



Pure Water San Diego

Glossary

Acre-foot: A unit used to measure large volumes of water. It equals the volume of water required to cover one acre to a depth of one foot. An acre-foot is 325,851 gallons and is considered enough water to meet the needs of two families of four with a house and yard for one year.

Advanced Oxidation: A set of chemical treatment processes designed to destroy organic material through the breakdown of their molecular structure. The advanced oxidation process employs ultraviolet light and a powerful disinfectant, which break down into natural elements, such as carbon, hydrogen and nitrogen.

Beneficial reuse: The use of recycled water for purposes that contribute to the economy or environment of a community, such as landscape irrigation and industrial purposes.

Biochemical Oxygen Demand (BOD): A measure of how much organic material in the wastewater can be broken down by microorganisms. It measures the potential for the discharge to deplete oxygen in the receiving water.

Biological Activated Carbon (BAC) Filters: Filters filled with millions of biological activated carbon granules covered in “aerobic” (living only in the presence of oxygen) bacteria. Recycled water passes through the filters, and the bacteria on the granules consume any organic matter.

Blending: Mixing or combining one water source with another such as purified water with raw water sources.

Brackish water: Water that has a higher salt content than freshwater, but not as high as seawater. Usually, the salts are removed or reduced before the water is usable.

Clean Water Act (CWA): The federal law passed in 1977 that establishes how the United States will restore and maintain the chemical, physical, and biological integrity of the country's waters (oceans, lakes, streams and rivers, groundwater, and wetlands).

Conservation: Any beneficial deduction in water use or waste, which results in reduced demand or reduced need for imported water sources.

Constituent: In water, a constituent is a dissolved chemical element or compound or a suspended material that is carried in the water.

Contaminant: An organic or inorganic substance found in water. Some contaminants have a health effect in people consuming the water, and thus are regulated in drinking water. Not all contaminants are unsafe.

Desalination: The process of removing salts and other minerals from seawater or brackish groundwater.

Direct potable reuse: When purified water is sent directly to treatment at a drinking water plant and not to an environmental buffer.

Disinfection: The removal, deactivation or destroying of microorganisms present in a water supply that may be harmful to humans. Commonly used disinfectants include chlorine (and its derivatives), ultraviolet (UV) light, and ozone.

Drinking water: Water that meets federal drinking water standards as well as state and local water quality standards so that it is safe for human consumption.

Drought: A defined period of time when rainfall and runoff in a geographic area are much less than average.

Endocrine Disrupting Compounds (EDCs): A chemical substance or mixture that alters the normal hormone functions in humans and animals. These chemicals can come from pharmaceuticals and personal care products such as detergent and synthetic hormones. They may also come from some industrial wastes and pesticides. EDCs are also contained in natural agricultural products such as soybeans, alfalfa, and natural hormones in animals.

Effluent: The water leaving a water or wastewater treatment process or facility. If effluent has been treated to a high enough standard, it may be considered to be recycled water and can be used for beneficial purposes.

Environmental Impact Statement / Environmental Impact Report (EIS/EIR): Detailed analysis of impacts of a project on all aspects of the natural and human environment. An EIS is required by the federal National Environmental Policy Act for federal permitting or use of federal funds. An EIR is required by the California Environmental Quality Act for local projects.

Estuary: The shallow water areas of bays or the mouths of rivers and creeks; an area where ocean tides meet and mix with fresh water.

Filtration: A process that separates small particles from water by using a porous barrier to trap the particles and allow the water to pass through.

Graywater: Wastewater from a household generated from washing machines, showers and baths, and bathroom sinks, which can be recycled on-site for landscape irrigation (except for irrigating vegetable gardens). Graywater does not include wastewater from a toilet, kitchen sink, laundry water, or dishwasher, which is designated as sewage or blackwater to indicate it contains human waste.

Groundwater: Water beneath the earth's surface that supplies wells and natural springs. A groundwater basin is any underground area that contains and can store water.

Groundwater recharge: Naturally or artificially adding water back into a groundwater basin.

Hydrologic cycle: The movement of water as it evaporates from rivers, lakes or oceans, and returns to the earth as precipitation to evaporate again.

Imported water: A water source that originates in one hydrologic region and is transferred to another hydrologic region.

Indirect potable reuse: The process of blending purified water into a natural water source (groundwater basin or reservoir) that can be used as a source of drinking water.

Inorganic chemicals: Inorganic chemicals are substances that do not contain both carbon and hydrogen. Generally, inorganic chemicals are minerals. Most minerals are not a cause for concern in water. Nutrients, such as phosphorus and nitrogen, and metals, such as calcium, iron, sodium, potassium, and zinc, are inorganic chemicals. Some inorganic chemicals, when they are too abundant, are considered contaminants in water.

Maximum Contaminant Level (MCL): The highest allowable amount of a contaminant in water, established by the U.S. Environmental Protection Agency as a regulatory standard.

Membrane filtration: A type of filter used to separate particles from the water. Membrane filters are characterized by the pore openings size from the largest to the smallest pore size: microfiltration, ultrafiltration, nanofiltration and reverse osmosis.

MGD: Abbreviation for million gallons per day. This term is used to describe the flow of water treated and distributed from a treatment plant.

Microfiltration (MF): A low-pressure membrane filtration process where tiny, hollow straw-like membranes separate small suspended particles, bacteria and other materials out of the water.

Micron: Equal to one-millionth of a meter or 1/25,400 of one inch. The eye can see particles only to about 40 microns. Used to describe the size of bacteria.

Non-potable water: Water that is not suitable for drinking because it has not been treated to drinking water standards.

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, and includes any discharge to surface waters: lakes, streams, rivers, bays, the ocean, wetlands, storm sewer, or tributary to any surface water body.

Organic chemicals: Chemicals that contain both carbon and hydrogen. There are millions of organic compounds, both naturally occurring and man-made. Naturally occurring organic compounds include amino acids (the building blocks of proteins), sugars, fats, hormones, and vitamins. All living matter is made up of natural organic chemicals. Synthetic (manmade) organic chemicals have been developed because they exhibit features that are valuable to us. These synthetic organic chemicals include herbicides, insecticides, pharmaceuticals, food coloring and flavors, personal care products, dyes, paints, adhesives, detergents, polymers, and plastics.

Oxidation: A treatment step used in disinfection, where oxygen or ozone is added to water to produce a chemical reaction that removes harmful substances.

Ozone: A gas produced by subjecting oxygen molecules to high electrical voltage. It destroys bacteria and other microorganisms and breaks down organic substances.

Pathogens: Disease-causing organisms. The general groupings of pathogens are viruses, bacteria, protozoa, and fungi.

Personal care products (PCPs): Products that can be found in wastewater such as shampoos, fragrances, soap, and deodorant.

pH: A measure of the acidity of or basicity of an aqueous solution.

Pharmaceutically-active compound (PhAC): Hormone-based compounds found within EDC's. Examples of these compounds include antibiotics, anti-epileptic medications, heart medications, pain medications, and cancer medications, along with veterinary drugs and feed additives used for livestock.

Potable water (Drinking water): Raw water that has been treated to a level sufficient to meet federal drinking water standards as well as state and local water quality standards and is safe for human consumption.

Pretreatment: The treatment of wastewater near its source to remove harmful pollutants before being discharged to a sewer system.

Primary treatment: The first stage in a wastewater treatment facility that cleans wastewater. In this process, water is separated from grit or large particles. Following grit removal, the wastewater is pumped into sedimentation tanks.

Purified water: Recycled water that has been treated to an advanced level beyond tertiary treatment, so that it can be added to water supplies and ultimately used for drinking water. The treatment includes membrane filtration with microfiltration or ultrafiltration, reverse osmosis (RO), and advanced oxidation that consists of disinfection with ultraviolet light (UV) and disinfectants. Purified water may be discharged into a groundwater basin or surface water reservoir that supplies water to a drinking water treatment facility.

Raw water: Water that has not been treated for use. Examples of raw water are water in the Colorado River aqueduct, the State Water Project aqueduct, open reservoirs (whether filled with imported water or runoff), rivers, naturally occurring lakes and some well water.

Reclaimed water or recycled water: Water that originated from homes' and businesses' drains as municipal wastewater and has undergone a high level of treatment at a reclamation facility so that it can be beneficially reused for a variety of purposes.

Reservoir: A manmade lake or tank used to collect and store water.

Reuse: To use again; recycle; to intercept, either directly or by exchange, water that would otherwise return to the natural hydrologic (water) system, for subsequent beneficial use.

Reservoir augmentation: The process of adding purified water to a surface water reservoir. The purified water undergoes advanced treatment (membrane filtration, reverse osmosis and UV disinfection/advanced oxidation). The purified water is then blended with untreated water in a reservoir. The blended water is then treated and disinfected at a conventional drinking water treatment plant and is distributed into the drinking water delivery system. Also known as "surface water augmentation."

Reverse osmosis (RO): A high-pressure membrane filtration process that forces water through the molecular structure of several sheets of thin plastic membranes to filter out minerals and contaminants, including salts, viruses, pesticides, and other materials. The RO membranes are like microscopic strainers -- bacteria and viruses as well as inorganic and most organic molecules cannot pass through the membranes.

Safe Drinking Water Act (SDWA): Federal legislation passed in 1974 that regulates the treatment of water for human consumption and requires testing for, and elimination of, contaminants that might be present in the water.

Salinity: The concentration of mineral salts dissolved in water. Salinity may be measured by weight (total dissolved solids or TDS) or by electrical conductivity. Salinity and TDS are both measures of the amount of salt dissolved in water, and the terms are often used interchangeably. Generally, salinity is used when referring to water with a lot of salt (e.g., seawater), whereas TDS is used to refer to water with little salt (e.g., freshwater).

Secondary equivalency: A proposal to seek federal legislation to modify the Clean Water Act to set minimum removal rates for Biochemical Oxygen Demand (BOD) and Total Suspended Solids (TSS) and a cap on annual TSS mass emission rates. This would apply to the Point Loma Wastewater Treatment Plant (PLWTP) and set the cap on annual TSS rates to the same or “equivalent” amount as would have been discharged if the existing PLWTP at its design capacity of 240 million gallons per day was upgraded to secondary treatment.

Secondary treatment: Treatment of wastewater through a biological process that meets Clean Water Act standards for three constituents: Biochemical Oxygen Demand (BOD), Total Suspended Solids (TSS) and pH.

Storage: Water held in a reservoir for later use.

Surface water: Water located on the Earth's surface, in a river, stream, lake, pond or surface water reservoir.

Sustainability: The withdrawal of fresh water from an ecosystem that doesn't exceed its natural replacement rate in order to ensure availability of water for future generations.

Total dissolved solids (TDS): A measure of the minerals dissolved in water. TDS is usually expressed in milligrams per liter.

Total suspended solids (TSS): A measure of the non-dissolved solid material in wastewater.

Tertiary treatment: Treatment of wastewater to a level beyond secondary treatment but below water purification. Water treated to this level is considered to be recycled water, which is suitable for many beneficial uses including irrigation or industrial processes. Tertiary water meets treatment and reliability criteria established by Title 22, Chapter 4, of the California Code of Regulations.

Turbidity: A measure of suspended solids in water; cloudiness.

Ultrafiltration (UF): A membrane filtration process with pore openings that fall between reverse osmosis (RO) and microfiltration (MF). Also used to characterize the size of particles removed.

Ultraviolet (UV) disinfection/advanced oxidation: During ultraviolet disinfection, water is exposed to ultraviolet (UV) light, just like instruments in medical and dental offices, to provide disinfection. Additionally, ultraviolet light combined with hydrogen peroxide creates an advanced oxidation reaction that eliminates any remaining compounds in water by breaking them down into harmless compounds.

Urban runoff: Water from an urban area that neither infiltrates the soil nor is consumed, but flows into a storm water collection system or open waterway. This water may carry pollutants, fertilizers and other contaminants.

Wastewater: Untreated water collected in the sewer system from residences and businesses (e.g., from bathtubs, showers, bathroom sinks, clothes washers, toilets, kitchen sinks, dishwashers, and industrial processes). It consists of mostly water with some impurities.

Water cycle: The movement of water as it evaporates from rivers, lakes or oceans, returns to the earth as precipitation, flows into rivers and evaporates again. This cycle is aided in urban areas by modern technology which includes wastewater and drinking water treatment facilities, which help nature in removing harmful contaminants.

Water purification process: The process of using water purification technology on recycled water to produce a water supply that can be used for reservoir augmentation and ultimately for drinking water purposes. The process of water purification starts with recycled water, which has already been treated to produce a supply of water safe enough for irrigation and industrial purposes. This recycled water is further treated with water purification technology. The resulting purified water can be used to augment local reservoir supplies, which would be treated once more at a potable water treatment plant to produce drinking water.

Water purification technology: The technology used for purifying treated wastewater, including membrane filtration with microfiltration or ultrafiltration, reverse osmosis, and UV disinfection/advanced oxidation.

Water reuse: The planned use of recycled water for a specific beneficial purpose.

Watershed: The land area from which water drains and contributes to a given point on a stream, river, or lake.

Wetlands: Areas with standing water or a high water table that, under normal circumstances, support vegetation typically adapted to saturated soil conditions; generally includes swamps, marshes, bogs and areas with vegetation that grows in or around water.