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Glossary

Term	Definition
Acre	A measure of area; equivalent to 43,560 square feet.
Acre-foot	A volume of water that covers one acre to a depth of one foot, or 43,560 cubic feet (about 326,000 gallons). An acre-foot of water can supply the water needs of a typical family of four for about one year.
Activated Carbon	Adsorptive particles or granules of carbon usually obtained by heating carbon (such as wood). These particles or granules have a high capacity to selectively remove certain trace and soluble material from water.
Appropriation	The volume or flow of water that is legally allocated to an individual, municipality, corporation, or government entity for an identified beneficial use.
Augmentation	Enlarging or increasing the quantity of an item such as increasing the flow of a stream or river or replacement of out-of-priority diversions from a new or separate source of water.
Augmentation plan	A requirement of the 1969 Water Right Determination and Administration Act covering tributary ground water. An augmentation plan allows each well owner to provide replacement (augmentation) water to the stream at times when a senior right would be "calling out" his well. Now also applied to out-of-priority surface water diversions.
Basin	The drainage or catchment area of a stream or lake
Beneficial use	The use of that amount of water that is reasonable and appropriate under reasonable efficient practices to accomplish, without waste, the purpose for which the diversion is lawfully made and without limiting the generality of the foregoing, shall include impoundment of water for recreational purposes, including fishery or wildlife.
Brackish	Mixed fresh and salt waters
Chlorination	The application of chlorine to water, generally for the purpose of disinfection, but frequently for accomplishing other biological or chemical results (aiding coagulation and controlling tastes and odors).
Clarifier	A large circular or rectangular tank or basin in which water is held for a period of time, during which the heavier suspended solids settle to the bottom. Clarifiers are also called SETTLING BASINS and SEDIMENTATION BASINS.
Clear well	A reservoir for the storage of filtered water of sufficient capacity to prevent the need to vary the filtration rate with variations in demand. Also used to provide chlorine contact time for disinfection.
Coagulation	The clumping together of very fine particles into larger particles caused by the use of chemicals (coagulants). The chemicals neutralize the electrical charges of the fine particles and cause destabilization of the particles. This clumping together makes it easier to separate the solids from the water by settling, skimming, draining, or filtering.
Coliform	A group of bacteria in the intestines of warm-blooded animals (including humans) also in plants, soil, air and water. Fecal coliforms are a specific class of bacteria which only inhibit the intestines of warm-blooded animals. The presence of coliform is an indication that he water is polluted and may contain pathogenic organisms.
Complete treatment	A method of treating water which consists of the addition of coagulant chemical, flash mixing, coagulation, sedimentation and filtration. Also called CONVENTIONAL FILTRATION.
Conduit	A channel or pipe for conveying water or fluid.
Consumptive use	The amount of water consumed during use of the water and no longer available to the

	stream system. For irrigation, consumptive use is water used by crops in transpiration and building of plant tissue.
Contaminant	Anything found in water (including microorganisms, minerals, chemicals, radionuclides, etc.) which may be harmful to human health.
Conventional filtration	A method of treating water to remove particulates. The method consists of the addition of coagulant chemicals, flash mixing, coagulation, flocculation, sedimentation and filtration. Also called COMPLETE TREATMENT. Also see direct filtration and in-line filtration.
Conventional treatment	See conventional filtration. Also called COMPLETE TREATMENT.
Conveyance	The act of transporting (e.g., water is conveyed in a pipeline, penstock canal, aqueduct, or tunnel).
Conveyance loss	The loss of water from a conduit or open channel due to leakage, seepage, evaporation or evapotranspiration.
Corrosion	The gradual decomposition or destruction of a material by chemical action, often due to an electrochemical reaction. Corrosion may be caused by: 1) stray current electrolysis, 2) galvanic corrosion caused by dissimilar metals, or 3) differential concentration cells. Corrosion starts at the surface of a material and moves inward.
Crytosporidium	A microorganism commonly found in lakes and rivers, which is highly resistant to disinfection. Cryptosporidium has caused several large outbreaks of gastrointestinal illness, with symptoms that include diarrhea, nausea, and/or stomach cramps. People with severely weakened immune systems (that is, severely immuno-compromised) are likely to have more severe and more persistent symptoms than healthy individuals.
Cubic feet per second (cfs)	A measure of a moving volume of water at the flow rate of water equal to 724 acre-feet per year or 449 gallons per minute.
Depletion	Net rate or quantity of water taken from a stream or ground water aquifer and consumed by beneficial and non-beneficial uses. For irrigation or municipal uses, the depletion is the headgate or well-head diversion less return flow to the same stream or ground water aquifer.
Direct diversion	The diversion of water from a natural flowing stream.
Direct filtration	A filtration method of treating water which consists of the addition of coagulant chemicals, flash mixing, coagulation, minimal flocculation, and filtration. The flocculation facilities may be omitted, but the physical- chemical reaction will occur to some extent. The sedimentation process is omitted. Also see CONVENTIONAL FILTRATION and IN-LINE FILTRATION.
Direct flow right	A right defined in terms of discharge and which must be put to use more or less promptly following diversion from the source.
Discharge, or rate of flow	The volume of water passing a particular point in a unit of time. Units of discharge commonly used include cubic feet per second (cfs) and gallons per minute (gpm).
Disinfectant	Any oxidant, including but not limited to chlorine, chlorine dioxide, chloramines, and ozone, that is added to water in any part of the treatment or distribution process and is intended to kill or inactivate pathogenic microorganisms. Can also be a physical process such as ultraviolet light.
Disinfection	The process designed to kill most microorganisms in water, including essentially all pathogenic (disease-causing) bacteria. There are several ways to disinfect, with chlorine being most frequently used in water treatment.
Disinfection by-product	A compound formed by the reaction of a disinfectant such as chlorine with organic material in the water supply.
Distribution system	A network of pipes leading from a treatment plant to customers' plumbing systems.
Ditch (or canal)	A trench cut into the surface of the ground to transport water from a stream to a point of use away from the stream.
Diversion	1) Use of part of a stream flow as a water supply. 2) A structural conveyance (or ditch)

	used to divert water to some convenient discharge point.
Diversion dam	A barrier across a stream built to turn all or some of the water into a diversion channel or conduit
Divert	To remove water from its natural course or location, or to control water in its natural course or location, by means of a ditch, canal, flume, reservoir, bypass, pipeline, conduit, well, pump, or other structure or device.
Drainage area	The drainage area of a stream at a specified location is that area, measured in a horizontal plane, which is enclosed by a drainage divide. It is expressed in acres, square miles or other units of area.
Drainage basin	A part of the surface of the earth that is occupied by a drainage system, which consists of a surface stream or a body of impounded surface water together with all tributary surface streams and bodies of impounded surface water.
Drought	There is no universally accepted quantitative definition of drought; generally, each investigator establishes a definition. Usually defined as a year or series of consecutive years with below average runoff
Dryland farming	Growing of crops without the aid of additional water through irrigation.
Eastern slope	That portion of Colorado lying east of the Continental Divide.
Effluent	Water or some other liquid-raw, partially or completely treated, flowing from a reservoir, basin, treatment process or treatment plant.
Environment	All the conditions, circumstances, and influences surrounding and affecting the development of an organism or group of organisms.
Environmental analysis	An analysis of alternative actions and their predictable short- and long-term environmental effects.
Exchange	A formal or informal agreement between owners of water rights to allow flexibility in the use of water. An example would be releasing reservoir storage water to a calling ditch, rather than decreasing the upstream diversion. There are many methods which have been devised by water users to exchange water rights.
Feasibility study	An investigation performed to formulate a project and definitively assess its desirability for implementation.
Filtration	A process for removing particulate matter from water by passage through porous medial
Finished water	Water that has been treated and is read to be delivered to customers.
Firm water supply (or yield)	An assured minimum supply of water (or yield) under the defined adverse water year supply conditions.
Flocculation	The gathering together of fine particles in water by gentle mixing after the addition of coagulant chemicals to form larger particles.
Fresh water	Water that generally contains less than 1,000 milligrams-per-liter of dissolved solids.
General obligation bond	Project funding, repayment for which is made from sources not limited to those revenues generated by project output, such as water or power sales. “GO” bonds typically involve the pledging of future tax proceeds.
Giardia lamblia	A microorganism frequently found in rivers and lakes, which if not treated properly, may cause diarrhea, fatigue, and cramps after ingestion.
Ground water	For administrative purposes, ground water is usually defined as any water not visible on the surface of the ground under natural conditions.
Ground water outflow	The part of the discharge from a drainage basin that occurs through the ground water. The term “under-flow” is often used to describe the ground-water outflow that takes place in valley alluvium (instead of the surface channel) and thus is not measured at a gaging station.
Ground water recharge	Inflow to a ground water reservoir
Ground water reservoir	An aquifer or aquifer system in which ground water is stored. The water may be placed in the aquifer by either artificial or natural means.

Hardness, water	A characteristic of water caused mainly by the salts of calcium and magnesium, such as bicarbonate, carbonate, sulfate, chloride and nitrate. Excessive hardness in water is undesirable because it causes the formation of soap cures, increased use of soap, deposition of scales in boilers, damage in some industrial processes, and sometimes causes objectionable tastes in drinking water.
Headgate	A physical structure on a stream through which water is diverted into a ditch.
Head losses	Reductions to the gross difference in elevation between water surfaces upstream and downstream from a hydroelectric power plant due to friction of the flow of water through a penstock or conduit and changes in direction or velocity of the flow.
Headwaters	Source of water in a stream.
Headworks	Structure at the head of a channel or conduit for diverting water into the channel. Also the initial treatment processes at a water or wastewater treatment plant.
Historic use	The documented diversion and use of water by a water right holder over a period of years.
Hydraulic grade line	The surface or profile of water flowing of hydraulic gradient. The slope of the hydraulic grade line is under pressure, the hydraulic grade line is at the level water would rise to in a small vertical tube connected to the pipe.
Hydrology	The science dealing with water on the land, its properties, laws, and geographic distribution.
Hydrologic study period	A period of time specified for the selection of data for analysis. The base period should be sufficiently long to contain data representative of the averages and deviations of the averages that must be expected in other periods of similar and greater length. For ground water studies, the base period should begin and also end at the conclusion of a dry trend so that the difference between the amount of water in transit in the soil at the ends of the base period is minimal.
In-line filtration	The addition of chemical coagulants directly to the filter inlet pipe. The chemicals are mixed by the flowing water. Flocculation and sedimentation facilities are eliminated. This pretreatment method is commonly used in pressure filter installations.
Instream flows	A prescribed 1evel(s) of streamflow, usually expressed as a stipulation in a permit authorizing a dam or water diversion, which can be met with bypass flows.
Irrigable land	Arable land for which a water supply is available.
Irrigation	The application of water to crops, lawns, and gardens by artificial means to supplement natural precipitation. Water can be applied by spreading over the ground with or without furrows, by sprinkling, dripping or other methods.
Irrigation return flow	Applied water which is not consumptively used and returns to a surface water or ground water supply. In water right litigation, the definition may be restricted to measurable water returning to the stream from which it was derived.
Lateral	A minor ditch headgating off the main ditch used to direct water onto the land. A ditch may have many laterals, depending on the amount of acreage irrigated, the slope of the land, and the rate of seepage losses.
Loss	In water conveyance, the difference between the amount of water that is actually placed on the land and the amount of water that was physically diverted to the headgate. Losses usually are from seepage and evaporation.
Milligrams per liter (mg/L)	A measure of concentration of a dissolved substance. A concentration of one mg/L means that one milligram of a substance is dissolved in each liter of water. For practical purposes, this unit is equal to parts per million (ppm) since one liter of water is equal in weight to one million milligrams. Thus a liter of water containing 10 milligrams of calcium has 10 parts of calcium per one million parts of water, or 10 parts per million.
Non-consumptive use	A use of water that does not reduce the supply, such as for fishing, boating, water-skiing, and swimming.
Non-potable	Water that may contain objectionable pollution, contamination, minerals, or infective agents

	and is considered unsafe and/or unpalatable for drinking, but may be of acceptable quality for other uses such as irrigation or cooling.
Non-tributary ground water	Water that is not part of a natural stream as established through geologic and hydrologic facts. The determination of "non-tributary" usually involves the length of time the impact of withdrawal would take to reach the stream and the amount of impact relative to the total volume of surface flow impacted.
Osmosis	The passage of a liquid from a weak solution to a more concentrated solution across a semi-permeable membrane. The membrane allows the passage of the solvent (water) but not the dissolved solids (solutes). This process tends to equalize the conditions on either side of the membrane.
Out-of-priority storage option	The ability to store water before one has the right according to his court decree to do so.
Peaking capacity	That part of a system's capacity which is operating during the hours of highest demand within the system.
pH	pH is an expression of the intensity of the basic or acid condition of a liquid. Mathematically, pH is the logarithm (base 10) of the reciprocal of the hydrogen ion concentration [H+]. pH=Log (1/[H+]). The pH may range from 0 to 14, where 0 is most acid, and 14 most basic, and 7 neutral. Natural water usually has a pH between 6.5 and 8.5.
Potable water	Water that is safe and satisfactory for drinking and cooking.
Priority	The relative seniority of a water right as determined by its adjudication date and appropriation date. In some cases, other factors are also involved in determining priority. The priority of a water right determines its ability to divert in relation to other rights in periods of limited supply.
Raw water	1) Water in its natural state, prior to any treatment. 2) Usually the water entering the first treatment process of a water treatment plant.
Reservoir	A pond, lake, or basin, either natural or artificial, used for the storage, regulation, and control of water.
Return flow	Unconsumed water which returns to its source or some other water body after its diversion as surface water or its extraction from the ground.
Return period	In statistical analysis of hydrologic data, assuming that observations are equally spaced in time, and, choosing the interval between two successive observations as unit of time, return period is the reciprocal of 1 minus the probability of a value equal to or less than a certain value. Where the interval between observations is a year, a return period of 100 years for example means that, on the average, in the long run, not more often than once in 100 years is an event of this magnitude, or greater, expected to occur.
Reuse	Subsequent use of a water supply for the same user. An example would be the treatment of sewage water for use in potable or non-potable water use in the municipal water system or area.
Revenue bond	Project funding, repayment for which is strictly dependent on the income from the project to meet the interest and principal payments.
Reverse osmosis	The application of pressure to a concentrated solution which causes the passage of a liquid from the concentrated solution to a weaker solution across a semi-permeable membrane. The membrane allows the passage of the solvent (water) but not the dissolved solids (solutes). The liquid produced is demineralized water. Also see OSMOSIS.
Safe Drinking Water Act (SDWA)	Commonly referred to as SDWA. An act passed by the U.S. Congress in 1974 and the subsequent updates and modifications The Act establishes a cooperative program among local, state and federal agencies to insure safe drinking water for consumers.
Sedimentation	A water treatment process in which solid particles settle out of the water being treated in a large clarifier or sedimentation basin.
Soft water	Water having a low concentration of calcium and magnesium ions. According to U.S.

	Geological Survey guidelines, soft water is water having a hardness of 60 milligrams per liter or less.
Source water	Water in its natural state, prior to any treatment for drinking.
Storage decree	A decree of the court allowing the storage of water, usually in a reservoir.
Storage right	A right defined in terms of the volume of the water which may be diverted from the flow of the stream and stored in a reservoir or lake to be released and used at a later time either within the same year or a subsequent year.
Surface water	The water that systems pump and treat from sources open to the atmosphere, such as rivers, lakes, and reservoirs.
Topographic	Of, relating to, or concerned with the configuration of the earth's surface including its relief and the position of its natural and man-made features.
Topography	The physical features of a district or region, especially the relief and contour of the land.
Total consumptive use	The amount of water, regardless of its source, used by the crops during the growing season. It is the amount of water that is physically removed from the stream's system and is not available for other users on the stream.
Total dissolved solids (TDS)	All of the dissolved solids in a water. TDS is measured on a sample of water that has passed through a very fine mesh filter to remove suspended solids. The water passing through the filter is evaporated and the residue represents the dissolved solids.
Total Trihalomethanes (TTHM).	The sum of the concentration, in milligrams per liter, of the trihalomethane compounds (trichloromethane [chloroform], dibromochloromethane, bromodichloromethane and tribromomethane [bromoform]), rounded to two significant figures.
Trains	Modularized treatment processes or components of a given capacity allowing practical construction and redundancy. Multiple trains are utilized to provide to entire project treatment capacity
Trans-basin diversion	The removal of the water of a natural stream from its natural basin into the natural basin of another stream.
Transfer	The process of moving a water right originally decreed to one ditch, to another ditch, by court decree. A transferred water right generally retains its priority in the stream system and mayor may not retain its right to divert its entire decreed amount.
Transmission lines	Pipelines that transport raw water from its source to a water treatment plant. After treatment, water is usually pumped or fed by gravity into pipelines (transmission lines) that are connected to a distribution grid system.
Transmountain	The crossing or extending over or through a mountain.
Tributary	Any stream which contributes water to another stream.
Trihalomethane (THM)	One of a family of organic compounds named as derivatives of methane. THMs are generally the by-product from chlorination of drinking water that contains organic material. The resulting compounds (THMs) are suspected of causing cancer.
Turbidity	The cloudy appearance of water caused by the presence of suspended and colloidal matter. In the waterworks field, a turbidity measurement is used to indicate the clarity of water. Technically, turbidity is an optical property of the water based on the amount of light reflected by suspended particles. Turbidity cannot be directly equated to suspended solids because white particles reflect more light than dark-colored particles and many small particles will reflect more light than an equivalent large particle. High levels of turbidity may interfere with proper water treatment and monitoring.
Vulnerability assessment	An evaluation of drinking water source quality and its vulnerability to contaminant by pathogens and toxic chemicals.
Water development	The process of building diversion, storage, pumping and/or conveyance facilities to apply water to beneficial use.
Water right	A right to use, in accordance with its priority, a certain portion of the waters of the State by reason of the appropriation of the same.

Water supply, basin	That quantity of surface and ground water which could be made available for all users in the basin. This quantity would include transbasin diversions, natural flow, ground water, and the reuse of these waters
Water year	The 12-month period October 1 through September 30. The water year is designated by the calendar year in which it ends and which includes 9 of the 12 months. Thus, the year ending September 30, 1959, is the "1959 water year."
Watershed	The land area that drains into a stream. An area of land that contributes runoff to one specific delivery point; large watersheds may be composed of several smaller "subsheds", each of which contributes runoff to different locations that ultimately combine at a common delivery point.
Western slope	That portion of Colorado lying west of the Continental Divide.
Yield	The quantity of water (expressed as a rate of flow – GPM, GPH, GPD, or total quantity per year) that can be collected for a given use from surface or groundwater sources. The yield may vary with the use proposed, with the plan of development, and also with the economic considerations.

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