

ACRONYMS AND ABBREVIATIONS

A.A.C.	Arizona Administrative Code
A.R.S.	Arizona Revised Statutes
AACD	Arizona Association of Conservation Districts
ACC	Arizona Corporation Commission
ADEQ	Arizona Department of Environmental Quality
ADWR	Arizona Department of Water Resources
AF	Acre-feet
ALERT	Automated Local Evaluation in Real Time
ALRIS	Arizona Land Resource Information System
AMA	Active Management Area
APP	Aquifer Protection Permit
ARS	Agricultural Research Service
AWBA	Arizona Water Banking Authority
AWPF	Arizona Water Protection Fund
AWS	Assured Water Supply
AZGF	Arizona Game and Fish
AZMET	Arizona Meteorological Network
BIA	Bureau of Indian Affairs (U.S.)
BLM	Bureau of Land Management (U.S.)
BOR	Bureau of Reclamation (U.S.)
CAGR D	Central Arizona Groundwater Replenishment District
CAP	Central Arizona Project
CAWCD	Central Arizona Water Conservation District
CCN	Certificate of Convenience and Necessity
CDP	Census Designated Place
CERCLA	Comprehensive Environmental Response, Compensation, and Liability Act - 42 U.S.C. Section 9601 <i>et seq.</i>
cfs	Cubic feet per second
CLIMAS	Climate Assessment for the Southwest
CODE	Arizona Groundwater Management Act - A.R.S. § 45-401 <i>et seq.</i>
COE	Corps of Engineers (U.S.)
CRWUA	Colorado River Water Users Association
CU	Consumptive use
CWA	Clean Water Act - 33 U.S.C. Section 1251 <i>et seq.</i>
CWN	Clean Water Needs
Department	Arizona Department of Water Resources
DES	Arizona Department of Economic Security
DLG	Digital Line Graph
DOD	Department of Defense (U.S.)
DOE	Department of Energy (U.S.)
DOI	Department of Interior (U.S.)
DWID	Domestic Water Improvement District
EA	Environmental Assessment
EIS	Environmental Impact Statement
ENSO	El Nino/Southern Oscillation
EPA	Environmental Protection Agency (U.S.)
ESA	Endangered Species Act - 7 U.S.C. 136; 16 U.S.C. 460 <i>et seq.</i>

FMIC	Fort McDowell Indian Community
ft bls	Feet below land surface
GIS	Geographic Information System
GNIS	Geographic names information system
GPCD	Gallons Per Capita Per Day
GPHUD	Gallons Per Housing Unit Per Day
gpm	Gallons per minute
GPS	Global Positioning Station
GRIC	Gila River Indian Community
GSF	Groundwater Savings Facility
GWSI	Groundwater Site Inventory
HCN	Historic Climate Network (U.S.)
HMS	Hydrologic Map Series
HOA	Home Owners Association
HUC	Hydrologic Unit Code
HSR	Hydrographic Survey Report
IBWC	International Boundary Water Commission
ID	Irrigation District
IHS	Indian Health Service
INA	Irrigation Non-expansion Area
ISPE	Institute for the Study of Planet Earth (University of Arizona)
LAIAG	Local Area Impact Assessment Group
LCR	Little Colorado River
LCRWCC	Little Colorado River Watershed Coordinating Council
LUST	Leaking Underground Storage Tank
maf	Million acre-feet
MCL	Maximum Containment Level
mg/l	Milligrams per liter
mgd	Million gallons per day
MSCP	Multi-Species Conservation Plan
NEPA	National Environmental Policy Act - 42 U.S.C. § 4321-4347
NAU	Northern Arizona University
NDEQ	Navajo Department of Environmental Quality
NDWR	Navajo Department of Water Resources
NHA	Navajo Housing Authority
NHD	National Hydrography Data Set
NOAA	National Oceanic and Atmospheric Administration
NOI	Notice of Intent to Drill a Well
NPDES	National Pollution Discharge Elimination System
NPL	National Priorities List
NPS	National Park Service (U.S.)
NRA	National Recreation Area
NRCD	Natural Resources Conservation District
NRCS	Natural Resources Conservation Service
NTUA	Navajo Tribal Utility Authority
NWIS	National Water Information System
NWS	National Weather Service
Pan ET	Pan evaporation

PCE	Tetrachloroethylene
P.L.	Public Law
POD	Point of diversion
POU	Point of use
ppb	Parts per billion
ppm	Parts per million
PRISM	Parameter elevation Regression on Independent Slopes Model
PWC	Private Water Company
RCD	Resource Conservation District
RCRA	Resource Conservation and Recovery Act – 42 U.S.C. § 6901 <i>et seq.</i>
RRA	Reclamation Reform Act - 43 U.S.C. § 390aa <i>et seq.</i>
RVID	Round Valley Irrigation District
RWCD	Roosevelt Water Conservation District
SAWRSA	Southern Arizona Water Rights Settlement Act- P.L. 108-451 (2004)
SCAS	Spatial Climate Analysis Service
SDW	Safe Drinking Water Act- 43 U.S.C. § 300f <i>et seq.</i>
Secretary	U.S. Secretary of the Interior
SLD	Arizona State Land Department
SNOTEL	SNOWpack TELEmetry
SOC	Statement of Claimant
SPRNCA	San Pedro Riparian National Conservation Area
SRIM	Statewide riparian inventory and mapping
SRP	Salt River Project
TDS	Total dissolved solids
TEPCO	Tucson Electric Power Company
TCE	Trichloroethylene
TMDL	Total maximum daily load
TMP	Third management plan
TNC	The Nature Conservancy
UMTRA	Uranium Mill Tailings Remedial Action
USBR	U.S. Bureau of Reclamation
USDA	U.S. Department of Agriculture
USF	Underground Storage Facility
USFS	U.S. Forest Service
USFWS	U.S. Fish and Wildlife Service
USGS	U.S. Geological Survey
UST	Underground Storage Tank
VOC	Volatile organic compound
VRP	Voluntary Remediation Program
WAPA	Western Area Power Administration
WID	Water improvement district
WIFA	Water Infrastructure Funding Authority
WMAT	White Mountain Apache Tribe
WQARF	Water Quality Assurance Revolving Fund
WRCC	Western Regional Climate Center
WWTP	Wastewater treatment plant

DEFINITIONS

Acre-feet (AF): The amount of water it takes to cover one acre of land to the depth of one foot, approximately 325,851 gallons.

Active management area (AMA): A geographic area that has been designated pursuant to A.R.S. § 45-411 as requiring active management of groundwater or, in the case of the Santa Cruz AMA, active management of any water, other than stored water, withdrawn from a well. Subsequent active management areas may be designated through local initiative or by the Director of ADWR.

Advanced primary treatment: The enhanced removal of suspended solids and organic matter in the wastewater treatment process through the use of chemicals and/or filtration.

Advanced treatment I: A wastewater treatment level that is more stringent than secondary treatment and reduces the organic and inorganic substances from the treated wastewater through the use of chemical and physical techniques. It is often referred to as tertiary treatment.

Advanced treatment II: Highest level of wastewater treatment with a BOD < 10 mg/l and/or the removal of nutrients.

Agricultural water use: Water applied to two or more acres of land to produce plants or parts of plants for sale for human consumption or for use as feed for livestock, range livestock or poultry.

Aquifer: A geologic formation that contains sufficient saturated materials to be capable of storing water and transmitting water in useable quantities to a well.

Aquifer recharge: Water added to the aquifer through seepage and infiltration.

Aquifer storage: Water stored underground for future use. Also, water stored pursuant to a permit issued under A.R.S. § 45-831.01, the Underground Water Storage, Savings and Replenishment Program.

Artificial recharge: Water recharged to the aquifer through recharge projects, which may be recovered in the future based on accrued recharge credits.

Baseflow: The part of a stream discharge that is not attributable to direct runoff from precipitation or melting snow. It is sustained by groundwater discharge and may be considered as normal day-to-day flow during most of the year.

Baseline: A surveyed line that serves as a reference to which surveys are coordinated and correlated.

Basin fill: Unconsolidated material such as sand, gravel and silt, eroded from surrounding mountains and deposited in a valley.

Basin sweep: A technique used to collect information on groundwater level conditions by measuring

selected wells throughout a basin. Specific and randomly selected wells are measured to provide the best aerial and vertical coverage in the basin.

Calendar year: The 12-month period from January 1 to December 31.

Census blocks: A geographic area bounded by visible and/or invisible features shown on a map prepared by the U.S. Census Bureau. A block is the smallest geographic entity for which the Census Bureau tabulates decennial census data.

Census designated place: A geographic entity that serves as the statistical counterpart of an incorporated place for the purpose of presenting census data for an area with a concentration of population, housing, and commercial structures that is identifiable by name, but is not within an incorporated place.

Consumptive use: The part of the water demand that becomes unavailable for future use because it is evaporated or consumed by the use. Consumptive use also refers to diversions from the mainstream of the Colorado River minus the returns.

Contamination site: A geographic area where the quality of the water and/or soil quality is naturally hazardous to animals or humans or has been impaired by sewage, industrial wastes, or other materials and where remediation is either ongoing, scheduled for the future or not practicable.

Continuous flow gage: Mechanical device placed in a stream that measures the volume of water flowing at that specific location over an extended period of time.

Community Water System: A public water system, as defined in A.R.S. § 49-352(B), that serves at least fifteen service connections used by year-round residents of the area served by the system or that regularly serves at least twenty-five year-round residents of the area served by the system. A person is a year-round resident of the area served by a system if the person's primary residence is served water by that system.

Cultural water demand: The quantity of water diverted from streams and reservoirs and pumped from wells for municipal, industrial and agricultural purposes. It should not be confused with "consumptive use", which refers to the amount of cultural water demand that is lost from the hydrologic system.

Deficit irrigation: The practice of reducing the number of irrigation applications to lower crop production costs while achieving acceptable yields.

Drinking water standards: Criteria developed by the Arizona Department of Environmental Quality and other state and local agencies, the US Public Health Service, and the US Environmental Protection Agency to assure safe water for human consumption.

Drought: A sustained natural reduction in precipitation that results in negative impacts to the environment and human activity.

Dry lake: A basin that formally contained a lake.

Effluent: Water that has been collected in a sanitary sewer for subsequent treatment in a facility that is regulated as a sewage system, disposal plant or wastewater treatment facility. Such water remains effluent until it acquires the characteristics of groundwater or surface water.

Effluent dependent water: Surface waters that would generally be ephemeral, except for the discharge of treated effluent.

Ephemeral stream: A stream or part of a stream that flows only in direct response to precipitation; it receives little or no water from springs, melting snow or other sources; its channel is at all times above the water table.

Evaporation pan: An open tank used to measure the amount of evaporation. The US Department of Commerce Weather Station Class A pan is 4 feet in diameter and 10 inches deep set so the top rim is 16 inches above ground.

Evapotranspiration: Loss of water from the land through transpiration of plants and evaporation from the soil and surface water bodies.

Exempt well: Within an AMA, a well having a pump with a maximum pumping capacity of 35 gallons per minute or less, which is used to withdraw groundwater for non-irrigation purposes. This term is also used to describe any well outside an AMA having a pump with a maximum pumping capacity of 35 gallons per minute or less.

Groundwater: Generally, water below the earth's surface but commonly applied to water in fully saturated soils and geologic formations.

Groundwater flow model: A digital computer model that calculates a hydraulic head field for the modeling domain using numerical methods to arrive at an approximate solution to the differential equation of groundwater flow.

Groundwater savings facility: A facility that meets the requirements of section 45-812.01 in an active management area or an irrigation non-expansion area at which groundwater withdrawals are eliminated or reduced by recipients who use in lieu water on a gallon-for-gallon substitute basis for groundwater that otherwise would have been pumped from within that active management area or irrigation non-expansion area.

Hydrograph: A graphic representation of the changes in the flow of water or the elevation of water levels over time.

Igneous rock: A rock formed by the crystallization of magma or lava.

Impaired: A lake or stream that is not meeting one or more surface water quality standards as established in A.R.S. § 49-231

Incidental recharge: The percolation of water to the water table after the water has been used. Components of incidental recharge include recharge that occurs from septic tanks, turf watering and effluent discharge.

Index well: A well that is measured during specific periods or continuously monitored by automatic recorders. These wells allow a lower density of representative monitoring to occur in the years between “sweeps”.

Industrial demand: Water used by an industrial facility, such as a golf-course, dairy, feedlot, power plant, mine or paper mill, and that is served by the industrial facility’s well.

Inflow: All water that enters a hydrologic system. Examples include mountain front and stream channel recharge, artificial and incidental recharge and baseflow and underflow into a system.

In-lieu water: Water that is delivered to a groundwater savings facility in an AMA or INA and that is used at the facility by the recipient on a gallon for gallon substitute basis for groundwater that otherwise would have been pumped from within the AMA or INA.

Irrigation non-expansion area (INA): A geographic area that has been designated pursuant to A.R.S. §§ 45-431 or 45-432 as having insufficient groundwater to provide a reasonably safe supply for the irrigation of cultivated lands at the current rate of withdrawal.

Instream flow right: A non-diversionary surface water right for recreation and wildlife purposes, including fish.

Intermittent lake: A lake that normally contains water for only a portion of the year or one that is only seasonally dry.

Intermittent stream: A stream or part of a stream that flows only at certain times of the year when it receives water from springs, snowmelt, surface run-off or other sources.

Jurisdictional dam: Any artificial barrier, including appurtenant works, for the impounding or diversion of water, 25 feet or more in height or with storage capacity more than 50 acre-feet, except:

- (a) Any barrier that is or will be less than six feet in height, regardless of storage capacity;
- (b) Any barrier that has or will have a storage capacity of fifteen acre-feet or less, regardless of height;
- (c) Any barrier for the purpose of controlling liquid-borne material;
- (d) Any barrier that is a release-contained barrier; or
- (e) Any barrier that is owned, controlled, operated, maintained or managed by the United States government or its agents or instrumentalities if a safety program that is at least as stringent as the state safety program applies and is enforced against the agent or instrumentality.

Maximum storage capacity: Total storage space in a reservoir below the maximum attainable water surface elevation, including any surcharge storage.

Meridian: A surveyed line that serves as a reference to which surveys are coordinated and correlated.

Metamorphic rock: A rock that is the product of heat, pressure, and chemical activity so that some or all of its minerals are re-crystallized and may show preferred orientation.

Municipal demand: All non-agricultural uses of water supplied by a city, town, private water company, irrigation district, domestic water improvement district, water cooperative or private domestic well.

Non-exempt well: Within an AMA, a well having a pump with a maximum pumping capacity of more than 35 gallons per minute and used for non-irrigation purposes or any well used for irrigation purposes. This term is also frequently used to describe any well outside an AMA having a pump with a maximum pumping capacity greater than 35 gallons per minute.

Non-jurisdictional dam: An artificial barrier for impounding water that does not qualify as a jurisdictional dam.

Normal storage capacity: the total volume, in acre-feet, at the normal retention level, including dead and inactive storage and excluding flood control and surcharge storage.

Outflow: All water that leaves a hydrologic system. Examples include cultural water demand, phreatophyte use and underflow and baseflow out of the system.

Pan evaporation: Evaporation in inches from a standard Weather Bureau Class A pan.

Peak flow gage: A mechanical device that measures the maximum instantaneous discharge of a stream or river at a given location. Peak flow usually occurs at the time of maximum stage.

Perennial stream: A stream or part of a stream with surface flow throughout the year, drying only during periods of drought.

Period of record: The length of time represented in the data.

Phreatophyte: A deep-rooted plant that obtains its water from a permanent groundwater supply.

Primary treatment: The first stage in wastewater treatment where some solids and organic material are removed by screening and sedimentation. It removes about 35% of the biochemical oxygen demand (BOD) and less than half of the metals or toxic organic substances.

Range: In the U.S. Public Land Survey System, any series of contiguous townships aligned north and south and numbered consecutively east to west from a prime meridian to which it is parallel.

Recent stream alluvium: Unconsolidated clay, sand, silt or gravel that has been recently deposited, from a geological perspective, by a stream or running water along the stream channel, on its flood plain or at the base of a mountain slope.

Reference crop evapotranspiration (Eto): An estimate of the water used by a well-watered, full-cover grass surface, 8-11.5 cm in height (the reference crop).

Reservoir: An artificially created lake where water is collected and stored for future use.

Return Flow: The amount of water that reaches a groundwater or surface water source after release from the point of use and thus becomes available for further use. In other words, that part of a diverted flow, which is not consumptively used and returns to its original source or another body of water.

Run-off: The portion of precipitation that is not intercepted by vegetation, absorbed by land surfaces or evaporated and that flows overland into a depression, lake, stream or ocean.

Secondary treatment: The second stage in wastewater treatment that involves both chemical and biological processes. The screened wastewater is passed through a series of holding and aeration tanks and ponds further removing organic and inorganic substances. Disinfecting with chlorine may be included.

Secondary treatment with nutrient removal: An additional process in the secondary treatment of wastewater that removes nutrients such as nitrogen and phosphorus.

Section: In the US Public Land Survey System, one of the 36 subdivisions of a township. A section represents 1 square mile or 640 acres.

Sedimentary rock: A rock formed by the accumulation and consolidation of loose sediments in layered deposits.

Snowcourse: A permanent site where measurements of snow depth and snow water equivalent are taken at multiple locations by trained observers. A Snowcourse is generally 1,000 feet long and located in small meadows protected from the wind.

Snow water equivalent (SWE): The amount of water contained in the snowpack that would theoretically appear if the snow were melted all at once; also known as snow water content.

Spring: A place where water emerges naturally from the earth without artificial assistance onto the land surface or into a body of surface water.

Stockpond: An impoundment of any size that stores appropriable water and that is for the sole purpose of watering livestock and wildlife.

Superfund: The federal government's program to clean up the nation's uncontrolled hazardous waste sites, also known as "CERCLA," the Comprehensive Environmental Response, Compensation and Liability Act of 1980, 42 U.S.C. §§ 9601, *et seq.*

Surface water: An open body of water such as a stream, lake, or reservoir.

Surface water standards: Numeric and narrative criteria developed to ensure surface water quality for 6 designated uses; aquatic and wildlife, body contact, fish consumption, domestic water source, and agricultural use for irrigation or livestock watering.

Tertiary treatment: Wastewater treatment beyond the secondary or biological stage that includes the removal of nitrogen and phosphorus and a high percent of suspended solids through chemical and mechanical means such as additional filtration, carbon adsorption, distillation and reverse osmosis.

Township: A unit of survey in the U.S. Public Land Survey System that represents a piece of land that is bounded on the east and west sides by meridians approximately 6 miles apart.

Underflow: The downstream flow of water through permeable deposits underlying a stream.

Underground storage facility: means a constructed underground storage facility or a managed underground storage facility. “Constructed underground storage facility” means a facility that meets the requirements of section 45-811.01 and that is designed and constructed to store water underground pursuant to permits. “Managed underground storage facility” means a facility that meets the requirements of section 45-811.01 and that is designed and managed to utilize the natural channel of a stream to store water underground pursuant to permits through artificial and controlled releases of water other than surface water naturally present in the stream. Surface water flowing in its natural channel is not a managed underground storage facility.

Volcanic rock: A finely crystalline or glassy igneous rock resulting from volcanic action at or near the earth’s surface.

Water Adequacy Program: The program implementing A.R.S. § 45-108, requiring a developer of subdivided land outside an AMA to obtain a determination from the Department regarding the availability of water supplies before the land may be marketed for sale or lease to the public, unless the land will be served by a water provider designated as having an adequate water supply. Under this regulatory program, developers are required to disclose a determination that the water supply is inadequate to potential buyers.

Water duty: The amount of water that is reasonable to apply to irrigated land to produce a crop. The water duty accounts for field location and soil type, and incorporates consumptive use, evaporation and seepage from the farm water delivery system and the water that is returned to the soil via percolation and runoff.

Water year: A 12-month period beginning on October 1 and ending on September 30. The water year is designated by the calendar year in which it ends, e.g. the 2006 water year ends September 30, 2006.

Well yield: The volume of water discharged from a well in gallons per minute or cubic meters per day.

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