



Drinking Water Terms

Acidic: Water low on the pH scale; higher concentrations of hydrogen ions.

Acidification: The process of water becoming more acidic, decreasing its pH. This can be due to the addition of an acid, such as when carbon dioxide in the air comes into contact with surface water forming carbonic acid or as a result of chlorine disinfection forming chlorine-based acids.

Adsorption: A treatment process where dissolved contaminants are removed by sticking to the surface of a media, such as activated carbon.

Alkalinity: Water's ability to resist acidification. Its capacity to buffer against acidification.

Aquifer: A reservoir of groundwater stored in a layer of permeable rock, sediment, or soil.

Asset management: Meeting the desired level of service at the lowest life cycle cost. It is a process and framework used by water utilities to ensure that maintenance, infrastructure, and operations function efficiently and effectively now and into the future.

Back siphonage: A form of backflow in which an inlet (a pipe, hose, faucet) becomes submerged below the maximum overflow line and water gets sucked into the water pipe if negative pressure occurs in the line. To prevent back siphonage, inlets should always have an air gap between the bottom of the inlet and the maximum overflow level or a device, such as a vacuum breaker should be installed.

Backflow preventer: A device on a pipe used to prevent the backflow of water of questionable quality into the potable water supply system.

Backflow: Water flowing in the opposite direction than intended due to pressure difference.

Bacteria: Single-celled microorganisms that may or may not be harmful to human health.

Check valve: A type of valve that ensures water is only able to flow in one direction in a pipe.





Chloramination: Using chlorine and ammonia to create chloramines as a disinfectant for drinking water treatment. Often used in systems with large distribution systems or where there are issues with disinfection byproducts.

Chlorination: Using chlorine to inactivate organisms in water, such as bacteria, viruses, and protozoa.

Chlorine demand: The amount of chlorine that reacts with particles and other contaminants or constituents in the water that is no longer available for disinfection.

Chlorine residual: The amount of chlorine remaining after the chlorine demand has been satisfied and that remains in the water available for disinfection.

Coagulation: Adding chemicals that neutralize charges and allow small particles to clump together.

Concentration: The quantity of a substance (such as a contaminant or chemical) in a volume of water, such as milligrams per liter (mg/L) and parts per million (ppm).

Contaminant: A harmful or unwanted substance in the water.

Corrosivity: Water's ability to dissolve materials, such as metals associated with plumbing. Particularly an issue with lead and copper.

Cross connection: a physical connection between a potable water source and a water source that could cause contamination.

CT: Concentration of chemical (typically chlorine) in mg/L multiplied by time in minutes that the chemical has to be in contact with the water before the first usage of the water (C*T). Determines the effectiveness of inactivation of viruses and other microorganisms in the water. Often referred to as "contact time".

Disinfection byproducts: Compounds that result from the chemical reaction between chlorine and organic matter in water. Can be harmful to human health.

Disinfection: Inactivation of harmful microorganisms in water.

Dissolved oxygen: Oxygen mixed into water that aquatic organisms need to survive. Colder water holds higher levels of dissolved oxygen than warmer water and lower elevations hold more oxygen than higher elevations due to atmospheric pressure. Oxygen dissolves into water up to its saturation level which is dependent on temperature and pressure. Under certain circumstances, such as higher pressures or



when algae are rapidly growing, water can become supersaturated (greater than 100% capacity).

Distribution system: The system of pipes, valves, meters, hydrants, and storage tanks that transfers water from the treatment facility to consumers.

Dosage: The amount of a chemical added to a specific volume of water, measured by concentration, such as milligrams per liter (mg/L) or parts per million (ppm).

Drawdown: The difference between the static water level in a well and the depth of water when the pump is running and pulling water from the well.

Entry Point (EP): The location where water exits the treatment process and enters the distribution system. Some regulatory water samples are taken at this point.

Feed rate: The quantity (in weight or volume) of a chemical being added to water over a period of time, such as a day, measured by metrics such as gallons per day.

Filter: A device or treatment medium that reduces or removes contaminants from water as it passes through. A filter may physically trap particles or utilize chemical properties of a contaminant to remove it from the water. Filters vary by material, pore size, shape, and purpose and their overall effectiveness.

Filtration: The process of removing particles and impurities in water by passing water through a filter.

Financial capacity: The ability of a water system to navigate the financial aspects of a water system, such as managing financial obligations, maintain operations, and respond to emergencies.

Financial health: The evaluation of the overall financial capabilities of the water system, measured by metrics such as operating ratio, sales ratio, and debt service coverage ratio, that can identify the financial strengths and weaknesses of the system. No one metric tells the story, but taken together, the metrics demonstrate an overall picture of financial health and where systems can potentially make improvements.

Flocculation: Process where coagulated particles bump into each other to form larger particles known as floc.

Fluoridation: The process of adding fluoride to water with the goal of promoting dental health.

Groundwater: Water located underground in openings in soil, gravel, and rock.





Hard water: Water containing high levels of calcium and magnesium salts.

Ion: An atom or a compound that has a net positive or negative charge. Cations are positively charged (+) and anions are negatively charged (-).

Jar test: A laboratory test done with a series of jars with different amounts of a chemical added (often a coagulant) to determine the proper dosage.

Managerial capacity: The ability of a water system to navigate the management aspects of providing water, such as ownership, organization, relationship, and more.

Microorganism: An organism that is so small it is not visible through regular eyesight. Microorganisms in water may or may not be harmful to human health.

Minerals: Naturally occurring substances in water, such as calcium, magnesium, sodium, potassium, zinc, and more.

Organic Matter: Carbon based particles and compounds from decayed living organisms. Can be dissolved in water or suspended in the water column.

Pathogen: A microorganism that can cause disease.

pH: A measure of how acidic or basic water is, on a scale from 0 to 14. Measurement of the amount of Hydrogen ions in water: $\text{pH} = -\log(\text{H}^+)$

Pollutant: A substance that makes water dirty, unsafe for human consumption, or harmful to aquatic life or the environment.

Potable water: water that is considered acceptable for human consumption.

Precipitation reaction: The chemical process of turning a mineral dissolved in water into a solid form that can be more easily removed.

Raw water: Water prior to any sort of water treatment.

Reverse Osmosis (RO): A water treatment process where dissolved minerals are removed from water by forcing it through a semipermeable membrane under high pressure. Most water passes through the membrane and the dissolved matter and the remaining water stay on the outside and are rejected as a waste product of the process.

Sediment: Small particles of soil, sand, clay, or organic matter carried and deposited by water.

Sedimentation: The process of heavy particles settling at the bottom of a chamber.





Service connection: The pipe that conveys water from a distribution line to individual homes or buildings.

Soft water: Water containing relatively low levels of calcium and magnesium salts.

Source water protection: A plan or method to keep a water source as free from contamination as possible. The plan may include methods to prevent known contamination from entering the water source.

Spring: A place where groundwater naturally flows to the surface.

Static water level: The depth from the wellhead to the water level in a well when the well pump is not running.

Surface water: Water found on the surface of the earth, such as in rivers, lakes, and reservoirs.

Technical capacity: The ability of a water system to navigate the technical aspects of providing water, such as source water adequacy, infrastructure adequacy, and technical knowledge and implementation.

Total dissolved solids (TDS): The combined amount of dissolved minerals, salts, and other substances in water.

Total suspended solids (TSS): Solids suspended and not dissolved in water. Measured as the dry weight of particles that can be trapped by a filter.

Turbidity: The cloudiness or murkiness of water caused by suspended particles. Measured by the amount of light passing through water in NTUs (Nephelometric Turbidity Units). Particularly used as a measure of the effectiveness of surface water treatment.

Valve: An apparatus attached to a pipe with components directly in the flow of water that can control or restrict flow. A fully opened valve allows water to flow unobstructed through a pipe. A fully closed valve allows no water to flow through.

Virus: A very small infectious agent that may or may not be harmful to human health. Reproduces inside living cells.

Water color: Physical characteristic of water created by organic or inorganic substances in water creating a colored tint.





Water quality: The condition of water based on its safety, cleanliness, chemical characteristics, and biological characteristics. Regulated by the US EPA or other governmental agencies (e.g., state or tribal) through primacy.

Water quantity: An amount of water available for use or the amount of water actually used. May be regulated in some states, especially western states.

Water source: A place where a drinking water supply is obtained, such as a spring, well, river, or reservoir.

Water table: Depth underground where pores and fractures of the ground are saturated with groundwater.

Water taste and odor: Physical characteristic of water caused from a variety of sources, such as algae, organic matter, or inorganic substances, such as sulfur.

Water treatment: The process of making water safe for potable use (i.e., human consumption.)

Watershed: An area of land where the flow of water all drains to a single point in a river, lake or reservoir.

Well: A hole drilled into the ground to reach groundwater.





Safe Drinking Water Act Terms

Safe Drinking Water Act: The act first passed by the United States congress that enacts regulations governing public water systems. The act has been amended numerous times since its first passage in 1974.

Primacy: The governmental agency (e.g., state or tribe) granted responsibility for regulating drinking water under the Safe Drinking Water Act by EPA. Standards set can be as stringent or more stringent than federal standards, but not less. In states or tribes without primacy, drinking water is regulated by EPA.

National Primary Drinking Water Regulations: The regulation within the Safe Drinking Water Act that sets the maximum level of a contaminant that can be in water and the treatment techniques needed to adequately treat water.

National Secondary Drinking Water Regulations: Non-mandatory water quality standards that are more focused on aesthetic and nuisance concerns.

Public water system: A public water system provides water for human consumption through pipes or other constructed conveyances to at least 15 service connections or serves an average of at least 25 people for at least 60 days a year. A public water system may be publicly or privately owned. (EPA definition). Public water systems are subject to regulation under the Safe Drinking Water Act.

Community water system: A public water system that supplies water to the same population year-round. (EPA definition)

Non-Transient Non-Community Water System (NTNCWS): A public water system that regularly supplies water to at least 25 of the same people at least six months per year. Some examples are schools, factories, office buildings, and hospitals which have their own water systems. (EPA definition)

Transient Non-Community Water System (TNCWS): A public water system that provides water in a place such as a gas station or campground where people do not remain for long periods of time. (EPA definition)





Drinking Water Acronyms

Acronym	Full Text
AL	Action Level
BacTs	Bacteriological Testing
BAT	Best Available Technology
CA	Corrective Action
CAP	Corrective Action Plan
CCR	Consumer confidence report
CFR	Code of Federal Regulations
CFU	Colony-forming units
Chems	Chemical Analytes: IOC, SOC, and VOC
Cl ₂	Chlorine
CT	Disinfectant concentration contact time
DBP	Disinfection Byproduct
DOC	Dissolved organic carbon
DS	Distribution System
EP	Entry Point
EPA	United States Environmental Protection Agency
ft	Feet
GAC	Granular Activated Carbon
GW	Groundwater
GWR	Groundwater Rule
GWUDI	Ground Water Under the Direct Influence of Surface Water
HAA5	5 Haloacetic Acids; A disinfection byproduct
IOC	Inorganic chemical
L	Liter
LRAA	Locational Running Annual Average
MCL	Maximum Contaminant Level
MCLG	Maximum Contaminant Level Goal
mg/L	Milligrams Per Liter, Or Parts Per Million, ppm
mg/L as CaCO ₃	Milligrams Per Liter As Calcium Carbonate, Measure Of Hardness
mg/L as ClO ₂	Milligrams Per Liter As Chlorine Dioxide
mJ/cm ²	Millijoules Per Square Centimeter
mm	Millimeter
MRDL	Maximum Residual Disinfectant Level
MRDLG	Maximum Residual Disinfectant Level Goal
mrem	Millirems
nm	Nanometers
NTNC	Non-Transient Non-Community



NTU	Nephelometric Turbidity Unit
pCi	picoCurie
PN	Public Notice
ppb	Parts Per Billion, Or Micrograms Per Liter ($\mu\text{g/L}$)
ppm	Parts Per Million, Or Milligrams Per Liter (mg/L)
ppq	Parts Per Quadrillion, Or Picograms Per Liter (pg/L)
ppt	Parts Per Trillion, Or Nanograms Per Liter (ng/L)
PVC	Polyvinyl Chloride
PWS	Public Water System
RAA	Running Annual Average
Rads	Radionuclide Analytes
SD	Significant Deficiency
SDWA	U.S. Safe Drinking Water Act
SMCL	Secondary Maximum Contaminant Level
SOC	Synthetic Organic Chemical
SW	Surface Water
SWTR	Surface Water Treatment Rule
TC	Total Coliform
TC+	Total Coliform Positive
TCR	Total Coliform Rule
TDS	Total Dissolved Solid
TNCWS	Transient Non-Community Water System
TOC	Total Organic Carbon
TSWMP	Triggered Source Water Monitoring Plan
TT	Treatment Technique
TTHM	Total Trihalomethanes; a Disinfection Byproduct
UV	Ultraviolet
VOC	Volatile organic chemical

