

Hydrology

Is the science which deals with the occurrence, distribution and disposal of water on the earth planet

Groundwater

is the water found underground in the cracks and spaces in soil, sand and rock.

Saturated zone

the subsurface zone in which all rock openings are filled with water

Water table

the upper surface of the zone of saturation

Vadose zone

a subsurface zone in which rock openings are generally unsaturated and filled partly with air and partly with water; above the saturated zone

Capillary fringe

a transition zone with higher moisture content at the base of the vadose zone just above the water table

Aquifer

An aquifer is an underground layer of water-bearing permeable rock, rock fractures or unconsolidated materials (gravel, sand, or silt) from which groundwater can be extracted using a water well. Example: Sand

Aquiclude

An aquiclude is a subsurface rock, soil, or sediment unit that does not yield useful quantities of water, ex – clay, shale

Aquifuge

An aquifuge is an impermeable formation neither containing nor transmitting water. Example: Solid Granite, Basalt

Aquitard

An aquitard is a geological unit that is permeable enough to transmit water in significant quantities when viewed over large areas and long periods, but its permeability is not sufficient to justify production wells being placed in it. Clay lenses interbedded with sand

Confined Aquifer

An aquifer that is bounded above and below by impermeable rock or sediment layers.

Unconfined Aquifer

An aquifer that is not overlain by an impermeable rock unit

Artesian Aquifer

An aquifer that is bounded above and below by impermeable rock or sediment layers and also under enough pressure that when the aquifer is tapped by a well, the water rises up the well bore to a level that is above the top of the aquifer.

Perched Aquifer

This occurs when there is an impermeable layer of rock or sediment (aquiclude) or relatively impermeable layer (aquitard) above the main water table/aquifer but below the surface of the land

A leaky aquifer

also known as a semi-confined aquifer, is an aquifer whose upper and lower boundaries are aquitards, or one boundary is an aquitard and the other is an aquiclude

Cone of depression

If water is pumped at a constant rate from the well, a gradient in the water table toward the well is created which results in a depressing form of water table. This is called cone of depression.

Drawdown

The decrease in water level at the well with respect to initial ground water table is called drawdown .

Radius of Influence

The radial distance from the center of a wellbore to the point where there is no lowering of the water table or potentiometric surface (the edge of the cone of depression

Transmissivity

is the rate at which water is transmitted through a unit width of an aquifer under a unit hydraulic gradient.

Discharge through thickness of aquifer per unit width per unit head gradient

Overdraft

Overdrafting is the process of extracting groundwater beyond the safe yield or equilibrium yield of the aquifer.