8. GLOSSARY

Adsorption. The assimilation of fluid (gas, vapour, or dissolved matter) by the surface of a solid.

Advection. The process by which solutes are transported by the bulk motion of the flowing groundwater.

Air Stripping. A process of mass transfer by which a substance in groundwater is transferred to solution in a gas, usually air.

Alluvium. A general term used for clay, silt, sand, gravel, or other unconsolidated material deposited during comparatively recent geologic time by a stream or other body of running water as a sorted or semisorted sediment in the bed of the stream or on its floodplain or delta, or as a cone or fan at the base of a mountain slope.

Anisotropic. Having some physical property (eg hydraulic conductivity) that varies with direction of measurement.

Aquiclude. A saturated geologic unit that does not transmit water freely to a well or spring under ordinary hydraulic gradients.

Aquifer. A saturated geologic unit that can transmit economical quantities of groundwater to wells and springs under ordinary hydraulic gradients.

Aquifer Test. A test involving the withdrawal of measured quantities of water from or addition of water to a well and the measurement of resulting changes in head in the aquifer both during and after the period of discharge or addition.

Aquitard. A geologic unit through which virtually no groundwater moves.

Bedrock. A general term used for the rock, usually solid, that underlies soil or other unconsolidated material.

Capillary Fringe. The saturated zone at the bottom of the vadose zone where groundwater exists under negative pressure, having been drawn upward by capillary force.

Coefficient of Permeability. See Hydraulic Conductivity.

Coefficient of Storage. The volume of water an aquifer releases from or takes into storage per unit surface area of the aquifer per unit change in hydraulic head.

Coefficient of Transmissivity. See Transmissivity.

Cone of Depression. A depression in the groundwater table or potentiometric surface that develops around a well from which water is being withdrawn.

Confined Aquifer. A saturated geologic unit in which the groundwater is isolated from the atmosphere at the point of discharge by impermeable geologic formations and generally contains groundwater that exists at a pressure greater than atmospheric.

Contamination. The degradation of natural water quality as a result of human activities. There is no implication of any specific limits, since the degree of permissible contamination depends upon the intended end use, or uses, of the water.

Darcy's Law. A derived equation for the flow of fluids relating volumetric fluid flux to hydraulic gradients. It is based on the assumption that the flow is laminar and that inertia can be neglected.

Dispersion. The spreading and mixing of chemical constituents in groundwater caused by diffusion and mechanical mixing due to microscopic variations in velocities within and between pores.

Drawdown. The distance between the static water level and the surface of the cone of depression.

Effluent. A waste liquid discharge from a manufacturing or treatment process, in its natural state or partially or completely treated, that discharges into the environment.

Equipotential Line. A line along which the pressure head of groundwater in an aquifer is the same. Fluid flow is perpendicular to these lines in the direction of decreasing hydraulic head.

Evapotranspiration. Loss of water from a land area through transpiration of plants and evaporation from the soil.

Flow Lines. Lines indicating the direction followed by groundwater toward points of discharge. Flow lines are perpendicular to equipotential lines.

Groundwater Table. The surface where pressure head is zero in a saturated geologic unit. It is approximated by the top surface of an unconfined aquifer.

Head. Energy contained in a water mass, produced by elevation, pressure, or velocity.

Head Loss. That part of head energy which is lost because of friction as water flows.

Heterogeneous. Nonuniform in structure or composition throughout.

Homogeneous. Uniform in structure or composition throughout.

Hydraulic Conductivity. The rate of flow of a unit volume of groundwater through a unit cross sectional area and under a unit hydraulic gradient, at the prevailing temperature.

Hydraulic Gradient. The rate of change in hydraulic head per unit change of distance of groundwater flow measured along a given direction.

Hydraulic Head. Energy per unit weight of groundwater, produced by elevation and pressure.

Hydrogeologic. Those factors that deal with subsurface waters and related geologic aspects of surface waters.

Intrinsic Permeability. See Permeability.

Isotropic. Having physical properties that are the same in all directions.

Laminar Flow. Water flow in which the stream lines remain distinct and in which the flow direction at every point remains unchanged with time. It is characteristic of the natural movement of groundwater.

Landfill. A general term indicating a location where refuse, dirt from excavations, household garbage, etc. are disposed.

Leachate. The liquid that has percolated through solid waste and dissolved soluble components.

Limestone. A sedimentary rock consisting mainly of calcium carbonate which exists primarily in the form of the mineral calcite.

Molecular Diffusion. Dispersion of a chemical caused by the kinetic activity of the ionic or molecular constituents.

Observation Well. A well drilled in a selected location for the purpose of observing parameters such as water levels and pressure changes.

Overburden. The loose soil, silt, sand, gravel, or other unconsolidated material overlying bedrock, either transported or formed in place.

Partial Penetration. When the intake portion of the well is less than the full thickness of the aquifer.

Perched Water. Unconfined groundwater separated from an underlying main body of groundwater by an unsaturated zone.

Percolate. The act of water seeping or filtering through the soil without a definite channel.

Permeability. The property or capacity of a porous rock, sediment, or soil for transmitting a fluid; it is a measure of the relative ease of fluid flow under unequal pressure.

Pollution. A term used when the contamination concentration levels restrict the potential use of groundwater.

Porosity. The percentage of the bulk volume of a rock or soil that is occupied by interstices, whether isolated or connected.

Potentiometric Surface. An imaginary surface representing the hydraulic head of groundwater in a confined aquifer that is defined by the level to which water will rise in a well that is installed in the aquifer.

Pumping Test. A test involving water level measurements as groundwater is withdrawn from a well. It is conducted to determine aquifer or well characteristics.

Recharge. The process of adding water to the zone of saturation or the amount of water thus added.

Specific Yield. The volume of water an unconfined aquifer releases from storage per unit surface area of the aquifer per unit decline of watertable.

Static Water Level. The level of water in a well that is not being affected by withdrawal of groundwater.

Storage Coefficient. See Coefficient of Storage.

Storativity. See Coefficient of Storage.

Till. Predominantly unsorted and unstratified drift, generally unconsolidated, deposited directly by and underneath a glacier without subsequent reworking by meltwater, and consisting of a heterogeneous mixture of clay, silt, sand, gravel, and boulders ranging widely in size and shape.

Tortuosity. A term used to describe the sinuosity of the actual flow path in a porous medium. It is evaluated as the ratio of the length of the flow path to the length of the sample.

Transmissibility. See Transmissivity.

Transmissivity. The rate at which groundwater is transmitted through a unit width of an aquifer under a unit hydraulic gradient.

Transpiration. The process by which water absorbed by plants, usually through the roots, is evaporated into the atmosphere from the plant surface.

Turbulent Flow. Water flow in which the flow lines are confused and heterogeneously mixed.

Unconfined Aquifer. An aquifer where the water table is exposed to the atmosphere through openings in the overlying materials.

Vadose Zone. The zone containing water under pressure less than that of the atmosphere. This zone is limited above by the ground surface and below by the water table.

Viscosity. The property of a substance to offer internal resistance to flow. Specifically, the ratio of the shear stress to the rate of shear strain.

Water Table. The surface (ie. surface of zero pressure head) at which the pressure is equal to that of the atmosphere.