry. None of the wells inventoried in this area were adequate for a domestic supply with power pump, and more than half were inadequate for a domestic supply with bailer or bucket (less than 100 gpd). Most dug wells obtain water from the contact of mantle and bedrock or from shallow perched water bodies in the bedrock. These wells usually go dry during extended dry periods in late summer and fall. There are numerous small springs and seeps that discharge from the Osage. Most discharge from small solution openings and joints in limestone and siltstone and are supported by shale layers. Flows are as much as 20 gpm, but most have minimum flows of less than 1 gpm.



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

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AVAILABILITY OF GROUND WATER IN ADAIR, CASEY, CLINTON, CUMBERLAND, PULASKI, RUSSELL, TAYLOR, AND WAYNE COUNTIES, KENTUCKY

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