

WATER GLOSSARY

"A"

Accumulated overdraft. The amount of water necessary to be replaced into the groundwater basin to prevent the landward movement of ocean water into the fresh groundwater body.

AF. Acre-foot. The amount of water needed to cover an acre (approximate a football field) one foot deep, or 325,900 gallons. One acre-foot can support the annual indoor and outdoor needs of between one and two households per year, and, on average, three acre-feet are needed to irrigate one acre of farmland.

AFY. Acre-foot per year.

Alamitos Barrier. Joint project between OCWD, Los Angeles County Dept. of Public Works, and the Water Replenishment District of Southern California (WRDSC) for injection of imported water into a geologic gap at the Orange County-Los Angeles County boundaries subject to seawater intrusion.

Alluvium. A stratified bed of sand, gravel, silt, and clay deposited by flowing water.

AMP. Allen McColloch pipeline, operated by the Metropolitan Water District of Southern California to transport imported water within Orange County.

Annexation. The inclusion of land within a government agency's jurisdiction.

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.

Artesian. An aquifer in which the water is under sufficient pressure to cause it to rise above the bottom of the overlying confining bed, if opportunity to do so should be provided.

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

"B"

Base flow. River surface flow, not counting storm flow and/or purchased imported water.

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Basin cleaning device (BCD). A continuous clean-out system for removing the clogging layer that accumulates on the bottoms and sides of deep recharge basins and inhibits percolation; the BCD has been patented by OCWD.

Basin equity assessment (BEA). The additional fee charged by OCWD on water pumped that exceeds the BPP, which makes the cost of that water equal to the cost of imported water.

Basin production percentage (BPP). The percentage of an OCWD member agency's total potable water demand that can be produced from the basin without subjecting that member agency to the BEA.

Biofouling. The formation of bacterial film (biofilm) on fragile reverse osmosis membrane surfaces.

BMP. Best Management Practice. An urban water conservation measure that the California Urban Practice Water Conservation Coalition agrees to implement among member agencies.

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.

"C"

CEQA. California Environmental Quality Act.

cfs. Cubic feet per second.

Chloramines. A mixture of ammonia and chlorine used to disinfect water.

Closed basin. A groundwater basin whose topography and geology prevent subsurface outflow of water.

Colored water. Groundwater that is unsuitable for domestic use without treatment due to high color and odor exceeding drinking water standards.

Confined aquifer. A water-bearing subsurface stratum that is bounded above and below by formations of impermeable, or relatively impermeable soil or rock.

Conjunctive use. The planned use of groundwater in conjunction with surface water in overall management to optimize total water resources.

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"D"

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.

Denitrification. The physical process of removing nitrate from water through reverse osmosis or other means.

Desalting (or desalination). Specific treatment processes, such as reverse osmosis or multi-stage flash distillation, to demineralize seawater or brackish (saline) waters for reuse. Also sometimes used in wastewater treatment to remove salts other pollutants.

Desilting. The physical process of removing suspended particles from water.

Direct Potable Reuse. The injection of recycled water directly into the potable water supply distribution system downstream of the water treatment plant, or into the raw water supply immediately upstream of the water treatment plant. Injection could either be into a service reservoir or directly into a water pipeline. The water used by consumers could be therefore either undiluted, or slightly diluted recycled water. In this definition, the key distinction with indirect potable reuse is that there is no temporal or spatial separation between the recycled water introduction and its distribution to consumers.

Disinfection. Water treatment which destroys potentially harmful bacteria.

Drainage basin. The area of land from which water drains into a river, for example, the Santa Ana River Basin, in which all land area drains into the Santa Ana River. Also called catchment area, watershed, or river basin.

"E"

East Side Reservoir Project. A Metropolitan Water District project in Riverside County for the storage of imported water.

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

Evapotranspiration. The quantity of water transpired (given off), retained in plant tissues, and evaporated from plant tissues and surrounding soil surface. Quantitatively, it is expressed in terms of depth of water per unit area during a specified period of time.

"F"

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

Forebay. A portion of a groundwater basin where large quantities of surface water can

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recharge the basin through infiltration; also a reservoir or pond situated at the intake of a pumping plant or power plant to stabilize water level.

"G"

Gray water reuse. Reuse, generally without treatment, of domestic type wastewater for toilet flushing, garden irrigation and other nonpotable uses. Excludes water from toilets, kitchen sinks, dishwashers, or water used for washing diapers.

Green Acres Project (GAP). A 7.5 million gallons per day (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.

Groundwater. Water that occurs beneath the land surface and fills partially or wholly pore spaces of the alluvium, soil or rock formation in which it is situated. Does not include water which is being produced with oil in the production of oil and gas or in a bona fide mining operation.

Groundwater basin. A groundwater reservoir defined by all the overlying land surface and the underlying aquifers that contain water stored in the reservoir. Boundaries of successively deeper aquifers may differ and make it difficult to define the limits of the basin.

Groundwater mining. The withdrawal of water from an aquifer in excess of recharge over a period of time. If continued, the underground supply would eventually be exhausted or the water table could drop below economically feasible pumping lifts.

Groundwater overdraft. The 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 action of increasing groundwater storage by natural conditions or by human activity. See also: Artificial recharge.

Groundwater Replenishment System. An OCWD/OCSD joint project being developed to provide up to 100,000 acre-feet of reclaimed water annually for groundwater replenishment. Treated wastewater will undergo further treatment at OCWD-using the same technology as bottled water companies-before it is piped northward along the Santa Ana River to replenish the groundwater basin in the inland part of the county.

Groundwater table. The upper surface of the zone of saturation (all pores of subsoil filled with water), except where the surface is formed by an impermeable body.

gpm. Gallons per minute.

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"H"

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 by which water constantly circulates from the ocean, to the atmosphere, falling to the earth in some form of precipitation, and finally returning to the ocean.

"I"

Imported water. Water that has originated from one hydrologic region and is transferred to another hydrologic region. Metropolitan Water District (MWD) of Southern California imports water from the Colorado River and Northern California. MWD's agency in Orange County is the Municipal Water District of Orange County (MWDOC).

Indirect Potable Reuse (Planned). The reclamation and treatment of water from wastewater (usually sewage effluent) and the eventual returning of it into the current/natural water cycle well upstream of the drinking water treatment plant. Planned reuse 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.

Indirect Potable Reuse (Unplanned). Unplanned (or Incidental) indirect potable reuse is wastewater entering the natural water system (creeks, rivers, lakes, aquifers), which is eventually extracted from the natural system for drinking water.

Inflatable rubber dams. Designed to replace temporary sand levees that wash out during heavy storm flow, OCWD's rubber dams hold back high-volume river flows and divert the water into the off-river system for percolation.

In-lieu program. A program offered by OCWD in conjunction with the MWD seasonal storage program that financially encourages groundwater producers to turn off their pumping facilities and use MWD imported water to meet their demands, thereby indirectly replenishing the groundwater basin.

Interruptible water. Water from MWD that is subject to being shut off at any time, thus available at a discounted rate.

"L"

LIMS. Laboratory Information Management System allows water samples to be logged into the computer and the analytical results automatically posted to the WRMS database.

"M"

Maf. Million acre feet.

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MCL. Maximum contaminant level. Set by EPA for a regulated substance in drinking water.

Mgd. Million gallons per day.

Microfiltration. A physical separation process where tiny, hollow straw-like membranes separate particles from water. It is used very effectively as a pre-treatment for reverse osmosis.

mg/L. Milligrams per liter.

"N"

NPDES. National Pollutant Discharge Elimination System. A 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 surface waters-lakes, streams, rivers, bays, the ocean, wetlands, storm sewer, or tributary to any surface water body.

Natural flows. Flows, typically in the Santa Ana River, that are not placed into the system by man-made activities.

Non-interruptible. Water from MWD that is not subject to any interruption.

Non-point source. Wastewater discharge other than from point sources. See also: point source.

"O"

OCCP. Orange County Coastal Project. The original name of the seawater barrier project at the Fountain Valley site, now known as Water Factory 21.

Operator or owner. 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.

OCWD Annual Engineer's Report. An annual report on the groundwater conditions, water supply, and basin utilization to be delivered in writing to the Secretary of OCWD on the second Wednesday in February of each year.

Overdraft. See: groundwater overdraft.

"P"

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.

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Permeability. The capability of soil or other geologic formations to transmit water.

Point source. A specific site from which waste or polluted water is discharged into a water body, the source of which is identified. See also: non-point source.

Potable water. Suitable and safe for drinking.

pb. Parts per billion. Used interchangeably with ug/L (micrograms per liter.)

ppm. Parts per million. Used interchangeably with mg/L (milligrams per liter.)

ppt. Parts per trillion. Used interchangeably with ng/L (nanograms per liter.)

Primary treated water. First major treatment in a wastewater treatment facility, usually sedimentation but not biological oxidation.

Prior appropriation doctrine. Allocates water rights to the first party who diverts water from its natural source and applies the water to beneficial use. If at some point the first appropriator fails to use the water beneficially, another person may appropriate the water and gain rights to the water. The central principle is beneficial use, not land ownership.

Production, producing. The act of extracting groundwater by pumping or otherwise.

psi. Pounds per square inch.

Purveyor. Another name for groundwater producer or pumper.

"R"

RA. Replenishment assessment, a fee to pump groundwater. A charge on each acre-foot of groundwater extracted from the basin. Income from the RA finances the replenishment of the basin and projects for water recycling and water quality improvements.

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 as a result of treatment. See also: wastewater reclamation.

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

Recycling. A type of reuse, usually involving running a supply of water through a closed

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system again and again. Legislation in 1991 legally equates the term "recycled water" to reclaimed water.

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Riparian. Of or on the banks of a stream, river, or other body of water.

RO. Reverse osmosis. A method of removing salts or other ions from water by forcing water through a semi-permeable membrane.

"S"

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. Sometimes referred to as sustained yield.

Salinity. Generally, the concentration of mineral salts dissolved in water. Salinity may be measured by weight (total dissolved solids - TDS), electrical conductivity, or osmotic pressure. Where seawater is known to be the major source of salt, salinity is often used to refer to the concentration of chlorides in the water.

SARI. Santa Ana Regional Interceptor. A used water discharge line that runs from the Inland Empire to the [Orange County Sanitation District](#).

SARWQH. Santa Ana River Water Quality and Health Study. An OCWD study to verify the safety of existing recharge operations using Santa Ana River water and to satisfy regulatory concerns with the developing Groundwater Replenishment System.

Seasonal storage. A three-part program offered by MWD.

Seawater intrusion. The movement of salt water into a body of fresh water. It can occur in either 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, such as OCWD's Talbert Barrier or Alamitos Barrier.

SB 1201. Senate Bill 1201 passed in June, 1933. Authorized the formation of the Orange County Water District as a political sub-division of the State of California.

Secondary treatment. Generally, a level of treatment that produces 85 percent removal efficiencies for biological oxygen demand and suspended solids. Usually carried out through the use of trickling filters or by the activated sludge process.

Spreading basin; spreading grounds. See: recharge basin.

Storm flow. Surface flow originating from precipitation and run-off which has not percolated to an underground basin.

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SWP. State Water Project. An aqueduct system that delivers water from northern California to central and southern California.

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

Supplemental sources. Sources of water outside the watershed of the Santa Ana River purchased for the replenishment of the groundwater basin or used by an OCWD member agency to meet water demands.

Sustained yield. See safe yield.

"T"

Talbert Barrier. A series of multipoint injection wells through which OCWD injects water to maintain a seawater barrier. Water from this project is obtained from Water Factory 21 and deep-aquifer wells.

TDS. Total dissolved solids. A quantitative measure of the residual minerals dissolved in water that remain after evaporation of a solution. Usually expressed in milligrams per liter.

Tertiary treatment. The treatment of wastewater beyond the secondary or biological stage. Normally implies the removal of nutrients, such as phosphorous and nitrogen, and a high percentage of suspended solids.

THM. Trihalomethanes. Any of several synthetic organic compounds formed when chlorine or bromine combine with organic materials in water.

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

Turbidity. Thick or opaque with matter in suspension; muddy water.

"U"

Ultraviolet light disinfection. A disinfection method for water that has received either secondary or tertiary treatment, used as an alternative to chlorination.

"V"

VOC. Volatile organic compound. A chemical compound which evaporates readily at room temperature and contains carbon.

"W"

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

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Wastewater reclamation. Treatment and management of municipal, industrial or agricultural wastewater to produce water of suitable quality for additional beneficial uses.

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Water Factory 21 (WF 21). Orange County Water District's advanced wastewater purification plant.

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 year (OCWD). The period between July 1 of one calendar year to June 30 of the following calendar year.

Water year (USGS). The period between October 1 of one calendar year to September 30 of the following calendar year.

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

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

Weir box. A device to measure and/or control surface water flows in streams or between a series of ponds.

Wellhead treatment. Water quality treatment of water being produced at the well site.

WPF. Water producing facility. Any device or method, mechanical or otherwise, used for the production of water from the groundwater supplies within the District; a water well.

WRMS. Water Resources Management System. Custom computer application, which began development in 1990 to assist District staff with the management and analysis of water resources data. This data includes well information, water quality, water levels, production, and recharge. The system is based on a set of integrated software programs consisting of a relational database (Oracle), computer-aided design (AutoCAD), geographic information system (GIS), and groundwater flow model (MODFLOW)