

HYDROLOGIC ATLAS OF THE BLACK HILLS, PENNINGTON
COUNTY, SOUTH DAKOTA

Ground Water-Related Terms

Aquifers: Different rock types have greatly differing capabilities for storing and transmitting fluids. Aquifers are bodies of rock capable of absorbing water at the surface and allowing it to move underground away from the recharge area.

Or the formal definition of the U.S. Geological Survey:

A formation, group of formations, or part of a formation that contains sufficient saturated permeable material to yield significant quantities of water to wells and springs.

Confined aquifer: An aquifer in which the water levels in wells stand above the top the aquifer, because of artesian pressure. Such aquifers are bounded above by confining layers (see definition below).

Unconfined aquifer: An aquifer in which the water levels in wells stand at the top of the aquifer, at the water table.

Aquifer Susceptibility:

In general, the varying capabilities of rocks to absorb water are referred to as the aquifer susceptibility of a rock. This is based upon the intrinsic characteristics of the water, without regard to human influences.

Aquifer Vulnerability:

Basically, vulnerability "...is the tendency or likelihood that pollutants may reach the water supply" (Hargrave, 2005) and includes human influences in the introduction of pollutants into aquifers.

Artesian well: A well in which the water level stands above the top of the aquifer.

Confining layer: A unit that has a significantly lower ability to absorb and transmit water than the aquifers that it separates, i.e., one with relatively less permeability.

Aquitard: This refers to the less permeable beds in a stratigraphic sequence.

Aquiclude: A geologic unit that is not capable of transmitting significant quantities of water.

Permeability: The ability of a material to let water flow through it.

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Porosity: The ratio of the volume of voids in a rock to the total volume of the rock: typically measured in percent.

Recharge Area: The area of the Earth's surface where an aquifer is exposed and can take in water in the form of rain, snow, or directly from streams.

Static Water Level: The level at which water will stand in an open well when the well has penetrated an aquifer.

Water Table: The surface of water in an unconfined aquifer at which the water pressure is atmospheric. Also, the boundary between water-saturated and unsaturated permeable and porous rock.