



Glossary of Water Resource Terms

A

abandoned water right

a water right which was not put to beneficial use for a number of years, generally five to seven years.

abandoned well

a well which is no longer used. In many places, abandoned wells must be filled with cement or concrete grout to prevent pollution of ground water bodies.

absorption

the uptake of water, other fluids, or dissolved chemicals by a cell or an organism (as tree roots absorb dissolved nutrients in soil).

accretion

a gradual increase in land area adjacent to a river.

acid rain

the acidic rainfall which results when rain combines with sulfur oxides emissions from combustion of fossil fuels.

acidic

the condition of water or soil that contains a sufficient amount of acid substances to lower the pH below 7.0.

acre-foot

the amount of water required to cover one acre to a depth of one foot. An acre-foot equals 325,851 gallons, or 43,560 cubic feet. A flow of 1 cubic feet per second produces 1.98 acre-feet per day.

activated carbon adsorption

the process of pollutants moving out of water and attaching on to activated carbon.

adhesion

the molecular attraction asserted between the surfaces of bodies in contact. Compare cohesion.

adjudication

a court proceeding to determine all rights to the use of water on a particular stream system or ground water basin.

abandoned well

a well which is no longer used. In many places, abandoned wells must be filled with cement or concrete grout to prevent pollution of ground water bodies.

administrative order

a legal document signed by U.S. EPA directing an individual, business, or other entity to take corrective action or refrain from an



activity. It describes the violations and actions to be taken, and can be enforced in court. Such orders may be issued, for example, as a result of an administrative complaint ordering the respondent to pay a penalty for violations of the Clean Water Act.

administrative order on consent

a legal agreement signed by U.S. EPA and an individual, business, or other entity through which the violator agrees to pay for correction of Clean Water Act violations, take the required corrective or cleanup actions, or refrain from an activity. It describes the actions to be taken, may be subject to a comment period, applies to civil actions, and can be enforced in court.

adsorption

the adhesion of a substance to the surface of a solid or liquid.

Adsorption is often used to extract pollutants by causing them to be attached to such adsorbents as activated carbon or silica gel.

Hydrophobic, or water-repulsing adsorbents, are used to extract oil from waterways in oil spills.

advanced wastewater treatment

any treatment of sewage that goes beyond the secondary or biological water treatment stage and includes the removal of nutrients such as phosphorus and nitrogen and a high percentage of suspended solids.

aerated lagoon

a holding and/or treatment pond that speeds up the natural process of biological decomposition of organic waste by stimulating the growth and activity of bacteria that degrade organic waste.

aeration

the mixing or turbulent exposure of water to air and oxygen to dissipate volatile contaminants and other pollutants into the air.

aeration tank

a chamber used to inject air into water.

aerobic treatment

process by which microbes decompose complex organic compounds in the presence of oxygen and use the liberated energy for reproduction and growth. Such processes include extended aeration, trickling filtration, and rotating biological contactors.

aerobic

life or processes that require, or are not destroyed by, the presence of oxygen.

aggradation



a progressive build up of a channel bed with sediment over several years due to a normal sequence of scour and deposition, as distinguished from the rise and fall of the channel bed during a single flood.

aggressive water

water which is soft and acidic and can corrode plumbing, piping, and appliances.

algae

simple rootless plants that grow in sunlit waters in proportion to the amount of available nutrients. They can affect water quality adversely by lowering the dissolved oxygen in the water. They are food for fish and small aquatic animals.

algal bloom

a phenomenon whereby excessive nutrients within a river, stream or lake cause an explosion of plant life which results in the depletion of the oxygen in the water needed by fish and other aquatic life. Algae bloom is usually the result of urban runoff (of lawn fertilizers, etc.). The potential tragedy is that of a "fish kill," where the stream life dies in one mass extinction.

algicide

substance or chemical used specifically to kill or control algae.

alkaline

the condition of water or soil that contains a sufficient amount of alkali substance to raise the pH above 7.0.

alkalinity

the measurement of constituents in a water supply which determine alkaline conditions. The alkalinity of water is a measure of its capacity to neutralize acids. See [pH](#).

allogenic recharge

recharge that occurs in a sinking stream, entering an aquifer through sinkholes or fault planes. Contrast [autogenic recharge](#).

alluvial

relating to, composed of, or found in alluvium.

alluvium

sediments deposited by erosional processes, usually by streams.

alvusion

a sudden or perceptible change in a river's margin, such as a change in course or loss of banks due to flooding.

ambient background concentration

a representative concentration of the water quality in a receiving water body, determined from monitoring. The statistic or data used to determine the value from the range of data is dependent on the purpose of the monitoring and the application of the data.

**ambient medium**

material surrounding or contacting an organism (e.g., outdoor air, indoor air, water, or soil through which chemicals or pollutants can reach the organism.

ampermometric titration

a way of measuring concentrations of certain substances in water using the electric current that flows during a chemical reaction.

anabranch

a secondary channel of a stream which leaves and then rejoins the main channel. The two channels are separated by stable, vegetated lands.

anaerobic

a life or process that occurs in, or is not destroyed by, the absence of oxygen.

anisotropic aquifer

an aquifer in which permeability varies with direction of flow. The Edwards is a highly anisotropic aquifer. Modeling flow in such aquifers is very problematic.

annular space

the space between two concentric cylindrical objects, one of which surrounds the other, such as the space between the walls of a drilled hole and a casing.

anti-degradation clause

part of federal and water quality requirements prohibiting deterioration where pollution levels are above the legal limit.

appropriative rights

"first in time, first in right" principle of allocating water rights based. Usually involves a user being allowed to take water from a particular source without regard to the contiguity of the land to the source.

aquatic

growing in, living in, or frequenting water.

aquatic life use

a beneficial use designation in which the water body provides suitable habitat for survival and reproduction of desirable fish, shellfish, and other aquatic organisms.

aquiclude

a formation which, although porous and capable of absorbing water slowly, will not transmit water fast enough to furnish an appreciable supply for a well or a spring.

aqueous

something made up of water.

aqueous solubility

the maximum concentration of a chemical that will dissolve in pure



water at a reference temperature.

aquiculture

the raising or fattening of fish in enclosed ponds. Compare mariculture.

aquifer

a geologic formation that will yield water to a well in sufficient quantities to make the production of water from this formation feasible for beneficial use; permeable layers of underground rock or sand that hold or transmit groundwater below the water table.

aquitard

geological formation that may contain groundwater but is not capable of transmitting significant quantities of it under normal hydraulic gradients. May function as confining bed.

armoring

the formation of an erosion-resistant layer of relatively large particles on a streambed or bank resulting from removal of finer particles by erosion.

artesian aquifer

a geologic formation in which water is under sufficient hydrostatic pressure to rise above the top of the aquifer in the subsurface. Artesian aquifers are confined aquifers. Also see unconfined aquifer.

artesian well

a water well drilled into a confined aquifer where enough hydraulic pressure exists for water rise in the well to a height above the top of the aquifer in the subsurface. Also see flowing artesian well.

artesian zone

a zone where water is confined in an aquifer under pressure so that the water will rise in the well casing or drilled hole above the bottom of the confining layer overlying the aquifer.

assay

a test for a specific chemical, microbe, or effect.

assemblage

an organism group of interacting species in a given ecosystem, for example, a fish assemblage or a benthic macroinvertebrate assemblage.

assimilation

the ability of a water body to purify itself of pollutants.

assimilative capacity

the capacity of a natural body of water to receive and dilute wastewaters or toxic materials without damage to aquatic life or humans who consume the water.

attenuation

the process whereby the magnitude of a flood event is reduced by



slowing, modifying, or diverting the flow of water.

autogenic recharge

recharge that occurs by falling directly on an aquifer's outcrop at the surface. Contrast allogenic recharge.

average annual recharge

amount of water entering the aquifer on an average annual basis. Averages mean very little for the Edwards because the climate of the region and structure of the aquifer produce a situation in which the area is usually water rich or water poor.

B

background level

the concentration of a substance in an environmental media (water or soil) that occurs naturally or is not the result of human activities.

backpressure

a pressure that can cause water to backflow into the water supply when a user's wastewater system is at a higher pressure than the public system.

backsiphonage

reverse seepage of water in a distribution system.

backwashing

reversing the flow of water through a home treatment device filter or membrane to clean and remove deposits.

bank

the sloping land bordering a stream channel that forms the usual boundaries of a channel. The bank has a steeper slope than the bottom of the channel and is usually steeper than the land surrounding the channel. Right and left banks are named facing downstream.

bank-full capacity

the rate of water flow that completely fills a channel; the flow rate at which the water surface is level with the flood plain.

bank stability

occurs when the channel bank configuration does not change significantly over time.

bar screen

in wastewater treatment, a device used to remove large solids from the incoming wastewater stream.

barrage

any artificial obstruction placed in water to increase water level or divert it. Usually the idea is to control peak flow for later release.

base flows

the component of a flow regime that represents normal flow conditions between precipitation events. Base flows provide a range



of suitable habitat conditions that support the natural biological community of a specific river sub-basin.

bathymetric

related to the measurement of water depth within a water body.

bed forms

three-dimensional configurations of bed material, which are formed in streambeds by the action of flowing water.

bed load

the particles in a stream channel that mainly move by bouncing, sliding, or rolling on or near the bottom of the stream.

bed stability

occurs when the average elevation of the streambed does not change significantly over time. Aggradation and degradation are the two forms of bed instability.

beneficial use

the amount of water necessary when reasonable intelligence and diligence are used for a stated purpose; Texas law recognizes the following uses as beneficial: (1) domestic and municipal uses, (2) industrial uses, (3) irrigation, (4) mining, (5) hydroelectric power, (6) navigation, (7) recreation, (8) stock raising, (9) public parks, and (10) game preserves.

benthic

pertaining to the bottom of a body of water, on or within the bottom substrate material.

Best Management Practice (BMP)

methods or measures designed and selected to reduce or eliminate the discharge of pollutants from point and nonpoint source discharges. As used in the stormwater context, BMPs are a schedule of activities, prohibitions of practices, maintains procedures and other management practices to prevent or reduce the pollution of waters of the state. BMPs include treatment requirements, operating procedures and practices to control plant site runoff, spills or leaks, sludge or waste disposal, or drainage from raw material storage.

bioaccumulation

uptake and retention of substances by an organism from its surrounding medium (usually water) and from food.

bioassay

a test to determine the relative strength of a substance by comparing its effect on a test organism with that of a standard preparation.

bioassessment

monitoring the aquatic environment to determine the health of a stream.

biodiversity



the variety of plant, animal, and microorganism species present in the ecosystem and the community structures the form.

biogeochemical cycling

the flow of chemical substances to and from the major environmental reservoirs (atmosphere, hydrosphere, lithosphere, and biosphere).

biological integrity

the ability to support and maintain balanced, integrated functionality in the natural habitat of a given region. The concept is applied primarily in drinking water management.

biological oxidation

decomposition of complex organic materials by microorganisms. Occurs in self-purification of water bodies and in activated sludge wastewater treatment.

biomonitoring

a test used to evaluate the relative potency of a chemical by comparing its effect on a living organism with the effect of a standard population on the same type of organism.

bioremediation

a process that uses living organisms to remove pollutants.

biosolids

a nutrient-rich organic material resulting from the treatment of wastewater. Biosolids contain nitrogen and phosphorus along with other supplementary nutrients in smaller doses, such as potassium, sulfur, magnesium, calcium, copper and zinc. Soil that is lacking in these substances can be reclaimed with biosolids use. The application of biosolids to land improves soil properties and plant productivity, and reduces dependence on inorganic fertilizers.

biosphere

the earth and all its ecosystems.

biota

the plant (flora) and animal life (fauna) of a region or ecosystem.

blackwater

wastewater from toilet, latrine, and aqua privy flushing and sinks used for food preparation or disposal of chemical or chemical-biological ingredients.

blinds

water samples containing a chemical of known concentration given a fictitious company name and slipped into the sample flow of the lab to test the impartiality of the lab staff.

bloom

a proliferation of algae and/or higher aquatic plants in a body of water; often related to pollution or excessive nutrients, especially when they accelerate growth.

**blowdown**

the water drawn from boiler systems and cold water basins of cooling towers to prevent the buildup of solids.

bog

a type of wetland that accumulates appreciable peat deposits. They depend primarily on precipitation for their water source, and are usually acidic and rich in plant matter with a conspicuous mat or living green moss.

boiling point

the temperature at which a liquid boils. It is the temperature at which the vapor pressure of a liquid equals the pressure on its surface. If the pressure of the liquid varies, the actual boiling point varies. For water it is 212 degrees Fahrenheit or 100 degrees Celsius.

BOD

Biochemical Oxygen Demand. A measure of the amount of oxygen required to neutralize organic wastes. The BOD of a wastewater is a characteristic reflecting treatability or stage of decomposition. Compare COD and CBOD.

boundary conditions

definition or statement of conditions or phenomena at the boundaries of a model; water levels, flows, and concentrations that are specified at the boundaries of the area being modeled.

brackish

mixed fresh and salt water.

breakpoint chlorination

addition of chlorine to the point where all organic matter and ammonia compounds have been destroyed and any additional chlorine becomes a free chlorine residual available for disinfection.

brine

highly salty and heavily mineralized water containing heavy metal and organic contaminants.

buoyancy

the tendency of a body to float or rise when immersed in a fluid; the power of a fluid to exert an upward force on a body placed in it.

C**calcium carbonate**

CACO₃ - a white precipitate that forms in water lines, water heaters and boilers in hard water areas; also known as scale.

calorie

amount of energy required to raise the temperature of 1 gram of water 1 degree Celsius.

calibration

to check, adjust, or determine by comparison that a computer model



will produce results that meet or exceed some defined criteria within a specified degree of confidence.

canopy

the overhanging cover formed by branches and foliage.

capillary action

movement of water through very small spaces due to molecular forces called capillary forces.

capillary forces

forces that cause ground water to rise above the surface of the saturated zone into the spaces between soil particles in the unsaturated zone.

capillary zone

soil area above the water table where water can rise up slightly through the cohesive force of capillary action. See [phreatophytes](#).

carbamates

a class of new-age pesticides that attack the nervous system of organisms.

carbon adsorption

a treatment system that removes contaminants from ground water or surface water by forcing it through tanks containing activated carbon treated to attract the contaminants.

carbonates

the collective term for the natural inorganic chemical compounds related to carbon dioxide that exist in natural waterways.

casing

a tubular structure intended to be watertight installed in the excavated or drilled hole to maintain the well opening and, along with cementing, to confine the ground waters to their zones of origin and prevent the entrance of surface pollutants.

cavern

a large underground opening in rock (usually limestone) which occurred when some of the rock was dissolved by water. In some igneous rocks, caverns can be formed by large gas bubbles.

CBOD

Carbonaceous Biochemical Oxygen Demand. A BOD test in which a nitrification inhibitor is added, so that only the carbonaceous oxygen demanding compounds are measured.

cement grout

a mixture of water and cement in the ratio of not more than 5-6 gallons of water to a 94 pound sack of portland cement which is fluid enough to be pumped through a small diameter pipe.

CERCLA

Comprehensive Environment Response, Compensation and Liability



Act. Also known as SUPERFUND. The Act gave EPA the authority to clean up abandoned, leaky hazardous waste sites.

certificate of water right

an official document which serves as court evidence of a perfected water right.

CFU

colony forming units. Concentrations of water quality indicator organisms such as fecal coliform bacteria are measured in cfu/100 ml.

channel

a natural or artificial watercourse that continuously or intermittently contains water, with definite bed and banks that confine all but overbanking streamflows.

channelization

natural or intentional straightening and/or deepening of streams so water moves faster and causes less flooding. Channelization can sometimes exacerbate flooding in other downstream areas.

check dam

a small dam constructed in a gully or other small water course to decrease the streamflow velocity, minimize channel erosion, promote deposition of sediment and to divert water from a channel.

chemical weathering

attack and dissolving of parent rock by exposure to rainwater, surface water, oxygen, and other gases in the atmosphere, and compounds secreted by organisms. Contrast [physical weathering](#).

Chezy's equation

the empirical equation used to estimate the hydraulic conditions of flow within a channel cross section. Alternative to Manning's equation.

Chezy's roughness

a coefficient in Chezy's equation that accounts for energy loss due to the friction between the channel and the water.

chlorination

the adding of chlorine to water or sewage for the purpose of disinfection or other biological or chemical results.

chlorine contact chamber

the part of a wastewater treatment plant where treated water is disinfected by chlorine.

chlorine demand

the difference between the amount of chlorine added to water, sewage, or industrial wastes and the amount of residual chlorine remaining at the end of a specific contact period. Compare [residual chlorine](#).

**chute spillway**

the overall structure which allows water to drop rapidly through an open channel without causing erosion. Usually constructed near the edge of dams.

circulate

to move in a circle, circuit or orbit; to flow without obstruction; to follow a course that returns to the starting point.

cistern

a tank used to collect rainwater runoff from the roof of a house or building.

clarification

the clearing action that occurs during wastewater treatment when solids settle out. Clarification is often aided by centrifugal action or chemically induced coagulation.

clarifier

a tank in which solids settle to the bottom and are subsequently removed as sludge.

Clean Water Act

federal legislation enacted in 1972 to restore and maintain the chemical, physical and biological integrity of the surface waters of the United States. The stated goals of the Act are that all waters be fishable and swimmable.

climatic cycle

the periodic changes climate displays, such as a series of dry years following a series of years with heavy rainfall.

climatic year

a period used in meteorological measurements. The climatic year in the U.S. begins on October 1.

climate

generalized weather at a given place on earth over a fairly long period; a long term average of weather. Compare weather.

cloudburst

a torrential downpour of rain, which by its spottiness and relatively high intensity suggests the bursting and discharge of water from a cloud all at once.

coagulation

in water treatment, the use of chemicals to make suspended solids gather or group together into small flocs.

COD

Chemical Oxygen Demand. A measure of the oxygen equivalent of the organic matter content of a sample that is susceptible to oxidation by a strong chemical oxidation. Differs from the BOD test in that COD uses oxygen derived from chemicals, while BOD uses



oxygen derived from air dissolved in water.

cohesion

a molecular attraction by which the particles of a body are united throughout the mass whether like or unlike. Compare [adhesion](#).

cold vapor

method to test water for the presence of mercury.

coliform bacteria

non-pathogenic microorganisms used in testing water to indicate the presence of pathogenic bacteria.

collector well

a well located near a surface water supply used to lower the water table and thereby induce infiltration of surface water through the bed of the water body to the well.

colloids

finely divided solids which will not settle but which may be removed by coagulation or biochemical action.

combined sewer

a sewer system that carries both sanitary sewage and stormwater runoff. When sewers are constructed this way, wastewater treatment plants have to be sized to deal with stormwater flows and oftentimes some of the water receives little or no treatment. Compare [separate sewer](#).

Combined Sewer Overflow (CSO)

the discharge of a mixture of storm water and domestic waste when the flow capacity of a sewer system is exceeded during rainstorms.

community water system

In Texas, a public water system which has a potential to serve at least 15 residential service connections on a year-round basis or serves at least 25 residents on a year-round basis.

completion

sealing off access of undesirable water to the well bore by proper casing and/or cementing procedures.

composite sample, weighted

a sample composed of two or more portions collected at specific times and added together in volumes related to the flow at time of collection. Compare [grab sample](#).

concentration

amount of a chemical or pollutant in a particular volume or weight of air, water, soil, or other medium.

condensation

the change of state from a gas to a liquid. Compare [evaporation](#), [sublimation](#).

conduit



a natural or artificial channel through which fluids may be conveyed.

cone of depression

natural depression in the water table around a well during pumping.

confined aquifer

an aquifer that lies between two rock layers of very low permeability. Most confined aquifers also are artesian aquifers. Compare unconfined aquifer.

confining bed or unit

a body of impermeable or distinctly less permeable material stratigraphically adjacent to one or more aquifers.

confluent growth

in coliform testing, abundant or overflowing bacterial growth which makes accurate measurement difficult or impossible.

conjunctive management

integrated management and use of two or more water resources, such as an aquifer and a surface water body.

connate water

water trapped in the pore spaces of a sedimentary rock at the time it was deposited. It is usually highly mineralized.

connectivity

refers to the movement and exchange of water, nutrients, sediments, organic matter, and organisms within a riverine ecosystem.

Connectivity occurs laterally (between the stream and its floodplain), longitudinally (along the stream), vertically (between the stream and groundwater), and temporally.

conservation

to protect from loss and waste. Conservation of water may mean to save or store water for later use.

constituent

an informal term used to describe a detectable element or component or attribute of waste or effluent.>

consolidated formation

naturally occurring geologic formations that have been lithified (turned to stone). The term is sometimes used interchangeably with the term "bedrock." Commonly, these formations will stand at the edges of a bore hole without caving.

consumptive use

the quantity of water not available for reuse. Evapotranspiration, evaporation, incorporation into plant tissue, and infiltration into groundwater are some of the reasons water may not be available for reuse. Compare nonconsumptive use.

contact recreation

activities involving a significant risk of ingestion of water, such as



wading by children, swimming, water skiing, diving and surfing.

Compare noncontact recreation.

contamination

the introduction into water of sewage or other foreign matter that will render the water unfit for its intended use.

control variables

large-scale environmental factors that control patterns found in local geomorphic features. For example, geology, soils, land use, hydrology, channel features, and valley characteristics.

conveyance loss

water loss in pipes, channels, conduits, and ditches by leakage or evaporation.

cooling tower

large tower used to transfer the heat in cooling water from a power or industrial plant to the atmosphere either by direct evaporation or by convection and conduction.

correlative rights

rights that are coequal or that relate to one another, so that any one owner cannot take more than his share.

creek

a small stream of water which serves as the natural drainage course for a drainage basin. The term is relative according to size. Some creeks in a humid region would be called rivers if they occurred in an arid area.

crest

the top of a dam, dike, or spillway, which water must reach before passing over the structure; the summit or highest point of a wave; the highest elevation reached by flood waters flowing in a channel.

critical low flow

low flow conditions below which some standards do not apply. The impacts of permitted discharges are analyzed at critical low-flow.

cross-connection

any actual or potential connection between a drinking water system and an unapproved water supply or other source of contamination.

cross-contamination

a condition created when a drill hole, boring, or improperly constructed well forms a pathway for fluid movement between a saturated zone which contains pollutants and a formerly separated saturated zone containing uncontaminated groundwater. Also, where potable water supplies and sanitary services are interconnected.

cubic foot per second (CFS)

the rate of discharge representing a volume of one cubic foot passing a given point during 1 second. This rate is equivalent to



approximately 7.48 gallons per second, or 1.98 acre-feet per day.

current

the portion of a stream or body of water which is moving with a velocity much greater than the average of the rest of the water. The progress of the water is principally concentrated in the current. See thalweg.

current velocity

the velocity of water flow in a stream, measured in units of length per unit of time, such as feet per second (fps).

cutoff

where the stream cuts through the neck of a meander bend.

D

dam

a structure of earth, rock, or concrete designed to form a basin and hold water back to make a pond, lake, or reservoir.

dead end

the end of a water main that is not connected to other parts of the distribution system.

decomposable waste

waste that under suitable natural conditions can be transformed through biological and chemical processes into compounds that do not impair water quality.

deionized water

water free of inorganic chemicals.

delta

an alluvial deposit made of rock particles (sediment, and debris) dropped by a stream as it enters a body of water.

demand

the number of units of something that will be purchased at various prices at a point in time. Compare supply.

dense non-aqueous phase liquid (DNAPL)

non-aqueous phase liquids, such as chlorinated hydrocarbon solvents or petroleum fractions, with a specific gravity greater than 1.0 that sink through the water column until they reach a confining layer. Because they are at the bottom of aquifers instead of floating on the water table, typical monitoring wells do not indicate their presence.

density

a measure of how heavy a specific volume of a solid, liquid, or gas is in comparison to water.

dental fluorosis

disorder caused by excessive absorption of fluorine and characterized by brown staining of teeth.

depletion curve



in hydraulics, a graphical representation of water depletion from storage stream channels, surface soil, and groundwater. A depletion curve can be drawn for base flow, direct runoff, or total flow.

deposit

something dropped or left behind by moving water, as sand or mud.

deposition

the laying down of material by erosion or transport by water or air.

desalination

the process of salt removal from sea or brackish water.

detection limit

the lowest level that can be determined by a specific analytical procedure or test method.

detention time

the time required for a volume of water to pass through a tank at a given rate of flow; in storage reservoirs, the length of time water will be held before being used.

detergent

synthetic washing agent that helps remove dirt and oil. Some contain compounds toxic to bacteria that are useful in the wastewater treatment process; other contain nutrients such as phosphorous that may encourage algae growth when they are in wastewater that reaches receiving waters.

detritus

decaying organic matter (mostly leaves and other matter from vegetation).

dewater

remove or separate a portion of the water in a sludge or slurry to dry the sludge so it can be handled and disposed; remove or drain the water from a tank, trench, or aquifer.

diatomaceous

consisting of or abounding in diatoms, a class of unicellular or colonial algae having a silicified cell wall that persists as a skeleton after death.

digester

in wastewater treatment, a unit in which anaerobic bacterial action is induced and accelerated in order to break down and stabilize organic matter removed from the treatment process.

diluting water

distilled water that has been stabilized, buffered, and aerated. Used in the BOD test.

dilution ratio

the critical low flow of the receiving water at the point of recycled water discharge divided by the flow of the discharge. Is used in the



biomonitoring test to simulate in-stream conditions that organisms will be exposed to during critical low-flow times.

discharge

the volume of water that passes a given point within a given period of time. It is an all-inclusive outflow term, describing a variety of flows such as from a pipe to a stream, or from a stream to a lake or ocean.

discharge permit

a permit issued by a state or the federal government to discharge effluent into waters of the state or the United States. In many states both State and federal permits are required.

discharger

any person who discharges waste that could affect the quality of state waters. The term includes any person who owns, or is responsible for the operation of, a waste management unit such as a wastewater treatment plant.

disinfectant

a chemical or physical process that kills or inactivates pathogenic organisms in water. Chlorine is the most commonly used disinfectant for recycled water, potable water supplies, wells, and swimming pools. Other disinfectants include ozone, bromine, iodine, chlorine dioxide, heat, and ultraviolet light.

disinfection

the killing of the larger portion of the harmful and objectionable bacteria in the sewage. Usually accomplished by introduction of chlorine, but more and more facilities are using exposure to ultraviolet radiation, which renders the bacteria sterile.

disinfection byproducts

halogenated organic chemicals formed when water is disinfected.

dispersion

the movement and spreading of contaminants out and down in an aquifer.

displacement

distance by which portions of the same geological layer are offset from each other by a fault.

dissolve

the process by which solid particles mix molecule by molecule with a liquid and appear to become part of the liquid.

dissolved oxygen (DO)

amount of oxygen gas dissolved in a given quantity of water at a given temperature and atmospheric pressure. It is usually expressed as a concentration in parts per million or as a percentage of saturation.

dissolved solids



inorganic material contained in water or wastes. Excessive dissolved solids make water unsuitable for drinking or industrial uses. See [TDS](#).

distillation

water treatment method where water is boiled to steam and condensed in a separate reservoir. Contaminants with higher boiling points than water do not vaporize and remain in the boiling flask.

distilled water

water that has been treated by boiling and condensation to remove solids, inorganics, and some organic chemicals.

diversion

to remove water from a water body. Diversions may be used to protect bottomland from hillside runoff, divert water away from active gullies, or protect buildings from runoff.

downgradient

the direction that groundwater flows; similar to “downstream” for surface water.

draft

the act of drawing or removing water from a tank, reservoir or groundwater supply.

drainage area

of a stream at a specified location is that area, measured in a horizontal plane, enclosed by a topographic divide from which direct surface runoff from precipitation normally drains by gravity into the stream above the specified location.

drainage reuse

reuse of agricultural drainage on salt-tolerant crops.

drainage well

a well drilled to carry excess water off agricultural fields. Because they act as a drain from the surface to the groundwater below, drainage wells can contribute to groundwater pollution.

drawdown

the drop in the water table or level of groundwater when water is being pumped from a well; the amount of water used from a tank or reservoir; the drop in the water level of a tank or reservoir.

dredging

removal of mud from the bottom of water bodies. This can disturb the ecosystem and cause silting that kills aquatic life. Dredging of contaminated mud can expose biota (the flora and fauna of a region) to heavy metals and other toxics. Dredging activities may be subject to regulation under state and federal laws.

driller's well log

a log kept at the time of drilling showing the depth, thickness, character of the different strata penetrated, location of water-bearing



strata, depth, size, and character of casing installed.

dripstone

deposits of calcium carbonate that include stalactites, stalagmites, columns, and cave pearls.

drought

although there is no universally accepted definition of drought, it is generally the term applied to periods of less than average precipitation over a certain period of time. In south Texas ranchers say drought begins as soon as it stops raining.

duplicates

two separate samples with separate containers taken at the same time at the same place.

E

ecoregion

a geographic area over which the macroclimate is sufficiently uniform to permit development of similar ecosystems on sites with similar geophysical properties.

ecosphere

total of all the ecosystems on the planet, along with their interactions; the sphere of air, water, and land in which all life is found.

ecosystem

the interacting system of a biological community and its non-living environmental surroundings; a complex system composed of a community of fauna and flora, taking into account the chemical and physical environment with which the system is interrelated.

ecotone

a transition zone between two distinctly different ecosystems or communities.

eddy viscosity

a model parameter that reproduces the effects of turbulent mixing in fluid flow.

Edwards Aquifer

an arch-shaped belt of porous, water bearing limestones composed of the Comanche Peak, Edwards, and Georgetown formations trending from west to east to northeast through Kinney, Uvalde, Medina, Bexar, Comal, Hays, Travis, and Williamson counties.

Edwards outcrop

where the Edwards and associated limestone formations are found at the surface. This area is also referred to as the Recharge Zone.

effective porosity

the portion of pore space in saturated permeable material where the movement of water takes place.

**effective precipitation**

the part of precipitation which produces runoff; a weighted average of current and antecedent precipitation "effective" in correlating with runoff. It is also that part of the precipitation falling on an irrigated area which is effective in meeting the requirements of consumptive use.

effluent

any substance, particularly a liquid, that enters the environment from a point source. Generally refers to wastewater from a sewage treatment or industrial plant.

effluent limitation

restrictions established by a a regulating agency such as a State or the EPA in an NPDES permit on quantities, rates, and concentrations in wastewater discharges.

electrodialysis

a process which uses an electrical current and an arrangement of permeable membranes to separate soluble minerals from water. It is often used to desalinate salt or brackish water.

electrofishing

a biological collection method that uses electric current to facilitate capturing fishes.

embeddedness

a measure of the degree that gravel and larger substrates are surrounded by fine particles (silt and sand).

endangered species

one having so few individual survivors that the species could soon become extinct in all or part of its region.

endemism

the characteristic of being confined to or indigenous in, a certain area or region.

enrichment

the addition of nutrients such as nitrogen and phosphorous from wastewater effluent or agricultural runoff to surface water. Enrichment greatly increases the growth potential for algae and other aquatic plants.

enteric viruses

a category of viruses related to human excreta found in waterways.

entrain

to trap bubbles in water either mechanically through turbulence or chemically through a reaction.

environment

aggregate of external conditions that influence the life of an individual organism or population.

**environmental indicator**

a measurement, statistic or value that provides evidence of the effects of environmental management programs or of the state or condition of the environment.

Environmental Impact Statement (EIS)

a document that analyzes the effects of major federal projects on the environment. Required by the National Environmental Policy Act. It must be filed with the President and the Council on Environmental Quality, and made available to the public.

EPA

Environmental Protection Agency. The federal regulatory agency responsible for protecting environmental quality throughout the nation. Also acts in an oversight role to state environmental agencies that carry out federal laws.

epilimnion

warm, less dense top layer in a stratified lake. Compare hypolimnion.

erosion

the wearing away of the land surface by wind, water, ice or other geologic agents. Erosion occurs naturally from weather or runoff but is often intensified by human land use practices.

escarpment

the topographic expression of a fault.

estuarine waters

deepwater tidal habitats and tidal wetlands that are usually enclosed by land but have access to the ocean and are at least occasionally diluted by freshwater runoff from the land (such as bays, mouths of rivers, salt marshes, lagoons).

estuarine zone

area near the coastline that consists of estuaries and coastal saltwater wetlands.

estuary

thin zone along a coastline where freshwater system(s) and river(s) meet and mix with a salty ocean (such as a bay, mouth of a river, salt marsh, lagoon).

euphotic zone

surface layer of an ocean, lake, or other body of water through which light can penetrate. Also known as the zone of photosynthesis.

eutrophic

having a large or excessive supply of plant nutrients (nitrates and phosphates). Compare oligotrophic.

eutrophication (natural)

an excess of plant nutrients from natural erosion and runoff from the land in an aquatic ecosystem supporting a large amount of aquatic



life that can deplete the oxygen supply.

evaporation

the change by which any substance is converted from a liquid state and carried off in vapor. Compare condensation, sublimation.

evapotranspiration

combination of evaporation and transpiration of water into the atmosphere from living plants and soil. Distinguish transpiration.

external cost

cost of production or consumption that must be borne by society; not by the producer.

extinction

complete disappearance of a species because of failure to adapt to environmental change.

F

facultative bacteria

bacteria that can live under aerobic or anaerobic conditions.

fecal coliform

the portion of the coliform bacteria group which is present in the intestinal tracts and feces of warm-blooded animals. A common pollutant in water.

fen

a type of wetland that accumulates peat deposits, but not as much as a bog. Fens are less acidic than bogs, deriving most of their water from groundwater rich in calcium and magnesium.

fermentation, anaerobic

process in which carbohydrates are converted in the absence of oxygen to hydrocarbons (such as methane).

field capacity

the amount of water held in soil against the pull of gravity.

filter

a device used to remove solids from a mixture or to separate materials. Materials are frequently separated from water using filters.

filtration

the mechanical process which removes particulate matter by separating water from solid material, usually by passing it through sand.

finite difference

a method of solving the governing equations of a numerical model by dividing the spatial domain into a mesh of nodes. Solution of the governing equations is approximated from values at the node locations.

finite element

a method of solving the governing equations of a numerical model by



dividing the spatial domain into elements in each of which the solution of the governing equations is approximated by a continuous function.

finite volume

a method of solving the governing equations of a numerical model by dividing the spatial domain into a mesh of nodes and corresponding volumes around each node. Solution of the governing equations is obtained from approximation of the fluxes across the boundaries of adjacent volumes.

"first in time, first in right"

phrase indicating that older water rights have priority over more recent rights if there is not enough water to satisfy all rights.

fixed ground water

water held in saturated material that it is not available as a source of water for pumping.

flashiness

a measure of a river or stream's tendency to carry a high percentage of its flow volume in large, infrequent events rather than more moderate flows that occur frequently.

flocculation

large scale treatment process involving gentle stirring whereby small particles in flocs are collected into larger particles so their weight causes them to settle to the bottom of the treatment tank.

flood

an overflow or inundation that comes from a river or other body of water and causes or threatens damage. It can be any relatively high streamflow overtopping the natural or artificial banks in any reach of a stream. It is also a relatively high flow as measured by either gage height or discharge quantity.

flood frequency

how often, on average, a discharge of a given magnitude occurs at a particular location on a stream. Usually expressed as the probability that the discharge will exceed some size in a single year (for example, the 100 year flood has a 1 percent probability of being equaled or exceeded in any one year).

floodplain

land next to a river that becomes covered by water when the river overflows its banks .

flora

plant population of a region.

flow

the rate of water discharged from a source expressed in volume with respect to time.

**flow augmentation**

the addition of water to meet flow needs.

flow duration curve

a measure of the range and variability of a stream's flow. The flow duration curve represents the percent of time during which specified flow rates are exceeded at a given location. This is usually presented as a graph of flow rate (discharge) versus percent of time that flows are greater than, or equal to, that flow.

flow meter

a gauge indicating the velocity and/or volume of a flowing liquid.

flow-sensitive habitats

habitats that show hydraulic response to relatively small changes in streamflow. Responses may be reflected in changes in depth, velocity patterns, wetted width and/or habitat area. Example are shallow-water, edge, and riffle habitats.

flowing artesian well

a special case of an artesian well where a water well drilled into a confined aquifer has enough hydraulic pressure for the water to rise to a height above ground surface and to flow at the surface without pumping.

flume

a natural or artificially made channel that diverts water.

flush

to open a cold-water tap to clear out all the water which may have been sitting for a long time in the pipes; to force large amounts of water through a system to clean out piping or tubing and storage or process tanks.

foodweb

a model structure used to represent the links between organisms within an environment, based upon the order in which various organisms consume one another.

forebay

the water behind a dam.

forfeited water right

a water right canceled because of several consecutive years of nonuse.

freeboard

the vertical distance between the lowest point along the top of a surface impoundment dike, berm, levee, treatment works or other similar feature and the surface of the liquid contained therein.

free ground water

water in interconnected pore spaces in the zone of saturation down to the first impervious barrier, moving under the control of the water



table slope.

freezing

the change of a liquid into a solid as temperature decreases. For water, the freezing point is 32 F or 0 C.

fresh water

water containing less than 1,000 parts per million (ppm) of dissolved solids of any type. Compare saline water.

fresh water inflow requirements

freshwater flows required to maintain the natural salinity, nutrient, and sediment delivery in a bay or estuary that supports their unique biological communities and ensures a healthy ecosystem.

fresh:salt water interface

the region where fresh water and salt water meet. In the Edwards region, it is commonly referred to as the "bad water line", although it is zone and not a line.

frost

a covering of minute ice crystals on a cold surface.

Froude number

a dimensionless number comparing inertial and gravitational forces. Used to quantify the resistance of an object moving through water, and compare objects of different sizes. Froude numbers greater than 1 correspond to supercritical flow, less than 1 to subcritical flow.

furrow irrigation

irrigation method in which water travels through the field by means of small channels between each group of rows.

G

gaging station

the site on a stream, lake or canal where hydrologic data is collected.

gallon

A unit of volume. A U.S. gallon contains 231 cubic inches, 0.133 cubic feet, or 3.785 liters. One U.S. gallon of water weighs 8.3 lbs.

game fish

a species such as trout, salmon, or bass, caught for sport.

gas chromatograph

an instrument that identifies the molecular composition and concentrations of various chemicals in water and soil samples.

geohydrology

a term which denotes the branch of hydrology relating to subsurface or subterranean waters; that is, to all waters below the surface.

geologic erosion

normal or natural erosion caused by geological processes acting over long geologic periods and resulting in the wearing away of mountains, the building up of floodplains, coastal plains, etc.

**geopressured reservoir**

a geothermal reservoir consisting of porous sands containing water or brine at high temperature or pressure.

geyser

a periodic thermal spring that results from the expansive force of super heated steam.

giardia lamblia

a protozoa found in the feces of infected humans and animals that can cause severe gastrointestinal ailments. It is a common contaminant of surface waters.

glacier

a huge mass of land ice that consists of recrystallized snow and moves slowly downslope or outward.

grab sample

a sample taken at a given place and time. Compare composite sample.

granular activated carbon

pure carbon heated to promote "active" sites which can adsorb pollutants. Used in some home water treatment systems to remove certain organic chemicals and radon.

grassed waterway

natural or constructed watercourse or outlet that is shaped or graded and planted in suitable vegetation for the disposal of runoff water without erosion.

greywater

wastewater from clothes washing machines, showers, bathtubs, handwashing, lavatories and sinks that are not used for disposal of chemical or chemical-biological ingredients.

groundwater

water within the earth that supplies wells and springs; water in the zone of saturation where all openings in rocks and soil are filled, the upper surface of which forms the water table.

groundwater hydrology

the branch of hydrology that deals with groundwater; its occurrence and movements, its replenishment and depletion, the properties of rocks that control groundwater movement and storage, and the methods of investigation and utilization of ground water.

groundwater law

the common law doctrine of riparian rights and the doctrine of prior appropriation as applied to ground water.

groundwater recharge

the inflow to a ground water reservoir.

groundwater reservoir



an aquifer or aquifer system in which ground water is stored. The water may be placed in the aquifer by artificial or natural means.

groundwater runoff

the portion of runoff which has passed into the ground, has become ground water, and has been discharged into a stream channel as spring or seepage water.

groundwater storage

the storage of water in groundwater reservoirs.

guild

a group of species or organisms that use the same environmental resources (habitat, food source, etc.) or life history strategy (such as reproduction) in the same way.

gully

a deeply eroded channel caused by the concentrated flow of water.

gully reclamation

use of small dams of manure and straw; earth, stone, or concrete to collect silt and gradually fill in channels of eroded soil.

H

habitat

the native environment or specific surroundings where a plant or animal naturally grows or lives. Habitat includes physical factors such as temperature, moisture, and light together with biological factors such as the presence of food or predator organisms.

habitat indicator

a physical attribute of the environment measured to characterize conditions necessary to support an organism, population, or community in the absence of pollutants. For example, salinity of estuarine waters or substrate type in streams or lakes.

hail

a form of precipitation which forms into balls or lumps of ice over 0.2 inch in diameter. Hail is formed by alternate freezing and melting as precipitation is carried up and down in highly turbulent air currents.

hardpan

a shallow layer of earth material which has become relatively hard and impermeable, usually through the deposition of minerals. In the Edwards region hardpans of clay are common.

hard water

water containing a high level of calcium, magnesium, and other minerals. Hard water reduces the cleansing power of soap and produces scale in hot water lines and appliances.

hardness (water)

condition caused by dissolved salts of calcium, magnesium, and iron, such as bicarbonates, carbonates, sulfates, chlorides, and nitrates.

**hardwood bottomland**

hardwood forested lowlands adjacent to some rivers, especially valuable for wildlife breeding, nesting, and habitat.

head

the pressure of a fluid owing to its elevation, usually expressed in feet of head or in pounds per square inch, since a measure of fluid pressure is the height of a fluid column above a given or known point.

headgate

the gate that controls water flow into irrigation canals and ditches. A watermaster regulates the headgates during water distribution and posts headgate notices declaring official regulations.

heat of vaporization

the amount of heat necessary to convert a liquid (water) into vapor.

heavy water

water in which all the hydrogen atoms have been replaced by deuterium.

herbicide

a chemical used to kill nuisance plants. Herbicides can contain pollutants found in runoff.

heterogenic aquifer

an aquifer that has a variety of forms or characteristics, such as differering permeabilities. The Edwards is highly heterogenic.

Contrast homogenous aquifer.

high flow pulses

the component of an instream flow regime that represents short-duration, in-channel, high flow events following storm events. They maintain important physical habitat features and longitudinal connectivity along the river channel.

holding pond

a small basin or pond designed to hold sediment laden or contaminated water until it can be treated to meet water quality standards or be used in some other way.

holding time

the maximum amount of time a sample may be stored before analysis.

homogenous aquifer

an aquifer that has similar forms or characteristics throughout, such as a uniform gravel aquifer. The Edwards is **not** homogenous, it is highly heterogenic.

hydraulic conductivity

the rate at which water can move through a permeable medium.

hydraulic control

a feature in a stream (such as a constriction or a weir) that controls



the upstream water surface elevation.

hydraulic gradient

the direction of groundwater flow due to changes in the depth of the water table.

hydraulic model

a computer model of a segment of river used to evaluate hydraulic conditions. Compare [hydrologic model](#).

hydraulic roughness

an estimate of the resistance to flow due to energy loss caused by friction between the channel and the water. Chezy's and Manning's roughness are two different ways to express this parameter.

hydrocarbons

chemical compounds that consist entirely of carbon and hydrogen; also referred to as volatile organic compound.

hydroelectric plant

electric power plant in which the energy of falling water is used to spin a turbine generator to produce electricity.

hydrogeology

the geology of groundwater, with particular emphasis on the chemistry and movement of water.

hydrograph

a chart that measures the amount of water flowing past a point as a function of time.

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 of time.

hydrologic basin

the drainage area upstream from a given point on a stream.

hydrologic cycle

natural pathway water follows as it changes between liquid, solid, and gaseous states; biogeochemical cycle that moves and recycles water in various forms through the ecosphere. Also called the water cycle.

hydrologic model

a computer model of a watershed used to evaluate how precipitation contributes to flow in streams. Compare [hydraulic model](#).

hydrologic unit

is a geographic area representing part or all of a surface drainage basin or distinct hydrologic feature.

hydrology

the science dealing with the properties, distribution, and circulation of water.

hydrolysis



the decomposition of organic compounds by interaction with water.

hydrometer

an instrument used to measure the density of a liquid.

hydropneumatic

a water delivery system, usually small, that maintains water pressure in the distribution system by means of pressure in a compressed air tank.

hydropower

electrical energy produced by falling water.

hygroscopic nuclei

piece of dust or other particle around which water condenses in the atmosphere. These tiny droplets then collide and coalesce, with as many as 10,000 nuclei contributing to formation of a raindrop.

hydrosphere

region that includes all the earth's liquid water, frozen water, floating ice, frozen upper layer of soil, and the small amounts of water vapor in the Earth's atmosphere.

hydrostatic head

a measure of pressure at a given point in a liquid in terms of the vertical height of a column of the same liquid which would produce the same pressure.

hydrostatic pressure

pressure exerted by or existing within a liquid at rest with respect to adjacent bodies.

hypolimnion

bottom layer of cold water in a lake. Compare [epilimnion](#).

hyporheic zone

the zone under a river or stream comprising substrate whose interstices are filled with water.

I

ice

a solid form of water.

imhoff cone

a clear, cone-shaped container used to measure the volume of settleable solids in a specific volume of water.

immiscibility

the inability of two or more substances or liquids to readily dissolve into one another, such as oil and water.

impaired water body

a water body that has been determined under state and federal law as not meeting water quality standards, or having the potential to do so in the future.

imperiled species



declining, rare, or uncommon species; species federally listed as threatened or endangered, or candidates for such; and species with limited distributions.

impermeable

material that does not permit fluids to pass through.

impervious

the quality or state of being impermeable; resisting penetration by water or plant roots. Impervious ground cover like concrete and asphalt affects quantity and quality of runoff.

impoundment

a body of water such as a pond, confined by a dam, dike, floodgate or other barrier. It is used to collect and store water for future use.

Index of Biotic Integrity

a multi-metric measure of biological condition developed from collection of data for fish or other organisms. It consists of metrics in three broad categories: species composition, trophic composition, and organism abundance and condition.

in-line filtration

a pretreatment method in which chemicals are mixed by flowing water; commonly used in pressure filtration installations.

in-situ flushing

introduction of large volumes of water, at times supplemented with cleaning compounds, into soil, waste, or groundwater to flush hazardous contaminants from a site.

in-situ oxidation

technology that oxidizes contaminants dissolved in groundwater, converting them into insoluble compounds.

in-situ stripping

treatment system that removes or strips volatile organic compounds from contaminated groundwater or surface water by forcing an air stream through the water and causing the compounds to evaporate.

in-situ vitrification

technology that treats contaminated soil in place at high temperatures, at 3,000 degrees Fahrenheit or more.

inchoate water right

an unperfected water right.

indicator organisms

microorganisms, such as coliforms, whose presence is indicative of pollution or of more harmful microorganism.

indicator parameters

measurable physical or chemical characteristics or attributes of water or soil-pore moisture used to indicate the possible presence of waste constituents, or the effects of waste constituents on waters.

**indicator tests**

tests for a specific contaminant, group of contaminants, or constituent which signals the presence of something else (ex., coliforms indicate the presence of pathogenic bacteria).

infiltration

the penetration of water through the ground surface into sub-surface soil or the penetration of water from the soil into sewer or other pipes through defective joints, connections, or manhole walls.

infiltration rate

the quantity of water that can enter the soil in a specified time interval.

inflow

entry of rainwater into a sewer system from sources other than infiltration, such as basement drains, manholes, storm drains, and street washing.

influent

water, wastewater, or other liquid flowing into a reservoir, basin, or treatment plant.

initial dilution

the process that results in the rapid and irreversible turbulent mixing of effluent and receiving water around the point of discharge.

injection well

as defined by the U.S. EPA, any bored, drilled or driven shaft, dug pit or hole in the ground into which waste or fluid is discharged, and any associated subsurface appurtenances, the depth of which is greater than the largest surface dimension of the shaft, pit or hole.

injection zone

a geological formation receiving fluids through a well.

inland freshwater wetlands

swamps, marshes, and bogs found inland beyond the coastal saltwater wetlands.

instream cover

overhanging or instream structure, such as tree roots, undercut streambanks, boulders, or aquatic vegetation that offer protection for aquatic organisms.

instream use

use of water that does not require withdrawal or diversion from its natural watercourse; for example, the use of water for navigation, recreation, and support of fish and wildlife.

interbasin transfer

the physical transfer of water from one watershed to another; regulated by the Texas Water Code.

interceptor sewer



very large sewer lines that collect the flow from main and trunk lines and carry them to treatment plants.

interface

the common boundary between two substances such as water and a solid, water and a gas, or two liquids such as water and oil.

interfacial tension

the strength of the film separating two immiscible fluids (e.g., oil and water) measured in dynes per, or millidynes per, centimeter.

intermittent stream

one that flows periodically. Compare perennial stream.

interstate water

according to law, interstate waters are defined as (1) rivers, lakes and other waters that flow across or form a part of state or international boundaries; (2) waters of the Great Lakes; (3) coastal waters whose scope has been defined to include ocean waters seaward to the territorial limits and waters along the coastline (including inland streams) influenced by the tide.

interstices

the void or empty portion of rock or soil occupied by air or water.

inert waste

waste that does not contain hazardous waste or soluble pollutants at concentrations in excess of applicable water quality objectives, and does not contain significant quantities of decomposable waste.

irrigation efficiency

the percentage of water applied, and which can be accounted for, in the soil moisture increase for consumptive use.

irrigation return flow

water which is not consumptively used by plants and returns to a surface or ground water supply. Under conditions of water right litigation, the definition may be restricted to measurable water returning to the stream from which it was diverted.

irrigation water

water which is applied to assist crops in areas or during times where rainfall is inadequate.

isotherm

line that connects points of equal temperature.

isohyet

line that connects points of equal rainfall.

J

jar test

a laboratory procedure that simulates a water treatment plant's coagulation/flocculation units with differing chemical doses, mix speeds, and settling times to estimate the minimum or ideal



coagulant dose required to achieve certain water quality goals.

jet stream

a long narrow meandering current of high-speed winds near the tropopause blowing from a generally westerly direction and often exceeding a speed of 250 miles per hour.

jetteau

a jet of water.

jetter

one (as a geyser) that sends out a jet.

jetty

a structure (as a pier or mole of wood or stone) extending into a sea, lake, or river to influence the current or tide or to protect a harbor.

K

kalema

a violent surf that occurs on the coast of the Guinea region, West Africa.

kame

a short ridge, hill, or mound of stratified drift deposited by glacial meltwater.

kame terrace

a terrace of stratified sand and and gravel deposited by streams between a glacier and an adjacent valley wall.

kelp beds

significant aggregations of a large, fast growing marine algae throughout the water column.

key habitats

flow-sensitive habitats as well as habitats that support key species.

key species

species that are targeted for instream flow assessment or more generally taxa of interest; may include lotic-adapted species, imperiled species, sport fishes, or other species related to study objectives.

kinetic energy

energy possessed by a moving object or water body.

kilogram

one thousand grams.

L

laboratory water

purified water used in the laboratory as a basis for making up solutions or making dilutions. Water devoid of interfering substances.

lag time

the time from the center of a unit storm to the peak discharge or center of volume of the corresponding unit hydrograph.

**lagoon**

a shallow pond where sunlight, bacterial action, and oxygen work to purify wastewater. Lagoons are typically used for the storage of wastewaters, sludges, liquid wastes, or spent nuclear fuel.

lake

an inland body of water, usually fresh water, formed by glaciers, river drainage etc. Usually larger than a pool or pond.

land application

discharge of wastewater onto the ground for treatment or reuse.

landscape impoundment

body of reclaimed water which is used for aesthetic enjoyment or which otherwise serves a function not intended to include contact recreation.

Langelier Saturation Index (LSI)

an index reflecting the equilibrium pH of a water with respect to calcium and alkalinity; used in stabilizing water to control both corrosion and scale deposition.

leachate

water containing contaminants which leaks from a disposal site such as a landfill or dump.

leachate collection system

a system that gathers leachate and pumps it to the surface for treatment.

leaching

extraction or flushing out of dissolved or suspended materials from the soil, solid waste, or another medium by water or other liquids as they percolate down through the medium to groundwater.

lentic system

a nonflowing or standing body of fresh water, such as a lake or pond. Compare [lotic system](#).

levee

a natural or man-made earthen obstruction along the edge of a stream, lake, or river. Usually used to restrain the flow of water out of a river bank.

limestone

rock that consists mainly of calcium carbonate and is chiefly formed by accumulation of organic remains.

limiting factor

factor such as temperature, light, water, or a chemical that limits the existence, growth, abundance, or distribution of an organism.

limnology

scientific study of physical, chemical, and biological conditions in lakes, ponds, and streams.

**Lindane**

a pesticide that causes adverse health effects when present in domestic water supplies and is toxic to freshwater fish and aquatic life.

liner

a relatively impermeable barrier designed to keep leachate inside a landfill; an insert or sleeve for sewer pipes to prevent leakage or infiltration.

liquid

a state of matter, neither gas nor solid, that flows and takes the shape of its container.

littoral zone

area on or near the shore of a body of water.

lotic-adapted species

species for which all or part of their life history is dependent on flowing water.

lotic system

a flowing body of fresh water, such as a river or stream. Compare lentic system.

M**macroinvertebrate**

an animal without a backbone, large enough to be seen without magnification and unable to pass through a 0.595 mm mesh.

macrophyte

macroscopic plants in the aquatic environment. The most common macrophytes are the rooted vascular plants that are usually arranged in zones in aquatic ecosystems and restricted in their area by the extent of illumination through the water and sediment deposition along the shoreline.

Manning's equation

an empirical equation used to estimate the average hydraulic conditions of flow within a channel cross section.

Manning's roughness

a coefficient in Manning's equation that accounts for energy loss due to the friction between the channel and the water. Many hydraulic models use this coefficient to estimate resistance to flow.

mariculture

cultivation of fish and shellfish in estuarine and coastal areas.

Compare aquiculture.

marsh

an area periodically inundated and treeless and often characterized by grasses, cattails, and other monocotyledons

MCL - Maximum Contaminant Level



the maximum level of a contaminant allowed in water by federal law. Based on health effects and currently available treatment methods.

mean column velocity

the average velocity of fluid flow measured in a column extending from the surface of the water to the bed of the channel. Often referred to simply as "velocity" or "current velocity". Compare [point velocity](#).

meander bend

a windings or sinuous section of a stream channel. May become an [oxbow lake](#) if cut off from the mainstem.

median particle size

value for which half the particles in a sample have a greater diameter and half a lesser diameter.

median streamflow

the rate of discharge of a stream for which there are equal numbers of greater and lesser flow occurrences during a specified period.

melting

the changing of a solid into a liquid.

meltwater

water that comes from the melting ice of a glacier or a snowbank.

[mermaid](#)

a fabled marine creature usually represented as having the head, trunk, and arms of a woman and a lower part like the tail of a fish.

mesohabitat

basic structural elements of a river or stream such as pools, backwaters, runs, glides, and riffles.

mesotrophic

reservoirs and lakes that contain moderate quantities of nutrients and are moderately productive in terms of aquatic animal and plant life.

meteoric water

groundwater which originates in the atmosphere and reaches the [zone of saturation](#) by infiltration and percolation.

method blank

laboratory grade water taken through the entire analytical procedure to determine if samples are being accidentally contaminated by chemicals in the lab

methyl tertiary butyl ether (MTBE)

an additive originally put in gasoline to reduce air pollution, but later found to be a source of groundwater pollution.

methoxychlor

pesticide that causes adverse health effects when found in domestic water supplies. It is also toxic to aquatic life.

methyl orange alkalinity



A measure of the total alkalinity in a water sample in which the color of methyl orange reflects the change in level.

micrograms per liter - Ug/L

micrograms per liter of water. One thousands micrograms per liter is equivalent to 1 milligram per liter. This measure is equivalent to parts per billion (ppb)

microhabitat

zones of similar physical characteristics within a mesohabitat unit, differentiated by aspects such as substrate type, water velocity, and water depth.

migration

the movement of oil, gas, contaminants, water, or other liquids through porous and permeable rock.

milligrams per liter - mg/L

milligrams per liter of water. This measure is equivalent to parts per million (ppm).

minimum streamflow

the specific amount of water reserved to support aquatic life, to minimize pollution, or for recreation. It is subject to the priority system and does not affect water rights established prior to its institution.

mixed liquor

a mixture of activated sludge and water containing organic matter undergoing treatment in an aeration tank.

mixing zone

a limited volume of receiving water that is allocated for diluting a wastewater discharge without causing adverse effects to the overall water body.

moisture content

the amount of water lost from soil upon drying to a constant weight, expressed as the weight per unit of dry soil or as the volume of water per unit bulk volume of the soil.

moisture holding capacity

the amount of liquid that can be held against gravity, by waste materials or soil, without generating free liquid.

molecule

the smallest division of a compound that still retains or exhibits all the properties of the substance.

modified Wentworth scale

a specific scale used to classify substrate particles by their diameter. Categories in this scale include boulder, cobble, pebble, gravel, sand, silt, and clay.

monitoring well



a well used to obtain water quality samples or measure groundwater levels.

monomictic

lakes and reservoirs that are relatively deep, do not freeze over during winter, and undergo a single stratification and mixing cycle during the year (usually in the fall).

mudballs

round material that forms in filters and gradually grows when not removed by backwashing.

multiple use

Use of bodies of water for more than one purpose, such as recreational purposes, fishing, and water supply.

municipal discharge

discharge of effluent from treatment plants that receive wastewater from households, commercial establishments, and industries.

municipal sewage

sewage from a community which may be composed of domestic sewage, industrial wastes or both.

municipal sludge

semi-liquid residue remaining from the treatment of municipal water and wastewater.

N

National Estuary Program

a program established under the Clean Water Act Amendments of 1987 to conserve and manage estuaries, restore and maintain their chemical, physical, and biological integrity, and control point and nonpoint pollution sources.

National Municipal Plan

a U.S. EPA policy created in 1984 to bring all publicly owned treatment works (POTWs) into compliance with Clean Water Act requirements.

National Oil and Hazardous Substances Contingency Plan

the federal regulation that guides determination of the sites to be corrected under the Superfund program, and the program to prevent or control spills into surface waters or elsewhere.

National Pollutant Discharge Elimination System (NPDES)

a provision of the Clean Water Act that prohibits discharge of pollutants into waters of the United States unless a permit is issued that complies with the Clean Water Act. In Texas, the Texas Commission on Environmental Quality (TCEQ) administers the NPDES program and issues TPDES permits.

National Priorities List (NPL)

EPA's list of the most serious uncontrolled or abandoned hazardous



waste sites identified for possible long-term remedial action under Superfund. The list is based primarily on the score a site receives from the Hazard Ranking System. EPA is required to update the NPL at least once a year. A site must be on the NPL to receive money for remedial action from the Superfund Trust Fund.

National Response Team (NRT)

representatives of 13 federal agencies that, as a team, coordinate federal responses to nationally significant incidents of pollution and provide advice and technical assistance to the responding agencies.

National Response Center

The 24-hour a day federal operations center receives notifications of all releases of oil and hazardous substances into the environment. Operated by the U.S. Coast Guard, the Center evaluates all reports and notifies the appropriate agency.

natural flow

the rate of water movement past a specified point on a natural stream. The flow comes from a drainage area in which there has been no stream diversion caused by storage, import, export, return flow, or change in consumptive use caused by man-controlled modifications to land use. Natural flow rarely occurs in a developed country.

natural resource

any form of matter or energy obtained from the environment that meets human needs.

naturalized conditions

an estimate of natural conditions obtained by attempting to remove effects of human activities from a set of measured conditions.

Navier-Stokes equations

a set of equations that describe the physics governing the motion of a fluid. In addition to applications in hydraulic studies of rivers and streams, these equations are used to model weather, ocean currents, and aerodynamics.

nephelometric

method of measuring turbidity in a water sample by passing light through the sample and measuring the amount of light deflected.

NIPDWR

National Interim Primary Drinking Water Regulations.

nitrate

a compound containing nitrogen that can exist in water as a dissolved gas. It can have harmful effects on humans and animals. Nitrates in water can cause severe illness in infants and domestic animals. A plant nutrient and inorganic fertilizer, nitrate is found in septic systems, animal feed lots, agricultural fertilizers, manure, industrial



wastewaters, sanitary landfills, and garbage dumps.

nitrogen

a plant [nutrient](#) that can cause an overabundance of bacteria and algae when high amounts are present, leading to a depletion of oxygen and fish kills. Several forms occur in water, including ammonia, nitrate, nitrite or elemental nitrogen. High levels of nitrogen in water are usually caused by agricultural runoff or improperly operating wastewater treatment plants. Also see [phosphorous](#).

non-aqueous phase liquid (NAPL)

contaminants that remain undiluted as the original bulk liquid in the subsurface, such as spilled oil.

nonconsumptive use

using water in a way that does not reduce the supply. Examples include hunting, fishing, boating, water-skiing, swimming, and some power production. Compare [consumptive use](#).

noncontact recreation

recreational pursuits not involving a significant risk of water ingestion, including fishing, commercial and recreational boating, and limited body contact incidental to shoreline activity. Compare [contact recreation](#).

nondegradation

an environmental policy that does not allow any lowering of naturally occurring water quality regardless of pre-established health standards.

nonporous

something which does not allow water to pass through it. Compare [porous](#).

nonpoint source

source of pollution in which wastes are not released at one specific, identifiable point but from a number of points that are spread out and difficult to identify and control. Compare [point source](#).

nonpotable

not suitable for drinking. Compare [potable](#).

nonthreshold pollutant

substance or condition harmful to a particular organism at any level or concentration.

NTU

nephelometric turbidity units.

nutrient

as a pollutant, any element or compound, such as [phosphorous](#) or [nitrogen](#), that fuels abnormally high organic growth in aquatic ecosystems. Also see [eutrophic](#).

**nutrient cycle**

the cyclic conversions of nutrients from one form to another within biological communities. For example, the production and release of molecular oxygen from water during photosynthesis by plants and the subsequent reduction of atmospheric oxygen to water by the respiratory metabolism of other biota.

O**oligotrophic**

having a low supply of plant nutrients. Compare eutrophic.

on-site sewage treatment

any individual residential sewage treatment and wastewater dispersal system, such as a septic system.

open system

system in which energy and matter are exchanged between the system and its environment, for example, a living organism.

operable unit

a term used by the Superfund program to describe a discrete action that comprises an incremental step toward comprehensively addressing site problems. The cleanup of a site can be divided into a number of operable units, depending on the complexity of the problems associated with the site. Operable units may address geographical portions of a site, specific site problems, or initial phases of an action, or may consist of any set of actions performed over time or any actions that are concurrent but located in different parts of a site. A typical operable unit would be removal of drums and tanks from the surface of a site.

organic chemicals

chemicals containing carbon.

organism

any form of animal or plant life.

organism abundance and condition

that portion of an Index of Biotic Integrity that is a metric measuring species abundance and condition, including proportion of individuals as hybrids and proportion of individuals with disease, tumors, physical damage, or physical anomalies.

organotins

chemical compounds used in antifoulant paints to protect the hulls of boats and ships, buoys, and pilings from marine organisms such as barnacles.

orogeny

period of mountain-building.

orographic precipitation

rainfall that occurs as a result of warm, humid air being forced to rise



by topographic features such as mountains. Precipitation on the Edwards Plateau is slightly higher because of the orographic effect of the escarpment and hills.

osmosis

the passage of a liquid from a weak solution to a more concentrated solution across a semi-permeable membrane that allows passage of the solvent (water) but not the dissolved solids.

outcrop

exposed at the surface. The Edwards limestone outcrops in its recharge zone.

outfall

the place where a wastewater treatment plant discharges treated water into the environment.

outwash

a deposit of sand and gravel formed by streams of meltwater flowing from a glacier.

overbank flows

the component of an instream flow regime that represents infrequent, high flow events that exceed the normal channel. These flows maintain riparian areas and provide lateral connectivity between the river channel and active flood plain. They may also provide life-cycle cues for various species.

overdraft

pumping water from a groundwater basin or aquifer in excess of the supply flowing into the basin; results in a depletion or “mining” of the groundwater in the basin.

overflow rate

one of the guidelines for design of the settling tanks and clarifiers in a treatment plant.

overland flow

a land application technique that cleanses wastewater by allowing it to flow over a sloped surface. As the water flows over the surface, contaminants are absorbed and the water is collected at the bottom of the slope for reuse.

oxbow

a U-shaped bend in a river or stream that may or may not be cut off from the mainstem.

oxbow lake

a U-shaped water body formed when a meander bend is cut off from the mainstem of a river or stream to create a lake.

oxygen demanding waste

organic water pollutants that are usually degraded by bacteria if there is sufficient dissolved oxygen (DO) in the water.



P

pathogen

microorganisms which can cause disease.

peak flow

in a wastewater treatment plant, the highest flow expected to be encountered under any operational conditions, including periods of high rainfall and prolonged periods of wet weather.

Peclet number

the relationship between properties of the mesh, fluid velocity, and eddy viscosity for a hydraulic computer model.

pentachlorophenol

toxic substance usually used as a wood preservative.

perched water table

groundwater standing unprotected over a confined zone.

perchloroethylene

a chlorinated solvent commonly used in dry cleaning. Also known as tetrachloroethylene.

percolation

the movement of water through the subsurface soil layers, usually continuing downward to the groundwater or water table reservoirs.

percolating waters

waters passing through the ground beneath the Earth's surface without a definite channel.

perfected water right

a water right which indicates that the uses anticipated by an applicant, and made under permit, were made for beneficial use. Usually it is irrevocable unless voluntarily canceled or forfeited due to several consecutive years of nonuse.

perennial stream

one that flows all year round. Compare [intermittent stream](#).

permeability

the ability of a water bearing material to transmit water. It is measured by the quantity of water passing through a unit cross section, in a unit time, under 100 percent hydraulic gradient.

petroleum derivatives

chemicals formed when gasoline breaks down in contact with water.

pH

numeric value that describes the intensity of the acid or basic (alkaline) conditions of a solution. The pH scale is from 0 to 14, with the neutral point at 7.0. Values lower than 7 indicate the presence of acids and greater than 7.0 the presence of alkalis (bases). Technically speaking, pH is the logarithm of the reciprocal (negative log) of the hydrogen ion concentration (hydrogen ion activity) in moles per liter.

**phenolphthalein alkalinity**

the alkalinity in a water sample measured by the amount of standard acid needed to lower the pH to a level of 8.3 as indicated by the change of color of the phenolphthalein from pink to clear.

phenols

organic compounds that are byproducts of petroleum refining; tanning; and textile, dye, and resin manufacturing. Low concentrations cause taste and odor problems in water; higher concentrations can kill aquatic life and humans.

phosphorous

a plant nutrient that can cause an overabundance of bacteria and algae when high amounts are present, leading to a depletion of oxygen and fish kills. High levels of phosphorous in water are usually caused by agricultural runoff or improperly operating wastewater treatment plants. Also see nitrogen.

phreatic zone

the area in an aquifer in which relatively all pores and fractures are saturated with water. The phreatic zone may fluctuate with changes of season and during wet and dry periods. Compare vadose zone.

phreatophytes

plants that send their roots into or below the capillary zone to use ground water.

physical weathering

breaking down of parent rock into bits and pieces by exposure to temperature and changes and the physical action of moving ice and water, growing roots, and human activities such as farming and construction. Compare chemical weathering.

physiographic province

an area with similar characteristics based on geology, soil type, and topography.

phytoplankton

free-floating, mostly microscopic aquatic plants.

piezometer

a nonpumping well, generally of small diameter, for measuring the elevation of a water table.

piezometric surface

the imaginary surface to which groundwater rises under hydrostatic pressure in wells or springs.

plankton

microscopic floating plant and animal organisms of lakes, rivers, and oceans.

plate tectonics

refers to the folding and faulting of rock and flow of molten lava



involving lithospheric plates in the earth's crust and upper mantle.

plug

cement, grout, or other material used to fill and seal a hole drilled for a water well.

plug flow

type of flow that occurs in tanks, basins, or reactors when a slug of water moves through without ever dispersing or mixing with the rest of the water flowing through.

plume

the area taken up by contaminant(s) in an aquifer.

pluvial

pertaining to precipitation.

point source

source of pollution that involves discharge of wastes from an identifiable point, such as a smokestack or sewage treatment plant. Compare nonpoint source.

point velocity

velocity measured at a single point in the water column of flowing water. Compare mean column velocity.

pollution

undesireable change in the physical, chemical, or biological characteristics of the air, water, or land that can harmfully affect the health, survival, or activities of human or other living organisms.

polychlorinated biphenyls (PCBs)

toxic industrial chemical compound substances that were used in the manufacture of plastics and as insulating fluids in electrical transformers and capacitors. Banned since 1979, PCBs continue to be found in fish/animals.

pond

a body of water usually smaller than a lake and larger than a pool either naturally or artificially confined.

porous

something which allows water to pass through it. Compare nonporous.

potable

suitable, safe, or prepared for drinking. Compare non-potable.

potentiometric surface

the surface to which water in an aquifer can rise by hydrostatic pressure. For karst aquifers like the Edwards, the potentiometric surface is not an especially meaningful concept. Every well is different, because of the complexity of the underground formation with many conduits, caverns, and different units separated by faults. The potentiometric surface is a more relevant measure when the



aquifer involved is homogenous, such as one composed of gravel.

ppb - parts per billion

number of parts of a chemical found in one billion parts of a solid, liquid, or gaseous mixture. Equivalent to micrograms per liter (Ug/L).

ppm - parts per million

number of parts of a chemical found in one million parts of a solid, liquid, or gaseous mixture. Equivalent to milligrams per liter (mg/L).

precipitate

a solid which has come out of an aqueous solution. (ex., iron from groundwater precipitates to a rust colored solid when exposed to air).

preservative

a chemical added to a water sample to keep it stable and prevent compounds in it from changing to other forms or to prevent microorganism densities from changing prior to analysis.

pretreatment

processes used to reduce, eliminate, or alter the nature of wastewater pollutants from non-domestic sources before they are discharged into publicly owned treatment works (POTWs).

price at equilibrium

where supply and demand curves intersect. The price at equilibrium is what allocates resources.

primary treatment

mechanical treatment in which large solids are screened out and suspended solids in the sewage settle out as sludge. Compare secondary treatment, tertiary treatment.

prior appropriation

a doctrine of water law that allocates the rights to use water on a first in time, first in right, basis.

priority date

the date of establishment of a water right. It is determined by adjudication of rights established before the passage of the Water Code. The rights established by application have the application date as the date of priority.

profundal zone

a lake's deep-water region that is not penetrated by sunlight.

public water system

a system for the provision to the public of water for human consumption through pipes or other constructed conveyances. In Texas, a public water system is one that serves at least 15 service connections or serve at least 25 individuals at least 60 days out of the year.

publicly-owned treatment works (POTW)

a wastewater treatment plant that is owned by a state, unit of local



government or Indian tribe, usually designed to treat domestic wastewaters. The term also may include devices and systems used by those entities in the storage, treatment, recycling and reclamation of municipal sewage or liquid industrial wastes.

puddle

a small pool of water, usually a few inches in depth and from several inches to several feet in its greatest dimension.

pump

a device which moves, compresses, or alters the pressure of a fluid, such as water or air, being conveyed through a natural or artificial channel.

pump station

mechanical device installed in sewer or water system or other liquidcarrying pipelines to move the liquids to a higher level.

pumped hydroelectric storage

storing water for future use in generating electricity. Excess electrical energy produced during a period of low demand is used to pump water up to a reservoir. When demand is high, the water is released to operate a hydroelectric generator.

pumping test

a test conducted to determine aquifer or well characteristics.

purge

to force a gas through a water sample to liberate volatile chemicals or other gases from the water so their level can be measured.

purgeable organics

volatile organic chemicals which can be forced out of the water sample with relative ease through purging.

Q

quarry water

the moisture content of freshly quarried stone, esp. if porous.

quicksilver water

a solution of mercury nitrate used in gilding.

quickwater

the part of a stream that has a strong current; an artificial current or bubbling patch of water just astern of a moving boat.

R

rain

water drops which fall to the earth from the air.

rain gage

any instrument used for recording and measuring time, distribution, and the amount of rainfall.

radionuclide

a radioactive particle, man-made or natural, with a distinct atomic



weight number. Can have a very long life as a soil or water pollutant.

radius of influence

the radial distance from the center of a wellbore to the point where there is no lowering of the water table or potentiometric surface; the edge of the cone of depression.

rating curve

a graph showing the relationship between water surface elevation and discharge of a stream or river at a given location. Also called a stage-discharge curve.

reach

in general, a length of stream with relatively homogenous characteristics.

recarbonization

process in which carbon dioxide is bubbled into water being treated to lower the pH.

receiving waters

a river, ocean, stream, or other watercourse into which wastewater or treated effluent is discharged.

recharge

refers to water entering an underground aquifer through faults, fractures, or direct absorption.

recharge rate

the quantity of water per unit of time that replenishes or refills an aquifer.

recharge zone

the area where a formation allows available water to enter the aquifer. Generally, that area where the Edwards Aquifer and associated limestones crop out in Kinney, Uvalde, Medina, Bexar, Comal, Hays, Travis, and Williamson counties and the outcrops of other formations in proximity to the Edwards limestone, where faulting and fracturing may allow recharge of the surface waters to the Edwards Aquifer.

reclaimed water

domestic wastewater that is under the direct control of a treatment plant owner/operator which has been treated to a quality suitable for a beneficial use.

recruitment

survival of young plants and animals from birth to a life stage less vulnerable to environmental change.

recurrence interval

average amount of time between events of a given magnitude. For example, there is a 1% chance that a 100-year flood will occur in any given year.

**release**

as defined by the federal Superfund program, any spilling, leaking, pumping, pouring, emitting, emptying, discharging, injecting, escaping, leaching, dumping, or disposing into the environment of a hazardous or toxic chemical or extremely hazardous substance.

remediation

methods used to remove or contain a toxic spill or hazardous materials from a Superfund site; a generic term used to describe cleanup activities.

reserves

amount of a particular resource in known locations that can be extracted at a profit with present technology and prices.

reservoir

a pond, lake, tank, or basin (natural or human made) where water is collected and used for storage. Large bodies of groundwater are called groundwater reservoirs; water behind a dam is also called a reservoir of water.

residual

amount of a pollutant remaining in the environment after a natural or technological process has occurred.

residual chlorine

the available chlorine which remains in solution after the demand has been satisfied. Compare [chlorine demand](#).

residual saturation

saturation level below which fluid drainage will not occur.

residue

the dry solids remaining after the evaporation of a sample of water or sludge.

resilience

the ability of an ecosystem to maintain or restore biodiversity, biotic integrity, and ecological structure and processes following disturbance.

Resource Conservation and Recovery Act (RCRA)

a federal statute that requires the safe management and disposal of waste generated nationwide. RCRA was passed in 1976 as an amendment to the Solid Waste Disposal Act of 1956 and was last amended in 1984. The 1984 amendments are referred to as the Hazardous and Solid Waste Amendments (HSWA). There are three RCRA interrelated programs, which include: 1) the Solid Waste Program (Subtitle D) which sets criteria for municipal solid waste and other non-hazardous waste disposal facilities and prohibits open dumping of solid waste; 2) the Hazardous Waste Program (Subtitle C) which manages hazardous waste from the time it is generated until it



is disposed (referred to as cradle to grave); and 3) the Underground Storage Tank Program (Subtitle I), which regulates underground storage, tanks storing petroleum or other hazardous substances.

response variables

environmental features of a river channel on a local or site-specific scale, such as channel shape, cross-sectional dimensions, substrate, bank shape, floodplain characteristics, vegetation, and channel patterns.

retrofitting

installing modern pollution control devices at facilities without making major changes to the facility's design.

return flow

surface water that returns to the natural environment after diversion for beneficial uses, such as for irrigation.

reverse osmosis

a water treatment method whereby water is forced through a semipermeable membrane which filters out impurities.

right of capture

the idea that the water under a person's land belongs to that person and they are free to capture and use as much as they want. Also called the "law of the biggest pump".

rill

a small channel eroded into the soil by surface runoff; can be easily smoothed out or obliterated by normal tillage.

riparian water right

the legal right held by an owner of land contiguous to or bordering on a natural stream or lake, to take water from the source for use on the contiguous land.

riparian zone

a stream and all the vegetation on its banks.

river

a natural stream of water of considerable volume.

river basin

the area drained by a river and its tributaries.

routing parameters

coefficients that, along with mathematical routing equations, can be used to estimate the attenuation and lag (time delay) associated with the movement of flow through a length of stream channel.

runoff

surface water entering rivers, freshwater lakes, or reservoirs.

S

safe yield

the annual amount of water that can be taken from a source of



supply over a period of years without depleting that source beyond its ability to be replenished naturally in “wet years.”

saline water

water containing more than 1,000 parts per million (ppm) of dissolved solids of any type. Compare fresh water.

salinity

amount of dissolved salts in a given volume of water.

salt water intrusion

the invasion of fresh surface or ground water by salt water. It may be called seawater intrusion if it comes from the ocean.

salts

minerals that cause salinity. Water may pick up salts as it passes through the air, over and under the ground, or as households and industry use it.

sand filters

devices that remove suspended solids from a wastewater treatment plant effluent or water treatment plant product.

sanitary landfill

landfill that is lined with plastic or concrete or located in clay-rich soils to prevent hazardous substances from leaking into the environment.

sanitary sewers

underground pipes that carry off only domestic or industrial waste, not storm water.

saturated zone

the area below the water table where all open spaces are filled with water under pressure equal to or greater than that of the atmosphere.

saturation

the condition of a liquid when it has taken into solution the maximum possible quantity of a given substance at a given temperature and pressure.

scour

the erosive action of running water in streams, which excavates and carries away material from the bed and banks. Or, pertaining to a place on a streambed scoured by running water.

seal

the impermeable material, such as cement grout bentonite, or puddling clay placed in the annular space between the borehole wall and the casing of a water well to prevent the downhole movement of surface water or the vertical mixing of artesian waters.

secondary treatment

second step in most waste treatment systems, in which bacteria



break down the organic parts of sewage wastes; usually accomplished by bringing the sewage and bacteria together in trickling filters or in the activated sludge process. Compare primary treatment, tertiary treatment. Compare primary treatment, tertiary treatment.

sediment

soil particles, sand, and minerals washed from the land into aquatic systems as a result of natural and human activities.

sediment trapping efficiency

the ratio of sediment retained within the reservoir to the sediment inflow to the reservoir.

sedimentary cycle

biogeochemical cycle in which materials primarily are moved from land to sea and back again.

sedimentation

a large scale water treatment process where heavy solids settle out to the bottom of the treatment tank after flocculation.

seep

a spot where water contained in the ground oozes slowly to the surface and often forms a pool; a small spring.

seepage

percolation of water through the soil from unlined canals, ditches, laterals, watercourses, or water storage facilities.

segment

a water body or portion of a water body that is individually defined and classified. A segment is intended to have relatively homogenous chemical, physical, and hydrological characteristics.

semi-confined aquifer

an aquifer partially confined by soil layers of low permeability in which recharge and discharge can still occur.

senescence

the aging process. Sometimes used to describe lakes or other bodies of water in advanced stages of eutrophication. Also used to describe plants and animals.

separate sewer

a sewer system that carries only sanitary sewage, not stormwater runoff. When a sewer is constructed this way, wastewater treatment plants can be sized to treat sanitary wastes only and all of the water entering the plant receives complete treatment at all times. Compare combined sewer.

septic system

an on-site system designed to treat and dispose of domestic sewage. A typical septic system consists of a tank that receives waste from a



residence or business and a system of drainage lines or a pit for disposal of the liquid effluent that remains after decomposition of the solids by bacteria in the tank.

septic tank

underground receptacle for wastewater from a home. The bacteria in the sewage decompose the organic wastes, and the sludge settles to the bottom of the tank. The effluent flows out of the tank into the ground through drain lines.

settleable solids

in sewage, suspended solids that will settle when the sewage is brought to a quiet state for a reasonable length of time, usually two hours.

seven-day two-year low flow (7Q2)

the lowest average streamflow for seven consecutive days within a recurrence interval of two years, as statistically determined from historical data. Used in wastewater discharge modeling and permitting to estimate the impact of an effluent discharge on a water body under low-flow conditions.

sewage

The waste and wastewater produced by residential and commercial sources and discharged into sewers.

sewerage

the entire system of sewage collection, treatment, and disposal.

shear stress

the frictional force per unit area exerted on a streambed by flowing water. An important factor in the movement of bed material and description of habitat for some organisms.

short circuiting

when some of the water in tanks or basins flows faster than the rest; shortcircuiting may result in shorter contact, reaction, or settling times than calculated or presumed.

siltation

the deposition of finely divided soil and rock particles upon the bottom of stream and river beds and reservoirs.

sinking

controlling oil spills by using an agent to trap the oil and sink it to the bottom of the body of water where the agent and the oil are biodegraded.

skimming

using a machine to remove oil or scum from the surface of the water.

sleet

precipitation which is a mixture of rain and ice.

slickensides



a smooth striated polished surface produced on rock by movement along a fault.

sludge

solid matter that settles to the bottom of sedimentation tanks in a sewage treatment plant and must be disposed of by digestion or other methods or recycled to the land.

sludge digester

tank in which complex organic substances like sewage sludge are biologically dredged. Energy is released and much of the sewage is converted to methane, carbon dioxide, and water.

slurry

a watery mixture of insoluble matter resulting from some pollution control techniques.

snow

precipitation in the form of branched hexagonal crystals, often mixed with simple ice crystals, which fall more or less continuously from a solid cloud sheet. These crystals may fall either separately or in cohesive clusters forming snowflakes.

soft water

any water that does not contain a significant amount of dissolved minerals such as salts of calcium or magnesium.

soil erodibility

An indicator of a soil's susceptibility to raindrop impact, runoff, and other eroding processes.

soil moisture

the water contained in the pore space of the unsaturated zone.

sole-source aquifer

an aquifer that supplies 50 percent or more of the drinking water of an area.

solubility

the amount of mass of a compound that will dissolve in a unit volume of solution.

solute

any substance derived from the atmosphere, vegetation, soil, or rock that is dissolved in water.

soil erosion

the processes by which soil is removed from one place by forces such as wind, water, waves, glaciers, and construction activity and eventually deposited at some new place.

species composition

that portion of an [Index of Biotic Integrity](#) that is a metric measuring the number and identity of species.

specific conductance



a measure of the ability of a water to conduct an electrical current. Specific conductance is related to the type and concentration of ions in solution and can be used for approximating the dissolved solids concentration in water. In general, for the San Antonio River basin, conductivity * .6 approximates TDS. People monitoring water quality can measure electrical conductivity quickly in the field and estimate TDS without doing any lab tests at all. See [TDS](#).

specific heat

the amount of heat required to raise the temperature of a kilogram of a substance (water) by 1 degree Celsius.

specific yield

the amount of water a unit volume of saturated permeable rock will yield when drained by gravity.

spillway

the channel or passageway around or over a dam through which excess water is diverted.

spray irrigation

application of finely divided water droplets to crops using artificial means.

spring

an issue of water from the earth; a natural fountain; a source of a body or reservoir of water.

spring melt/thaw

the process whereby warm temperatures melt winter snow and ice. Because various forms of acid deposition may have been stored in the frozen water, the melt can result in abnormally large amounts of acidity entering streams and rivers, sometimes causing fish kills.

standard solution

any solution in which the concentration is known.

stagnation

lack of motion in water that holds pollutants in place.

state revolving funds (SRF)

a program, capitalized in part by federal funds, that provides low-interest loans for construction of publicly owned wastewater treatment and water recycling facilities, for implementation of nonpoint source and storm drainage pollution control management programs, and for the development and implementation of estuary conservation and management programs.

static water depth

the vertical distance from the centerline of the pump discharge down to the surface level of the free pool while no water is being drawn from the pool or water table.

static water level



elevation or level of the water table in a well when the pump is not operating; the level or elevation to which water would rise in a tube connected to an artesian aquifer or basin in a conduit under pressure.

steady-state mass balance

the mathematical concept that the sum of upstream pollutant loads, each determined by the product of their concentration times flow, equals a resultant downstream load after mixing.

stockpond

a pond used primarily for watering livestock.

STORET

a national U.S. EPA computerized data base (Storage and Retrieval) containing both surface and groundwater chemistry data.

stormwater discharge

precipitation that does not infiltrate into the ground or evaporate due to impervious land surfaces but instead flows onto adjacent land or water areas and is routed into drain/sewer systems.

stream

a general term for a body of flowing water.

stream piracy

the tendency of one stream to capture the flow of another by eroding a channel that intercepts the other stream's flow.

stream power

a measure of energy available to move sediment, or any other particle in a stream channel. It is affected by discharge and slope.

stream segment

refers to the surface waters of an approved planning area exhibiting common biological, chemical, hydrological, natural, and physical characteristics and processes. Segments will normally exhibit common reactions to external stress such as discharge or pollutants.

streamflow

the discharge that occurs in a natural channel.

sub-basin

in general, a portion of a river basin.

subcritical flow

flow characterized by low velocity and a Froude number less than 1. When the Froude number is less than 1, gravitational forces are greater than inertial forces.

sublimation

the transition of water directly from the solid state to the gaseous state, without passing through the liquid state; or vice versa.

Compare [condensation](#), [evaporation](#).

subsidence

sinking down of part of the earth's crust due to underground



excavation, such as removal groundwater.

subsistence flows

the component of an instream flow regime that represents infrequent, naturally occurring low flow events that occur for a seasonal period of time. They maintain water quality criteria and provide sufficient habitat to ensure organism populations capable of recolonizing the river system once normal, base flows return.

supercritical flow

flow characterized by high velocity and a Froude number greater than 1. When the Froude number is greater than 1, inertial forces are greater than gravitational forces.

supercritical water

a type of thermal treatment using moderate temperatures and high pressures to enhance the ability of water to break down large organic molecules into smaller, less toxic ones. Oxygen injected during this process combines with simple organic compounds to form carbon dioxide and water.

supply

a schedule that shows the various quantities of things offered for sale at various prices at a point in time. Compare demand.

surface impoundment

an indented area in the land's surface, such a pit, pond, or lagoon.

surface irrigation

application of water by means other than spraying such that contact between the edible portion of any food crop and the irrigation water is prevented.

surface water

water that flows in streams and rivers and in natural lakes, in wetlands, and in reservoirs constructed by humans.

suspended load

specific sediment particles maintained in the water column by turbulence and carried with the flow of water.

suspended solids

the small solid particles in water that cause turbidity. Particles of suspended sediment tend to settle at the channel bottom, but upward currents in turbulent flow counteract gravitational settling.

sustainability

the long-term capacity of an ecosystem to maintain ecological processes and functions, biological diversity, and productivity.

sustainable management

method of exploiting a resource that can be carried on indefinitely. Removal of water from an aquifer in excess of recharge is, in the long term, not a sustainable management method.

**sustained overdraft**

long term withdrawal from the aquifer of more water than is being recharged.

swamp

a type of wetland dominated by woody vegetation but without appreciable peat deposits. Swamps may be fresh or salt water and tidal or non-tidal.

synthetic organic chemicals (SOCs)

man-made organic chemicals. Some SOC's are volatile, while others tend to stay dissolved in water instead of evaporating.

T**tail water**

the runoff of irrigation water from the lower end of an irrigated field.

tailings pond

An excavated or diked area that is intended to contain liquid and solid wastes from mining and milling operations.

tailrace

The channel that is downstream of the draft tube that carries the water discharged from a turbine. The draft tube is the discharge section of the turbine.

technology-based treatment requirements

NPDES permit requirements based on the application of pollution treatment or control technologies including BTP (best practicable technology), BCT (best conventional technology), BAT (best available technology economically achievable), and NSPS (new source performance standards).

tertiary treatment

removal from wastewater of traces of organic chemicals and dissolved solids that remain after primary treatment and secondary treatment.

thalweg

the line of maximum depth in a stream. The thalweg is the part that has the maximum velocity and causes cutbanks and channel migration.

thermal gradient

temperature difference between two areas.

thermal pollution

an increase in air or water temperature that disturbs the climate or ecology of an area.

thermocline

fairly thin zone in a lake that separates an upper warmer zone (epilimnion) from a lower colder zone (hypolimnion).

threatened species



Under the Federal Endangered Species Act, animal populations may be determined to be either threatened or endangered. Populations listed as threatened are less severely depleted than populations classed as endangered.

threshold pollutant

substance that is harmful to a particular organism only above a certain concentration, or threshold level.

tidal marsh

low, flat marshlands traversed by channels and tidal hollows, subject to tidal inundation; normally, the only vegetation present is salt-tolerant bushes and grasses.

TDS - total dissolved solids

the sum of all inorganic and organic particulate material. TDS is an indicator test used for wastewater analysis and is also a measure of the mineral content of bottled water and groundwater. There is a relationship between TDS and conductivity. In general, for the San Antonio River basin, TDS/.6 approximates conductivity. Or, conductivity * .6 approximates TDS. People monitoring water quality can measure electrical conductivity quickly in the field and estimate TDS without doing any lab tests at all. See [specific conductance](#).

Total Maximum Daily Load (TMDL)

a calculation of the maximum amount of a pollutant that a waterbody can receive and still meet water quality standards, and an allocation of that amount to the pollutant's sources.

toxaphene

chemical that causes adverse health effects in domestic water supplies and is toxic to fresh water and marine aquatic life.

toxic hot spot

location in enclosed bay, estuary, or any adjacent waters that has toxic pollution problems in the water or sediment in excess of applicable standards.

toxic pollutant

those pollutants or combinations of pollutants, including disease-causing agents, which after discharge and upon exposure, ingestion, inhalation or assimilation into any organism can, on the basis of information available, cause death, disease, behavioral abnormalities, cancer, genetic mutations, physiological malfunctions or physical deformation in such organism or their offspring. The quantities and exposures necessary to cause these effects can vary widely.

Toxicity Reduction Evaluation(TRE)

a study conducted to determine the source(s) of toxicity in a discharge effluent so that these sources can be controlled sufficiently to allow a discharger to comply with their permit limits.

**toxicity test**

the means to determine the toxicity of a chemical or an effluent using living organisms. A toxicity test measures the degree of response of an exposed test organism to a specified chemical or effluent.

Tragedy of the Commons

the idea that no one takes responsibility for things that everybody owns.

transmissivity

refers to the rate at which limestone allows the transmission of water. Limestone can be highly porous, but not very transmissive if the pores are not connected to each other. Technically speaking, it is the rate at which water is transmitted through a unit width of aquifer under unit hydraulic gradient. Transmissivity is directly proportional to aquifer thickness, thus it is high where the Edwards is thick and low where it is thin, given the same hydraulic conductivity.

transpiration

direct transfer of water from the leaves of living plants to the atmosphere. Distinguish evapotranspiration.

transport capacity

the capacity of a river to carry sediment in suspension or to move sediment along the riverbed.

treatment

any method, technique, or process designed to remove solids and/or pollutants from solid waste, waste-streams, and effluents.

trickle irrigation

method in which water drips to the soil from perforated tubes or emitters.

trickling filter

a treatment system in which wastewater is trickled over a bed of stones or other material covered with bacteria that break down the organic waste and produce clean water.

tributary

a stream that contributes its water to another stream or body of water.

trihalomethanes (THM)

chemical compounds in which three of the four hydrogen atoms of methane (CH₄) are replaced by halogen atoms. Widely used in industry as solvents or refrigerants. THMs are also environmental pollutants, and many are considered carcinogenic. THMs are generally by-products of chlorination of drinking water that contains organic material.

trophic composition

that portion of an Index of Biotic Integrity that is a metric measuring



the proportion of species and proportions of omnivores, insectivores, and omnivores.

trophic structure

the feeding relationships among species within a food web.

troposphere

the layer of atmosphere closest to the Earth, extending seven to ten miles above the surface, containing most of the clouds and moisture.

tube settler

device using bundles of tubes to let solids in water settle to the bottom for removal by conventional sludge collection means. Sometimes used in sedimentation basins and clarifiers to improve particle removal.

tuberculation

development or formation of small mounds of corrosion products on the inside of iron pipe. These tubercles roughen the inside of the pipe, increasing its resistance to water flow.

turbid

thick or opaque with matter in suspension. Rivers and lakes may become turbid after a rainfall.

turbidimeter

a device that measures the cloudiness of suspended solids in a liquid; a measure of the quantity of suspended solids.

turbidity

a cloudy condition in water due to suspended silt or organic matter.

U

USGS

United States Geological Survey

unclassified waters

those waters for which no classification has been assigned and which have not been identified in Appendix A of 31 Texas Administrative Code, Chapter 307.10 of Title 31 (relating to definitions).

unconfined aquifer

an aquifer containing water that is not under pressure; the water level in a well is the same as the water table outside the well. Compare confined aquifer.

unconsolidated formations

naturally occurring earth formations that have not been lithified. Alluvium, soil, gravel, clay, and overburden are some of the terms used to describe this type of formation.

undercurrent

a current below the upper currents or surface of a fluid body.

underdrain

a concealed drain with openings through which the water enters when



the water table reaches the level of the drain.

underflow

movement of water through subsurface material.

undertow

the current beneath the surface that sets seaward or along the beach when waves are breaking on the shore.

underwater

under the surface of the water; lying, growing, performed, worn, or operating below the surface of the water, as underwater caverns, underwater operation of a submarine.

unsaturated zone

the area above the water table where soil pores are not fully saturated, although some water may be present.

upflow

an upward flow.

urban runoff

storm water from city streets and adjacent domestic or commercial properties that carries pollutants of various kinds into the sewer systems and receiving waters.

V

vadose zone

the zone between land surface and the water table where the moisture content is less than saturation (except in the capillary fringe) and pressure is less than atmospheric. Soil pore space also typically contains air or other gases. The capillary fringe is included in the vadose zone. Compare phreatic zone.

validation

comparison of computer model results with a set of data that were not used for calibration.

vapor plumes

flue gases that are visible because they contain water droplets.

vegetative controls

non-point source pollution control practices that utilize vegetative cover to reduce erosion and minimize loss of pollutants.

vested water right

the right granted by a state water agency to use either surface or ground water.

virgin flow

the streamflow which exists or would exist if man had not modified the conditions on or along the stream or in the drainage basin.

void

the pore space or other openings in rock. The openings can be very small to cave size and are filled with water below the water table.

**volatile organic compounds (VOCs)**

a group of chemicals that react in the atmosphere with nitrogen oxides, heat and sunlight to form ozone; VOCs are referred to as hydrocarbons.

volatility

the tendency of a liquid to evaporate.

W**wasteload allocation**

term used in conjunction with the TMDL Program, a WLA is the portion of a receiving water's loading capacity that is allocated to one of its existing or future point sources of pollution. Discharge limits are usually required for the specific water quality criterion addressed by the TMDL.

wastewater

water containing waste including greywater, blackwater or water contaminated by waste contact, including process-generated and contaminated rainfall runoff.

water

the liquid that descends from the clouds as rain; forms streams, lakes, and seas, and is a major constituent of all living matter. It is an odorless, tasteless, colorless, very slightly compressible liquid.

water availability model

a numerical surface water flow model used to determine the availability of surface water for water right permitting.

water column

an imaginary column extending through a water body from its floor to its surface. Ambient water quality monitoring programs may seek to quantify the water quality of a representative water column. Samples may be taken from a point or points throughout the depth of the water column.

water cycle

natural pathway water follows as it changes between liquid, solid, and gaseous states; biogeochemical cycle that moves and recycles water in various forms through the ecosphere. Also called the hydrologic cycle.

water pollution

degradation of a body of water by a substance or condition to such a degree that the water fails to meet specified standards or cannot be used for a specific purpose.

water purveyor

a public utility, mutual water company, county water district, or municipality that delivers drinking water to customers.

water quality



the chemical, physical, biological, radiological, and thermal condition of water.

water quality-based toxics control

an integrated strategy used in NPDES permitting to assess and control the discharge of toxic pollutants to surface waters. There are two approaches: the whole-effluent approach involves the use of toxicity tests to measure discharge toxicity; the chemical specific approach involves the use of water quality criteria or State standards to limit specific toxic pollutants directly.

water quality criteria

scientifically derived ambient limits developed and updated by EPA, under section 304(a)(1) of the Clean Water Act, for specific pollutants of concern. Criteria are recommended concentrations, levels, or narrative statements that should not be exceeded in a waterbody in order to protect aquatic life or human health.

water quality standards

laws or regulations, promulgated under Section 303 of the Clean Water Act, that consist of the designated use or uses of a waterbody or a segment of a waterbody and the water quality criteria that are necessary to protect the use or uses of that particular waterbody. Water quality standards also contain an antidegradation statement. Every State is required to develop water quality criteria standards applicable to the various waterbodies within the State and revise them every 3 years.

water recycling

the treatment of wastewater making it suitable for reuse.

water solubility

the maximum possible concentration of a chemical compound dissolved in water.

water-soluble substance

a substance that can readily disperse through the environment.

water supplier

one who owns or operates a public water system.

water surface elevation

the elevation of a water surface above or below an established reference level, such as sea level.

water table

level below the earth's surface at which the ground becomes saturated with water. The surface of an unconfined aquifer which fluctuates due to seasonal precipitation.

water table aquifer

an aquifer confined only by atmospheric pressure (water levels will not rise in the well above the confining bed).

**water well**

any artificial excavation constructed for the purpose of exploring for or producing ground water.

Water Year

a division based on a general pattern of annual wet and dry periods rather than a calendar year. In Texas, the Water Year is from October 1 through September 30. The Water Year is designated by the calendar year in which it ends. Thus, the year ending September 30, 2009 is called the 2009 Water Year.

waterfall

a sudden, nearly vertical drop in a stream, as it flows over rock.

waterlogging

saturation of soil with irrigation water so the water table rises close to the surface.

watermaster

An employee of a water department who distributes available water supply at the request of water right holders and collects hydrographic data.

watershed

land area from which water drains toward a common watercourse in a natural basin.

watershed approach

a coordinated framework for environmental management that focuses public and private efforts on the highest priority problems within hydrologically defined geographic areas.

watershed management

water resource protection, enhancement, and restoration. Ideally, watershed management means developing a solution for each watershed that considers all its problems, includes all stakeholders in defining the problems, proposing solutions, and participating in implementing a common solution.

weather

day to day variation in atmospheric conditions. Compare [climate](#).

weir

a wall or plate placed in an open channel to measure the flow of water; a wall or obstruction used to control flow from settling tanks and clarifiers to ensure a uniform flow rate and avoid short-circuiting.

well

a bored, drilled, or driven shaft or a dug hole whose depth is greater than the largest surface dimension and whose purpose is to reach underground water supplies or oil or to store or bury fluids below ground.

wellfield



area containing one or more wells that produce usable amounts of water or oil.

well injection

the subsurface placement of fluids into a well.

well monitoring

measurement by on-site instruments or laboratory methods of well water quality.

well plug

a seal installed in a borehole or well preventing movement of fluids.

wellhead protection area

a protected surface and subsurface zone surrounding a well or well field supplying a public water system to keep contaminants from reaching the well water.

wetland

area that is regularly wet or flooded and has a water table that stands at or above the land surface for at least part of the year, such as a bog, pond, fen, estuary, or marsh.

wettability

the degree to which a fluid will spread into or coat a solid surface in the presence of other fluids into which it will not dissolve.

wettable powder

dry formulation that must be mixed with water or other liquid before it is applied.

whole-effluent toxicity

the aggregate toxic effect of an effluent measured directly by a toxicity test.

X

xeriscape

creative landscaping for water and energy efficiency and lower maintenance. The seven xeriscape principles are: good planning and design; practical lawn areas; efficient irrigation; soil improvement; use of mulches; low water demand plants; good maintenance.

Y

yield

the quantity of water expressed either as a continuous rate of flow (cubic feet per second, etc.) or as a volume per unit of time. It can be collected for a given use, or uses, from surface or groundwater sources on a watershed.

Z

zone of aeration

a region in the Earth above the water table. Water in the zone of aeration is under atmospheric pressure and will not flow into a well.

zone of saturation



the space below the water table in which all the interstices (pore spaces) are filled with water. Water in the zone of saturation is called groundwater.

zooplankton

tiny aquatic animals eaten by fish.