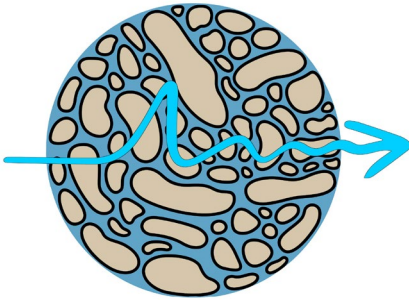


WHAT IS HYDRAULIC CONDUCTIVITY?



The aquifers of most interest to us in the Mississippi embayment are comprised of sand, gravel, silt and clay, but it is the sands and gravels that really provide us the water we need. Water moves through the **porous media**, or the interconnection of voids between the grains. Sometimes the water finds it easy to move, other times not – that's **hydraulic conductivity!**

The higher the value of hydraulic conductivity, the easier water moves through the porous media.



Fast

VS.



Slow

The opposite is true – the more difficult the passage means a lower hydraulic conductivity.

Hydraulic conductivity is a very important aquifer parameter for determining the movement of groundwater, and when used in combination with another invaluable term, *hydraulic gradient*, and the percent of void space, you can calculate the water's **velocity**.

Hydraulic gradient – the difference in water elevation over a distance

The shallow aquifer beneath Memphis and the Mississippi River Valley Alluvial aquifer under much of eastern Arkansas and western Mississippi is comprised of sand + gravel.



Range: 28 - 600 feet/day

The Memphis aquifer (or Sparta aquifer or Middle Claiborne aquifer) is comprised mostly of sand, as is the deeper Fort Pillow (or Wilcox) aquifer.



Range: 4 - 146 feet/day



Range: 0.09 - 1 feet/day

These aquifers are usually separated by clay which has very low hydraulic conductivities.

*Hydraulic conductivity ranges (feet/day) obtained from USGS Scientific Investigations Report 2009-5172