
GLOSSARY

The terms and phrases in this Glossary are marked with asterisks at their first appearance in the text to alert the reader of their definitions.

Acid rain (acidic deposition) – Wet (rain, snow, fog) or dry (particle, gas) deposition of acidic substances on the earth's surface following the chemical transformation and transport of SO₂ and NO_x.

Angle of Draw – The angle to the surface established at the edge of mine workings between the vertical and the surface point of zero deformation.

Aquifer – A rock formation that can conduct groundwater and yield significant quantities of groundwater to wells and springs.

Aquitard – A confining bed that retards but does not prevent the flow of water to or from an adjacent aquifer. (A confining bed is a body of impermeable or distinctly less permeable material stratigraphically adjacent to one or more aquifers.)

Blowdown – Water removed from a cooling system to control the buildup of dissolved solids caused by evaporation during the cooling process. Blowdown and evaporative water losses are replaced with "makeup" water.

Bottom ash – Heavy combustion particles that drop out of flue gas in the boiler area or that comprise the fouling deposit residue cleaned off the boiler tubes.

Capacity factor – The percentage of electricity actually generated by a power plant during a year compared with the plant's maximum capacity.

Color – The true color of a liquid sample following removal of turbidity by filtration.

Cooling tower drift – Any water droplets, possibly containing dissolved and suspended solids, that are entrained in air and emitted from a cooling tower.

Copper-oxide sorption system – Equipment used for chemical processing to yield a concentrated SO₂ feedstock for producing salable by-products, such as sulfuric acid or elemental sulfur.

Drawdown – The rate of fall in water level of a natural system, when depletion (i.e., usage, loss, etc.) exceeds replenishment.

Dry scrubbing – Removal of particles, gases, or other impurities from an air or exhaust stream without the use of water.

Electrostatic precipitator – Equipment in which an electrostatic field (i.e., the electric field associated with stationary electrical charges) is used to remove dust or other solids from a gas.

Fabric filter – A device, similar to a large vacuum cleaner bag, that captures particulate matter from flue gas flowing through the bag.

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Floodplain – The strip of relatively flat land that is covered with water when an adjacent water body overflows its banks.

Flue gas – The gaseous products of combustion.

Fluvial – Produced by the action of a river.

Fly ash – Fine combustion particles (ash, soot, dust) carried in flue gas.

Formation – The primary unit of formal geological mapping of an area. Formations possess distinctive geologic features and can be combined into “groups” or subdivided into “members.”

Glacial drift – Any rock material (such as boulders, gravel, sand, or clay) transported and deposited by a glacier or from the water derived from melting of glacial ice.

Heat exchanger – Equipment used for transferring heat from one fluid to another without allowing the fluids to mix.

Hydraulic conductivity – A measure of the amount of water that can flow through soil or porous rock in a given amount of time.

Hydraulic gradient – A driving force for the flow of groundwater. Groundwater flows from areas of higher energy (or hydraulic head) to areas of lower hydraulic head. The change in hydraulic head per unit distance is the hydraulic gradient. Upgradient areas are areas of higher hydraulic head and downgradient areas are areas of lower hydraulic head. Therefore, groundwater (and any associated contaminants) would flow from upgradient to downgradient areas. These terms are analogous to “upstream” and “downstream” locations for surface water.

Hydrogeologic or Hydrogeology – Term referring to the science that studies subsurface waters and their related geologic features; the term “hydrogeology is often used interchangeably with “geohydrology.”

Influence Zone – Surface distance between a point vertically above the edge of the mine workings and the point of no (zero) surface deformation (subsidence).

Lacustrine – Produced by or formed in a lake.

Leaching – The removal, by percolating water, of soluble compounds from soil or other solids. “Leachate” is the term used for the material, including any contaminants, removed from the solids.

Leaky artesian conditions – Conditions where an aquifer is overlain and/or underlain by deposits or confining beds that impede or retard, but do not prevent, the vertical movement of groundwater. An artesian well is drilled to an aquifer depth where downward draining water from above the well creates sufficient pressure to force an upward flow in the well.

Lense – A body of ore or rock thick in the middle and thin at the edges (i.e., shaped like a double convex lense).

Loam – A soil composed of a mixture of clay, silt, sand, and organic matter.

Loess – A homogeneous, non-stratified, unindurated (i.e., loose, soft) soil deposit consisting predominantly of silt, with lesser amounts of very fine sand and/or clay.

Mechanical draft cooling tower – A structure in which circulating water is cooled through partial evaporation by exposure to moving air driven by fans.

Member – A division of a geologic formation differentiated by its physical and geologic characteristics.

Mesic – Refers to an environment that is neither extremely wet nor extremely dry.

Outwash – Glacial drift deposited by melting of snow or ice in front of glacial ice.

Peak ground acceleration – A mathematical measure of the maximum force of an earthquake, in terms of ground motion, that can be related to the ability of structures to withstand earthquake damage.

Perched groundwater – Groundwater separated from an underlying body of groundwater by unsaturated rock.

Permeability – The capacity of a porous rock, soil, or sediment for transmitting a fluid.

Photochemical – A type of chemical reaction or process induced or affected by radiation, chiefly visible or ultraviolet light.

Piezometric surface – The elevation to which water from an aquifer will rise under its full head; in some cases, an imaginary aboveground surface that would coincide with the static level of water in an aquifer.

Plume – A distinct volume or stream of air or water containing a mixture of gaseous, liquid, or solid discharges.

Process water – Generally, all water used in the operation of a facility, such as boiler water and cooling water, with the exclusion of waters used for potable and sanitary services.

Proof-of-concept – A demonstration of technology at a size sufficient to judge the readiness of the technology for commercial application.

Slag – The by-product of firing coal at a temperature above the ash melting point, which is removed from the combustion chamber in molten form and then quenched to produce a glass-like solid (also called a “vitrified ash”).

Slurry – The viscous paste typically produced when some solid materials are mixed with water.

Till – Nonsorted, nonstratified sediment carried or deposited by a glacier.

Transmissivity – The rate at which water is transmitted through a unit width of aquifer under a unit gradient.

Turbidity – A measure of the amount of solid particles suspended in water resulting from measurement of the extent to which light traveling through a column of water is scattered by suspended organic and inorganic particles.

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Unconsolidated sediment – A sediment that is loosely arranged or unstratified or that contains particles that are not cemented together, or soil material in a loosely aggregated form.

Volatile organic compound – An organic (carbon-containing) compound that readily forms a vapor.

Vitrified ash – See *Slag*.

Wet limestone scrubbing system – Equipment in which a limestone slurry or solution in water is used to remove sulfurous compounds from an air or exhaust stream and in which a by-product of commercial-grade or landfill-grade gypsum can be produced.

Wetland – A term generally applied to seasonally or permanently inundated or saturated land areas. Wetland areas support a prevalence of vegetation typically adapted for life in saturated soil conditions.

Wind rose – A radial graph in which the frequency of wind blowing from each direction is plotted as a bar that extends to the center of the diagram. Wind speeds are denoted by bar widths and shading; the relative frequency of wind speed from each direction is depicted by the length of each section of the bar.

Zero deformation point – The surface point at which vertical movement is 0.01 ft or less.