

WATER GLOSSARY

Your water district sometimes forgets that not everyone is a water professional.

Learn about the terms involved with delivering safe, reliable water:

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A

ACC-OC (Association of California Cities – Orange County): Orange County advocacy group that tackles regional public policy issues – membership consists of elected officials

ACWA (Association of California Water Agencies): coalition of public water agencies that helps members promote the efficient use of water – environmentally and economically

AF (acre-foot/acre-ft): a common water industry unit of measurement, an acre-foot is 325,851 gallons, or the amount of water needed to cover one acre with water one foot deep – an acre-foot serves annual needs of two typical California families

AFY (acre-foot per year): a common water industry unit of measurement, used to measure annual consumption

AMP (Allen McCulloch Pipeline): operated by the Metropolitan Water District of Southern California to transport imported water within Orange County

AWWA (American Water Works Association): a scientific and educational society dedicated to providing total water solutions for most efficient use of water

Acid: a substance that has a pH of less than 7, which is neutral

Accumulated overdraft: the amount of water necessary to be replaced in the intake area of the groundwater basin to prevent the landward movement of ocean water into the fresh groundwater body

Advanced treatment (aka tertiary treatment): additional treatment process used to clean wastewater to a superior quality following primary and secondary treatment

Alkaline: water or soil that has a pH of greater than 7, which is neutral

Alkalinity: the capacity of water for neutralizing an acid solution

Alluvium: deposits of clay, silt, sand, gravel, or other particulate material that has been deposited by a body of running water

Annual overdraft: the quantity by which the production of water from the groundwater supplies during the water year exceeds the natural replenishment of such groundwater supplies during the same water year



Aqueduct: a structure for transporting water from one place to another by means of a pipeline, canal, conduit, tunnel or a combination of these things

Aquifer: a geologic formation of sand, rock and gravel through which water can pass and which can store, transmit and yield significant quantities of water to wells and springs

Confined aquifer (aka closed basin): an aquifer that is bound above and below by dense layers of rock and contains water under pressure

Unconfined aquifer: an aquifer whose upper water surface (water table) is at atmospheric pressure, and thus is able to rise and fall

Artesian water: an aquifer in which the water is under sufficient pressure to cause it to rise above the bottom of the overlying confining bed

Artificial recharge: the addition of surface water to a groundwater reservoir by human activity, such as putting surface water into recharge basins (see groundwater recharge and recharge basin)



B

BMP (best management practice): an engineered structure or management activity, or combination of both, that eliminates or reduces adverse environmental effects

Barrier well: well used to prevent seawater intrusion by injecting highly purified water into aquifer

Base: a substance that has a pH of more than 7, which is neutral

Base flow: the portion of river surface flow that remains after deduction of storm flow and/or purchased imported water

Basin Plans: master plan for management of watersheds, required for California's nine water regions

Bay-Delta (aka Sacramento-San Joaquin Bay-Delta or the Delta): hub of the State Water Project distribution system, where water is pumped from northern California to the south

Biofouling: the accumulation of microorganisms, plants, algae, or animals in submerged surfaces, typically associated with fragile reverse osmosis membrane surfaces

Brackish water: water containing dissolved minerals in amounts that exceed normally acceptable standards for municipal, domestic, and irrigation uses (considerably less saline than seawater)



Brown Act: Ralph M. Brown Act enacted by the State legislature governing all meetings of legislative bodies (also known as the Open Meeting requirements)

Budget based residential rates: water billing established by water usage and if the household stayed within a predetermined budget – household receives monthly water budget, determined by number of persons in household, size of landscaped area, and weather data



C

CEQA (California Environmental Quality Act): California's statewide policy of environmental protection, regulating public and private activities

CERCLA (Comprehensive Environmental Response, Compensation and Liability Act):

This federal law establishes the Superfund program for hazardous waste sites and provides the legal basis for the United States EPA to regulate and clean up hazardous waste sites, and if appropriate, to seek financial compensation from entities responsible for the site

CFS (cubic feet per second): a common water industry unit of measurement, CFS is equal to 7.48 gallons of water flowing each second, used to measure rate of flow

CRA (Colorado River Aqueduct): essential water delivery system for southern California since 1939, built and operated by Metropolitan Water District of Southern California

CSANS (California Sprinkler Adjustment Notification System): email/notification program that sends sprinkler adjustment emails based on current weather conditions

CSDA (California Special Districts Association): non-profit association offering support and services to independent special districts

CVP (Central Valley Project): federal water management project that provides irrigation and potable water to California's Central Valley, built and operated by the United States Bureau of Reclamation

CWA (Clean Water Act): federal law that established the structure for regulating pollutant discharges in the United States

California Aqueduct: the main channel for

California WaterFix: state-of-the-art solution to modernize, repair and protect the State Water Project by constructing two-foot diameter pipes to bypass the Delta

Canal: a manmade channel used for water conveyance



Chloramine: a mixture of ammonia and chlorine used to purify water

Clarify: to make clear or pure by separation and elimination of suspended solid material

Coagulation: the clumping together of solids so they can more easily be settled out or filtered out of water, used in water treatment and reclamation – typically with a chemical called aluminum sulfate (alum)

Coastkeepers: a non-profit organization dedicated to the protection and preservation of the marine habitats and watersheds of Orange County through programs of education, restoration, enforcement and advocacy

Coastal commission: state agency with regulatory oversight over land use in California's coastal areas

Colored water: groundwater extracted from the basin that is unsuitable for domestic use without treatment due to high color and odor exceeding drinking water standards

Condensation: the process of water vapor (gas) in the air turning into liquid water, the opposite process of evaporation

Conjunctive use: storing imported water in a local aquifer, in conjunction with groundwater, for later retrieval and use

Conveyance loss: water that is lost in transit from a pipe, canal, or ditch by leakage or evaporation

Contaminate: to make unclean or impure by the addition of harmful substances



D

DVL (Diamond Valley Lake): off-stream reservoir that has capacity to meet area's water needs in emergency and drought needs, built and operated by Metropolitan Water District of Southern California

DWR (California Department of Water Resources): guides development and management of California's water resources, in addition to owning and operating the State Water Project and other water facilities

Deep percolation: the percolation of surface water through the ground beyond the lower limit of the root zone of plants into a groundwater aquifer

Degraded water: water within the groundwater basin that, in one characteristic or another, does not meet primary drinking water standards



Delta: an outlet from land to ocean where rivers empty and deposit sediment they carry forming landforms

Demineralize: to reduce the concentrations of minerals from water by ion exchange, distillation, electro- dialysis, or reverse osmosis

Desalination: the removal of salts from saline water to provide freshwater, usually associated with, but not limited to, seawater

Discharge: the volume of water that passes a given location within a given period of time, usually expressed in cubic feet per second

Disinfection: water treatment that destroys potentially harmful bacteria

Diversion facilities: structure built to divert water from natural waterways to alternate route

Drainage basin: the area of land from which water drains into a river (see watershed)

Drawdown: the lowering of the groundwater surface caused by pumping

Drip irrigation: a low-pressure method of irrigation where pipes or tubes filled with water slowly drip onto crops – less water is lost to evaporation than high-pressure spray irrigation

Drought: period of less than average rainfall



E

EOC (Emergency Operations Center): command and control facility responsible for coordinating resources in emergency situations

EPA (Environmental Protection Agency): federal agency responsible for the environment and public health

EcoRestore: state initiative to restore habitat and support the long-term health of the Delta, and its native wildlife

Effluent: wastewater or other liquid, partially or completely treated or in its natural state, flowing from a treatment plant

Erosion: the process in which a material is worn away by a stream of liquid

Estuary: where fresh water meets salt water, such as a bay, marsh, or where a river enters the ocean

Evaporation: the process of liquid water turning into water vapor (gas), the opposite process of condensation – see transpiration



Evapotranspiration: the sum of plant transpiration and evaporation from the Earth's surface into the atmosphere



F

Filtration: the process of allowing water to pass through layers of a porous material such as sand, gravel or charcoal to trap solid particles – water and wastewater treatment plants utilize this process, generally using sand and coal as the filter media

Flat fees: rate structure that charges a fixed rate for service regardless of usage

Flocculation: a chemical process involving addition of a coagulant to assist in the removal of turbidity in water

Flood: a temporary overflow of water – from some body of water – onto lands that are used or usable by man and not normally covered by water

Forebay: a reservoir or pond situated at the intake of a pumping plant or power plant to stabilize water level – also, a portion of a groundwater basin where large quantities of surface water can recharge the basin through infiltration



G

GAP (Green Acres Project): a 7.5 MGD water reclamation project that serves tertiary treated recycled water to irrigation and industrial users in Costa Mesa, Fountain Valley, Huntington Beach, Newport Beach, and Santa Ana

GPM (gallons per minute): common water industry unit of measurement, used to assess flow rate

GWRS (Groundwater Replenishment System): Orange County Water District's state-of-the-art, advanced treatment facility – used to replenish the local aquifer

Greywater: wastewater from clothes washing machines, showers, bathtubs, hand washing, lavatories and sinks – can be recycled for non-potable use

Groundwater: water that has percolated into natural, underground aquifers

Confined groundwater: groundwater separated from atmospheric pressure by an impermeable body



Unconfined groundwater: groundwater under the influence of atmospheric pressure

Groundwater basin: a groundwater reservoir demarcated by the overlying land surface and the underlying aquifers that contain water stored in the reservoir – has defined boundaries

Groundwater overdraft: condition of a groundwater basin in which the amount of water withdrawn by pumping exceeds the amount of water that recharges the basin over a period of years during which water supply conditions approximate average

Groundwater recharge: the inflow of water to a groundwater reservoir through natural conditions or by human activity (see artificial recharge)

Groundwater table: the upper surface of the zone of saturation except where the surface is formed by an impermeable body



H

Hardness: a water-quality indication of the concentration of alkaline salts in water, mainly calcium and magnesium

Headwater: the source and upper reaches of a stream, reservoir, or river

High efficiency clothes washer: device that uses up to 55 percent less water than a traditional washing machine

High efficiency toilet: toilet fixture that uses 1.06 gallons or less per flush

Hydroelectric: electricity generated by water flow

Hydrologic balance: an accounting of all water inflow to, water outflow from, and changes in water storage within a hydrologic unit over a specified period

Hydrologic cycle: the process of water constantly circulating from the surface – via evapotranspiration – to the atmosphere, to the earth in a form of precipitation, and eventually returning to the ocean



I

IPR (indirect potable reuse): the mixing of advanced treated, recycled, or reclaimed water with a natural water source



Planned IPR: indicates that there is an intent to reuse the water for potable use – the point of return could either be into a major water supply reservoir, a stream feeding a reservoir, or into a water supply aquifer where natural processes of filtration, and dilution of the water with natural flows aim to reduce any real or perceived risks associated with eventual potable reuse

Unplanned IPR: wastewater entering the natural water system (creeks, rivers, lakes, aquifers), which is eventually extracted from the natural system for drinking water

Impermeable layer: a layer of solid material, such as rock or clay, which does not allow water to pass through

Imported water: water that has originated from one hydrologic region and is transferred to another hydrologic region

Inflatable rubber dams: designed to replace temporary sand levees that wash out during heavy storm flow, these inflatable dams hold back high-volume river flows and divert the water into the off-river system for percolation

Injection well: a well constructed for the purpose of injecting fluid into the ground

Irrigation: the controlled application of water for agricultural purposes



L

LADWP (Los Angeles Department of Water and Power): water provider for the City of Los Angeles and surrounding cities – largest municipal utility in the United States

LDAP (Landscape Design Assistance Program): collaboration between MWD and top landscape designers, offering free water-efficient landscape designs

Los Angeles Aqueduct: conveyance system that brings water from the Owen's Valley in northern California to the City of Los Angeles – built and operated by the LADWP

Leach: to remove components from the soil by the action of water trickling through

Levee: a natural or manmade earthen barrier along the edge of a stream, lake, or river – usually used for flood protection



M



MAF (million acre-feet): common water industry unit of measurement, MAF is used to describe large volumes of water

MCL (maximum contaminant level): level set by EPA for a regulated substance in drinking water – the maximum amount of a substance that can be present in water that is safe to drink

MET/MWD (The Metropolitan Water District of Southern California): the imported water provider for the majority of southern California

MGD (million gallons per day): a common water industry unit of measurement, MGD denotes a flow rate of one million gallons of water per day

MWDOC (Municipal Water District of Orange County): wholesale water supplier and resource planning agency for majority of Orange County – serves 2.3 million people

Member Agency: city or water agency that is part of a larger, representative agency

Microfiltration: A physical separation process where tiny, hollow filaments members separate particles from water



N

Natural flows: flows into a stream, reservoir, or river system not originating from man-made activities

Non-point source pollution: pollution discharged over a wide land area, not from one specific location

NPDES (National Pollutant Discharge Elimination System): federal permit authorized by the Clean Water Act, Title IV, which is required for discharge of pollutants to navigable waters of the United States, which includes any discharge to lakes, streams, rivers, bays, the ocean, wetlands, storms sewer, or tributary to surface water body



O

OCBC (Orange County Business Council): Orange County advocacy group that represents and promotes the business community – partners with local governments and universities

OCSA (Orange County Sanitation District): public agency that collects, treats and disposes of wastewater from north and central Orange County



OCWD (Orange County Water District): public groundwater management agency responsible for the groundwater basin that lies below north and central Orange County

Orange County Reliability Study: comprehensive study of Orange County's long-term water reliability through the year 2040

Off-stream reservoir: water storage facility located away from a natural river, supplied through an aqueduct – not typically used as flood control structure

Operator: any public or private group or any individual to whom a water producing facility (well) is assessed by the county assessor, or the person who owns the land upon which a water producing facility is located

Organic matter: plant and animal residues, or substances made by living organisms

Osmosis: the movement of water molecules through a thin membrane

Outfall: the place where a sewer, drain, or stream discharges



P

PPB (parts per billion): the number of parts by weight of a substance per billion parts of water – used to measure extremely small concentrations

PPM (parts per million): the number of parts by weight of a substance per million parts of water – commonly used to represent pollutant concentrations

PSI (pound per square inch): a common water industry unit of measurement, PSI represents pressure

Pathogen: any viruses, bacteria, or fungi that cause disease

Per capita use: the average amount of water used per person during a standard time period, generally per day

Perched groundwater: groundwater supported by a zone of material of low permeability located above an underlying main body of groundwater with which it is not hydrostatically connected

Percolation: the downward movement of water through the soil or alluvium to the groundwater table

Permeability: the capability of soil or other geologic formations to transmit water

Point source pollution: water pollution coming from a specific site



Potable water: water suitable and safe for drinking

Prado Dam: flood control structure located on Santa Ana River, built and operated by the United States Army Corp of Engineers

Precipitation: rain, snow, hail, sleet, dew, and frost

Primary treatment: first stage of wastewater treatment removing solids and floating matter from wastewater using filtration, skimming and sedimentation

Prior appropriation doctrine: allocates water rights to the first party who diverts water from its natural source and applies the water to beneficial use (opposite riparian water rights)

Production: the act of extracting groundwater by pumping or otherwise

Prop 218 (aka Proposition 218): voter initiative that changed California constitution to require local governments to obtain constituent approval before increasing rates

Purple pipe: recycled water distribution line, purple differentiates the pipes from potable water lines

Purveyor: another name for groundwater producer or pumper



Q

Quagga mussel: invasive species that causes biofouling of water conveyance and storage facilities – no natural predator in the United States



R

RO (reverse osmosis): a method of removing salts or other ions from water by forcing water through a semi-permeable membrane

RWCB (Regional Water Quality Control Board): regional division of the State Water Resources Control Board (nine in California) that develops and enforces water quality and use objectives based on local climate, topography, geology and hydrology.

Rain barrel: water-capture device affixed to rain gutter downspout, used to irrigate in lieu of using automated irrigation systems

Rebate: reimbursement for investment in/purchase of water saving devices or measures



Recharge: the physical process where water naturally percolates or sinks into a groundwater basin

Recharge basin: a surface facility, often a large pond, used to increase the infiltration of surface water into a groundwater basin

Reclaimed wastewater: wastewater that becomes suitable for a specific beneficial use through treatment (see wastewater reclamation)

Reclamation project: a project where water is obtained from a sanitary district or system and which undergoes additional treatment for a variety of uses, including landscape irrigation, industrial uses, and groundwater recharge

Recycled water: water that is used more than one time before it passes back into the natural hydrologic system

Reliability: certifying stable water supply through a variety of conditions

Reservoir: a place where water is stored until it is needed – can be an open lake or an enclosed storage tank

Retailer: water agency or city water department that delivers water to residential or commercial customers

Retrofit: the act of replacing or adding components to lower water consumption

Riparian water rights: rights of a landowner whose property neighbors the banks of a stream, river, or other body of water, based on the abutment

Robert B. Diemer Treatment Plant (Diemer): located in Orange County and one of Metropolitan Water District of Southern California's five treatment plants, Diemer can supply up to 520 Million gallons of treated water daily to Orange County and parts of Los Angeles

Rotating sprinkler nozzle: sprinkler type that applies water slowly and uniformly, uses up to 20 percent less water than conventional sprinkler heads

Runoff: liquid water that travels over the surface of the Earth, moving downward due to gravity



S

SAWPA (Santa Ana Watershed Project Authority): an agency that works with planners, water experts, design and construction engineers, and other government agencies to identify issues and solutions, and then uses innovation to resolve many water-related problems affecting the Santa Ana Watershed



SOCWA (South Orange County Wastewater Authority): public agency that collects, treats and disposes of wastewater from south Orange County

SWRCB (State Water Resources Control Board): California state agency with statewide water resource and water quality oversight

SWP (State Water Project): a storage and delivery system that transports water from northern California to central and southern California

Safe yield: the maximum quantity of water that can be withdrawn from a groundwater basin over a long period of time without developing a condition of overdraft

Salinity: the concentration of mineral salts dissolved in water – may be measured by weight (total dissolved solids - TDS), electrical conductivity, or osmotic pressure

San Juan Basin Authority: agency that monitors activity on the San Juan Basin (watershed), issues water rights permits for diversion and extraction from the basin

San Juan Watershed Project: joint agency project to develop facilities to manage surface water on the San Juan Basin

Seawater intrusion: the movement of seawater into a body of fresh water – affects surface water or groundwater basins

Seawater barrier: a physical facility or method of operation designed to prevent the intrusion of salt water into a body of freshwater

Secondary treatment: the biological portion of wastewater treatment that uses microorganisms to further clean wastewater after primary treatment – followed by trickling filtration

Sediment: material suspended in water or recently deposited from suspension

Sedimentation: the settling of solids in a body of water via gravity

Seepage: the slow movement of water through small cracks and pores of a material into or out of a body of surface or subsurface water

Sewage treatment plant: a facility designed to receive the wastewater from domestic sources and to remove materials that damage water quality and threaten public health and safety when discharged into receiving streams or bodies of water

Sierra Nevada Snowpack: water supply source for sixty percent of California

Smart irrigation timer: irrigation tool that automatically adjusts irrigating schedule in response to changing weather conditions

Solute: a substance that is dissolved in another substance, thus forming a solution



Solution: a mixture of a solvent and a solute

Solvent: a substance that dissolves other substances, thus forming a solution – Water dissolves more substances than any other and is known as the *universal solvent*

Special District: form of local government created by a community to meet a specific need – includes water districts, drainage districts, and flood control districts, among others

Storm flow: surface flow originating from precipitation and run-off that has not percolated to an underground basin

Subsidence: sinking of the land surface due to a number of factors, of which groundwater extraction is one

Subsurface slant well: ocean-friendly method of extracting higher quality seawater for desalination – well drilled at an angle just below the seafloor

Supplemental Sources: sources of water outside a watershed purchased to meet water demand

Surface water: water that is on the Earth's surface, such as in a stream, river, lake, or reservoir



T

TDS (total dissolved solids): a quantitative measure of the residual minerals dissolved in water that remain after evaporation of a solution

THM (trihalomethanes): any of several synthetic organic compounds formed when chlorine or bromine combine with organic materials in water

TMDL (total maximum daily load): a quantitative assessment of water quality problems, contributing sources, and load reductions or control actions needed to restore and protect bodies of water

Tiered rates: water billing strategy to drive down use by establishing tiers with usage caps – the more water used, the higher the rate

Transpiration: the process in which plant tissues give off water vapor to the atmosphere as an essential physiological process

Tributary: a smaller river or stream that flows into a larger river or stream

Turbidity: thick or opaque water with matter in suspension

Turf: grass or other plants on surface layer of earth



Turf removal: the removal of turf, customarily associated with rebate programs offering compensation for replacing turf



U

USACOE (United States Army Corp of Engineers): federal agency responsible for flood protection systems, dams, and navigable waterways under purview of the United States Government

USBR (United States Bureau of Reclamation): federal agency that oversees water resource management – largest wholesale water supplier in the United States

USGS (United States Geological Survey): federal agency with focus on scientific study of the landscape, natural resources, and natural hazards of the United States

UWMP (Urban Water Management Plan): long-term resource planning document required every five years by state law

Ultraviolet light disinfection: a disinfection method for water used as an alternative to chlorine



V

VOC (volatile organic compound): a chemical compound that evaporates readily at room temperature and contains carbon

Volumetric rates: water billing based exclusively on actual water usage



W

WEROC (Water Emergency Organization of Orange County): emergency response agency responsible for coordinating and supporting Orange County water and wastewater agencies

WSIP (Water Storage Investment Program): funding opportunity for water agencies, as approved by the public, to help address long-term water supply for California

WUE (Water Use Efficiency): efficient use of water through research methods and technology, integral part of any overall water supply portfolio



Wastewater: water that has been previously used by a municipality, industry or agriculture and has suffered a loss of quality as a result

Wastewater Reclamation: treatment and management of municipal, industrial, or agricultural wastewater to produce water of suitable quality for additional beneficial uses

Water budget: water allowance determined by number of residents, size of landscaped area, and weather data

Water Cycle: the circuit of water movement from the oceans to the atmosphere and to the Earth and return to the atmosphere through various stages or processes such as precipitation, interception, runoff, infiltration, percolation, storage, evaporation, and transportation

Water rates: the manner in which a water agency collects funds to purchase water, make infrastructure investments, and run day-to-day operations – rate structures vary by agency but typically consist of one of the following: volumetric rates, tier-based rates, or budget based rates

Water Reclamation: the treatment of wastewater to make it suitable for a beneficial reuse, such as landscape irrigation

Water rights: a legally protected right to take possession of water occurring in a natural waterway and to divert that water for beneficial use

Water supply portfolio: collection of various sources of water supply to ensure reliability – for example, an agency's portfolio might consist of two sources of imported water, reclaimed wastewater, and local groundwater

Water year: the period from October 1 of one calendar year to September 30 of the following calendar year – used by the United States Geological Survey

Watermaster: court appointed person(s) that has specific responsibilities to carry out court decisions pertaining to a river system or watershed

Watershed: total land area that from which water drains or flows to a river, stream, lake or other body of water

Water table: top level of water stored underground

Weir box: device to measure/control surface water flows in streams or between ponds

Wellhead treatment: water quality treatment of water being produced at the well site

Well: excavation or structure created to access and use groundwater

Wetland: any area in which the water table stands near, at, or above the land surface for a portion of the year – characterized by plants adapted to wet soil conditions



Wholesaler: agency that purchases large quantity of water to distribute to retailers



X

Xeriscape: landscaping that requires minimal water

