

Groundwater Flow Simulator

In order to best understand this part of the exhibit, you should read all of the posters first. This model represents a slice of the Earth and shows how groundwater flows through both confined and unconfined aquifers. The upper right hand side is the recharge zone while the middle left hand side is the discharge area, i.e. a stream.

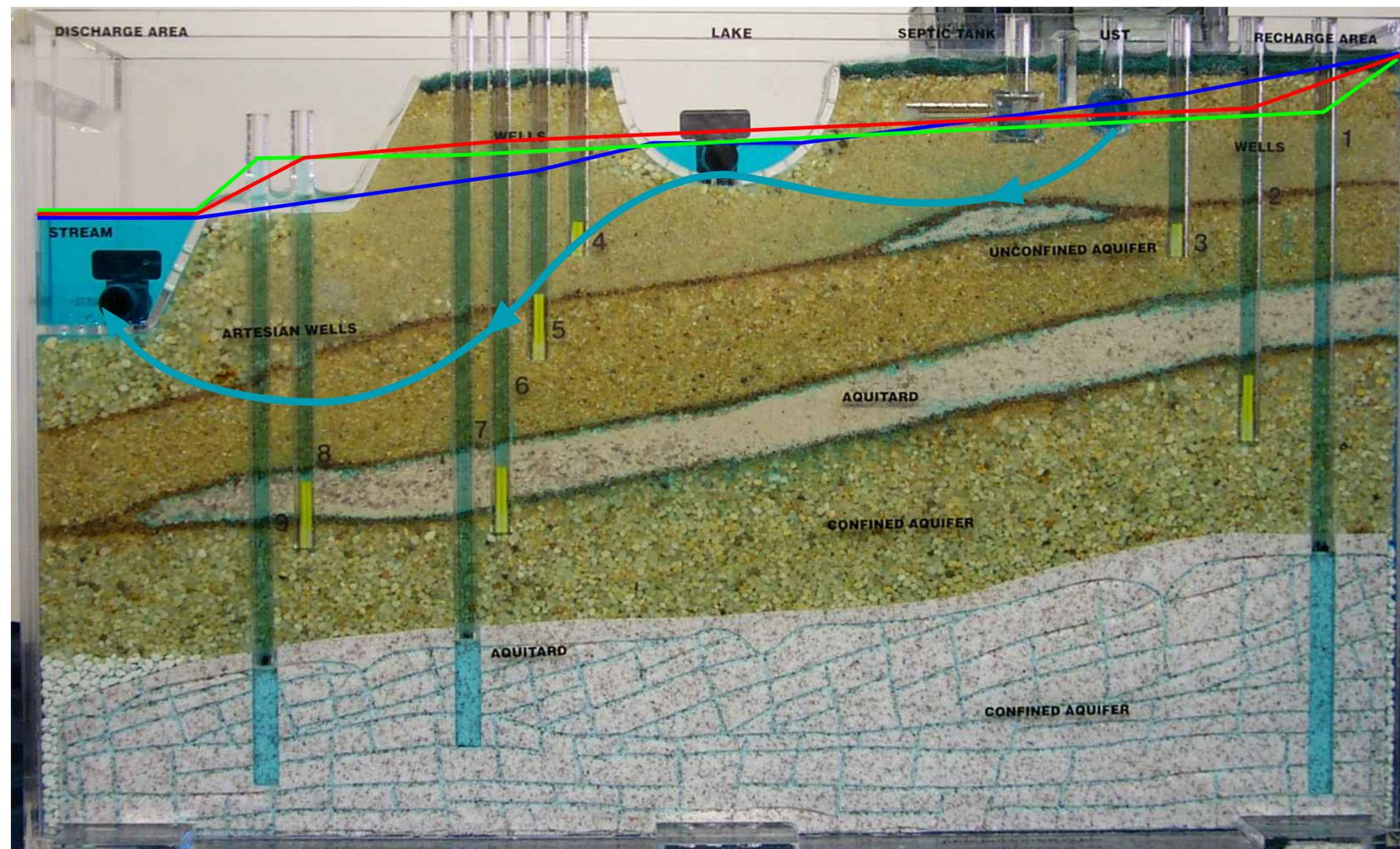
This model contains three simulated aquifers: an unconfined surficial aquifer and two confined aquifers, an upper gravel aquifer and a lower bedrock aquifer. An aquitard is more porous and permeable than a confining unit, but less porous and permeable than an aquifer.

The blue line represents the watertable of the unconfined aquifer. It is determined by connecting the water levels in the stream and lake with the water levels in the wells that penetrate the aquifer (3, 4, & 5).

The green line shows the potentiometric surface of the confined bedrock aquifer and is drawn by connecting the water levels in wells 1, 7 & 9 with the stream.

The red line shows the potentiometric surface of the confined gravel aquifer and is drawn by connecting the water levels in wells 2, 6, & 8 with the stream.

Notice that all of these lines slope down to the left which reflects that the water level in the recharge area is always higher than in the discharge area.



The blue color is dye that has been injected into the flow system to help you identify the water levels. Notice that flow through the bedrock aquifer is only in the fractures.

The yellow markers at the bottom of wells 2, 3, 4, 5, 6 & 8 represent the section of the wells that are open to the aquifer, usually described as the “screened interval.” Screens work to isolate the zone from which the well draws water and to prevent sediment from entering the well.

Notice that the wells in the bedrock aquifer are not screened. This is because the wells are drilled into solid rock therefore, there is no problem with sediment entering the wells.

The unconfined aquifer discharges to both the lake and to the stream. If you look carefully at wells eight and nine, you will see water flowing out of small holes near the top. This is the discharge from the confined aquifers.

Notice also that there is water in the UST (underground storage tank). This indicates that the tank is below the water table. If this tank were leaking, its contents would enter the groundwater system and flow along the path traced by the light blue line with arrows.

The bright yellow line on the tank in front of you shows the water table in the unconfined aquifer. Can you find the potentiometric surfaces in the confined aquifers using the water levels in the wells?