

Nevada Division of Water Planning

Nevada State Water Plan

PART 1 — BACKGROUND AND RESOURCE ASSESSMENT

Section 6

Glossary of Terminology

[Source: Nevada Division of Water Planning's *Water Words Dictionary*. Words presented in italics and the referenced appendices may be found in that source. Words and definitions included in this glossary which explain or summarize elements of existing water law are not intended to change that law in any way.]

(Prior) Appropriation Doctrine — The system for allocating water to private individuals used in the western United States under which (1) the right to water was acquired by diverting water and applying it to a beneficial use and (2) a right to water acquired earlier in time is superior to a similar right acquired later in time. In most states water rights are not now acquired by diverting water and applying it to a beneficial use. Such a system is referred to as the constitutional method of appropriation. Water rights are acquired by application, permit, and license, which may not require diversion and application to a beneficial use. Superiority of right is based on earliest in time and has no reference to whether two rights are for a similar use. The doctrine of *Prior Appropriation* was in common use throughout the arid west as early settlers and miners began to develop the land. The prior appropriation doctrine is based on the concept of "*First in Time, First in Right*." The first person to take a quantity of water and put it to *Beneficial Use* has a higher priority of right than a subsequent user. Under drought conditions, higher priority users are satisfied before junior users receive water. Appropriative rights can be lost through nonuse; they can also be sold or transferred apart from the land. Contrast with *Riparian Water Rights*.

Appropriative Water Right [Nevada] — Nevada's water law is based on statutes enacted in 1903 and 1905 and are founded on the principal of *Prior Appropriation*. Unlike some other states, Nevada has a statewide system for the administration of both ground water and surface water. Appropriative water rights are based on the concept of applying water to *Beneficial Use* and "*First in Time, First in Right*." Appropriative water rights can be lost through nonuse and they may be sold or transferred apart from the land. Due in large part to the relative scarcity of water in Nevada and numerous competing uses, Nevada has had a thriving market for water transfers for a number of years. A person in Nevada who desires to place water to beneficial use must file an application with the State Engineer to initiate the process of acquiring an appropriative water right. Also see *Riparian Water Rights*, *Prescribed Water Rights*, and *Reserved Water Rights (Federal)*.

Beneficial Use (of Water) — (1) The amount of water necessary when reasonable intelligence and diligence are used for a stated purpose. (2) A use of water resulting in appreciable gain or benefit to the user, consistent with state law, which varies from one state to another. Most states recognize 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;
- [10] wildlife and game preserves.

(2) The cardinal principle of the *(Prior) Appropriation Doctrine*. A use of water that is, in general, productive of public benefit, and which promotes the peace, health, safety and welfare of the people of the State. A certificated

water right is obtained by putting water to a beneficial use. The right may be lost if beneficial use is discontinued. A beneficial use of water is a use which is of benefit to the appropriator and to society as well. The term encompasses considerations of social and economic value and efficiency of use. In the past, most reasonably efficient uses of water for economic purposes have been considered beneficial. Usually, challenges have only been raised to wasteful use or use for some non-economic purpose, such as preserving instream values. Recent statutes in some states have expressly made the use of water for recreation, fish and wildlife purposes, or preservation of the environment a beneficial use. Also see *Appropriative Water Rights*.

Biodiversity — Refers to the variety and variability of life, including the complex relationships among microorganisms, insects, animals, and plants that decompose waste, cycle nutrients, and create the air that we breathe. Diversity can be defined as the number of different items and their relative frequencies. For biological diversity, these items are organized at many levels, ranging from complete *Ecosystems* to the biochemical structures that are the molecular basis of heredity.

Clean Water Act (CWA) [Public Law 92–500] — More formally referred to as the *Federal Water Pollution Control Act*, the Clean Water Act constitutes the basic federal water pollution control statute for the United States. Originally based on the *Water Quality Act* of 1965 which began setting water quality standards. The 1966 amendments to this act increased federal government funding for sewage treatment plants. Additional 1972 amendments established a goal of zero toxic discharges and “fishable” and “swimmable” surface waters. Enforceable provisions of the CWA include technology-based effluent standards for point sources of pollution, a state-run control program for nonpoint pollution sources, a construction grants program to build or upgrade municipal sewage treatment plants, a regulatory system for spills of oil and other hazardous wastes, and a *Wetlands* preservation program (Section 404).

Clean Water Act (CWA), Section 319 — A federal grant program added by Congress to the CWA in 1987 and managed by the *U.S. Environmental Protection Agency (EPA)*, Section 319 is specifically designed to develop and implement state *Nonpoint Source (NPS) Pollution* management programs, and to maximize the focus of such programs on a watershed or waterbasin basis with each state. Today, all 50 states and U.S. territories receive Section 319 grant funds and are encouraged to use the funding to conduct nonpoint source assessments and revise and strengthen their nonpoint source management programs. Before a grant is provided under Section 319, states are required to: (1) complete a Nonpoint Source (NPS) Assessment Report identifying state waters that require nonpoint source control and their pollution sources; and (2) develop Nonpoint Source Management Programs that outline four-year strategies to address these identified sources.

Clean Water Standards (EPA) — Generally refers to any enforceable limitation, control, condition, prohibition, standard, or other requirement which is promulgated pursuant to the *Federal Water Pollution Control Act (Clean Water Act) [Public Law 92–500]* or contained in a permit issued to a discharger by the *U.S. Environmental Protection Agency (EPA)* or by a state under an approved program, as authorized by Section 402 of the Clean Water Act, or by local governments to ensure compliance with pretreatment regulations as required by Section 307 of the Clean Water Act.

Designated Groundwater Basin [Nevada] — In the interest of public welfare, the Nevada State Engineer, *Division of Water Resources, Department of Conservation and Natural Resources*, is authorized by statute (Nevada Revised Statute 534.120) and directed to designate a ground water basin and declare *Preferred Uses* within such designated basin. The State Engineer has additional authority in the administration of the water resources within a designated ground water basin. [A listing of Nevada’s Hydrographic Regions, and designated Areas and Sub-Areas is presented in the NDWP’s *Water Words Dictionary* in Appendix A–1 (hydrographic regions, areas and sub-areas), Appendix A–2 (listed sequentially by area number) Appendix A–3 (listed alphabetically by area name), and Appendix A–4 (listed alphabetically by principal Nevada county(ies) in which located).]

Drought — There is no universally accepted quantitative definition of drought. Generally, the term is applied to periods of less than average or normal precipitation over a certain period of time sufficiently prolonged to cause a serious hydrological imbalance resulting in biological losses (impact flora and fauna ecosystems) and/or economic losses (affecting man). In a less precise sense, it can also signify nature’s failure to fulfill the water wants and needs of man.

Ecosystem — A community of animals, plants, and bacteria, and its interrelated physical and chemical environment.

An ecosystem can be as small as a rotting log or a puddle of water, but current management efforts typically focus on larger landscape units, such as a mountain range, a river basin, or a watershed. Also see *Biodiversity*.

Ecosystem Management — (Environmental) An approach to managing the nation’s lands and natural resources which recognizes that plant and animal communities are interdependent and interact with their physical environment (i.e., soil, water, and air) to form distinct ecological units called *Ecosystems*. The fact that these ecosystems span jurisdictional and political boundaries necessitates a more comprehensive and unified approach to managing them. Implementing the initial stage of a government-wide approach to ecosystem management typically requires clarifying the policy goals and undertaking certain practical steps to apply the principles being considered to include:

- [1] Delineating the ecosystem;
- [2] Understanding the system(s) ecologies;
- [3] Making management choices;
- [4] Unifying disparate data and information needs and sources; and
- [5] Adapting management on the basis of new information.

Endangered Species — Any plant or animal species threatened with extinction by man-made or natural changes throughout all or a significant area of its range; identified by the Secretary of the Interior as “endangered”, in accordance with the 1973 *Endangered Species Act (ESA)*, below. [See Appendix D–1, Nevada’s Endangered and Threatened Species.]

Endangered Species Act (ESA) — An act passed by Congress in 1973 intended to protect species and subspecies of plants and animals that are of “aesthetic, ecological, educational, historical, recreational and scientific value.” It may also protect the listed species’ “critical habitat”, the geographic area occupied by, or essential to, the protected species. The *U.S. Fish and Wildlife Service (USFWS)* and the *National Marine Fisheries Service (NMFS)* share authority to list endangered species, determine critical habitat and develop recovery plans for listed species. Currently, approximately 830 animals and 270 plants are listed as endangered or threatened nationwide at Title 50, Part 17, sections 11 and 12 of the Code of Federal Regulations. Further, under a settlement with environmental groups, USFWS has agreed to propose listing another 400 species over the next few years. The 1973 Endangered Species Act superseded and strengthened the *Endangered Species Preservation Act* of 1966 and the *Endangered Species Conservation Act* of 1969. The 1973 provisions required that the act be re-authorized by Congress every five years.

“First in Time, First in Right” — A phrase indicating that older water rights have priority over more recent rights if there is not enough water to satisfy all rights. See (*Prior Appropriation Doctrine* and *Appropriative Water Rights*).

Gage, or Gauge — (1) An instrument used to measure magnitude or position; gages may be used to measure the elevation of a water surface, the velocity of flowing water, the pressure of water, the amount of intensity of precipitation, the depth of snowfall, etc. (2) The act or operation of registering or measuring magnitude or position. (3) The operation, including both field and office work, of measuring the discharge of a stream of water in a waterway.

Great Basin [Nevada] — An area covering most of Nevada and much of western Utah and portions of southern Oregon and southeastern California consisting primarily of arid, high elevation, desert valleys, sinks (playas), dry lake beds, and salt flats. The Great Basin is characterized by the fact that all surface waters drain *inward* to terminal lakes or sinks. Principal excluded regions within Nevada include the extreme north-central portion of the state whose waters drain northward into the Snake River Basin, thence to the Columbia River and finally to the Pacific Ocean, and the south-eastern portion of Nevada whose surface waters drain into the Colorado River Basin, thence to the Gulf of California (Mexico) and the Pacific Ocean. Within this area referred to as the Great Basin, major river drainage areas include:

- [1] **Truckee River**, whose source is Lake Tahoe (Basin) and whose terminus is Pyramid Lake in western Nevada;
- [2] **Carson River**, whose west and east forks originate along the eastern slopes of the Sierra Nevada Mountains and whose terminus is the Carson Sink (Playa) in west-central Nevada;
- [3] **Walker River**, whose west and east fork tributaries also originate along the eastern slopes of the Sierra Nevada Mountains and whose terminus is Walker Lake in western Nevada; and

[4] **Humboldt River**, the only major river wholly contained in Nevada, whose principal source is the Ruby Mountains in eastern Nevada and whose terminus is the Carson Sink (Playa) in west-central Nevada. Pyramid Lake and Walker Lake in western Nevada represent the remnants of the ancient *Lake Lahontan*, an *Ice Age* lake that covered a considerable portion of northwestern Nevada during the Pluvial Period of some 75,000–10,000 years ago. The Great Salt Lake in western Utah, the last major remnant of the ancient Ice Age Lake Bonneville, which covered a large portion of what is now the Utah portion of the Great Basin, is also contained within this area and acts as the terminus for surface water drainage from the western slopes of the Wasatch Range in north-central Utah.

Ground Water, also Groundwater — (1) Generally, all subsurface water as distinct from *Surface Water*; specifically, the part that is in the saturated zone of a defined aquifer. (2) Water that flows or seeps downward and saturates soil or rock, supplying springs and wells. The upper level of the saturate zone is called the Water Table. (3) Water stored underground in rock crevices and in the pores of geologic materials that make up the earth's crust. Ground water lies under the surface in the ground's *Zone of Saturation*, and is also referred to as *Phreatic Water*.

Integrated (Water) Resource Planning (IRP) — A comprehensive, interdisciplinary approach to water resource planning that encompasses water resource assessment, demand considerations, analysis of alternatives, risk management, resource diversity, environmental considerations, least-cost analysis, multidimensional modeling, and participatory decision making and public input, among other factors. Integrated Resource Planning begins with specific policy objectives that are applied to extensive lists of options for water supply sources, distribution systems, or other operational requirements. The options are then narrowed after evaluating demand requirements, environmental impacts, conservation options, costs, risks, and other aspects of a project. IRP involves a dynamic process of assessing demand and supply conditions and creatively integrating alternatives and new technologies. While the concepts of IRP are relatively new to the process of water planning, it has been used extensively in the energy industry. As a planning process it helps decision makers select the best mix of water resources, facilities, and conservation measures to meet water demands. In addition to traditional planning techniques, IRP also

- [1] Includes extensive public involvement;
- [2] Considers both supply-side (resources and facilities) and demand-side (conservation) alternatives as ways of meeting demands;
- [3] Considers goals and objectives in addition to dollar costs (e.g., environmental concerns, public acceptability, etc.);
- [4] Considers uncertainty in demand forecasts, regulations, etc.; and
- [5] Considers the effect of water rates on water demands.

Interbasin Transfer (of Water) — A transfer of water rights and/or a diversion of water (either groundwater or surface water) from one *Drainage or Hydrographic Basin* to another, typically from the basin of origin to a different hydrologic basis. Also referred to as *Water Exports* and/or *Water Imports*.

Interstate Allocation [Nevada and California] — An agreement between the states of Nevada and California over the use of the waters of Lake Tahoe and the Truckee, Carson, and Walker rivers which was ratified by California (1970) and Nevada (1971), but was never ratified by Congress. Despite this, both states have enacted legislation to enforce to the allocation of the Truckee, Carson, and Walker rivers between these two states. Subsequently, in 1990 many of the compact's provisions dealing with the waters of Lake Tahoe and the Truckee and Carson rivers became formalized under *Public Law 101–618* (the *Negotiated Settlement*).

Interstate Water Compact — (1) Broadly, an agreement between two or more states regarding competing demands for a water resource which are beyond the legal authority of one state alone to solve. (2) States administer water rights within their own political boundaries; however, the process becomes more complicated when involving an interstate body of water (*Interstate Water*). Under these conditions there are three possible ways to achieve an interstate allocation of water: (1) A suit for equitable apportionment brought by the states in the U.S. Supreme Court; (2) a Congressional act; and (3) an interstate compact. An interstate compact is an agreement negotiated between states, adopted by their state legislatures, and then approved by Congress. Once an allocation of interstate water is determined by such a means, the individual states may then issue water rights to its share of the water through their normal administrative process. Interstate compacts have been traditionally used in making water allocations in the western states. Also see *Interstate Allocation [Nevada and California]*.

Interstate Waters — 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; and (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.

Intrabasin Transfer (of Water) — Transfers of water within the same water basin or hydrographic area.

Junior (Water) Rights — A junior water rights holder is one who holds rights that are temporarily more recent than senior rights holders. All water rights are defined in relation to other users, and a water rights holder only acquires the right to use a specific quantity of water under specified conditions. Therefore, when limited water is available, junior rights are not met until all senior rights have been satisfied. See *Prior Appropriation Doctrine*.

National Economic Development — One of the two main objectives of planning for water and related land resources by governmental agencies whose activities involve planning and development of water resources. Such activities are reflected in the increase in the nation's productive output, an output which is partly reflected in a national product and income accounting framework to measure the continuing flow of goods and services into direct consumption or investment.

National Environmental Policy Act (NEPA) — A 1970 Act of Congress that requires all federal agencies to incorporate environmental considerations into their decision-making processes. The act requires an *Environmental Impact Statement (EIS)* for any "major federal action significantly affecting the quality of the human environment."

National Flood Insurance Program (NFIP) — A federal program enabling property owners in participating communities to purchase insurance protection against losses from flooding. This insurance is designed to provide an alternative to disaster assistance to meet the escalating costs of repairing damage to buildings and their contents caused by floods. Participation in the NFIP is based on an agreement between local communities and the federal government that if a community will implement and enforce measures to reduce future flood risks to new construction in Special Flood Hazard Areas (SFHA), then the federal government will make flood insurance available to protect against flood losses that do occur. The NFIP was established by Congress through the passage of the National Flood Insurance Act of 1968. Features of the program were modified and extended with the 1973 passage of the Flood Disaster Protection Act, and other legislative measures. The NFIP is administered by the Federal Insurance Administration (FIA), which is a component part of the *Federal Emergency Management Agency (FEMA)*.

Navigable Waters [Nevada] — In Nevada bodies of water are navigable if they are used, or are susceptible of being used, in their ordinary condition as highways for commerce, over which trade and travel are or may be conducted in the customary modes of trade and travel on water. In Nevada, this test of navigability (*State of Nevada v. Julius Bunkowski, et al.*, 1972) held that the Carson River was navigable, and therefore the State of Nevada owned its bed, as logs were floated down the river from about 1860 to 1895 (the commerce requirement).

Perennial Yield (Ground Water) — The amount of usable water of a ground water reservoir that can be withdrawn and consumed economically each year for an indefinite period of time. It cannot exceed the sum of the *Natural Recharge*, the *Artificial (or Induced) Recharge*, and the *Incidental Recharge* without causing depletion of the groundwater reservoir. Also referred to as *Safe Yield*.

Perfected Water Right — (1) A completed or fully executed water right. A water right is said to have been perfected when all terms and conditions associated with it have been fully accomplished, e.g., the diversion has been effected and the water applied to beneficial use. (2) A water right to which the owner has applied for and obtained a permit, has complied with the conditions of the permit, and has obtained a license or certification of appropriation. (3) 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. Also referred to as a *Certified Water Right*. Also see *Appropriation Doctrine*.

Permit — (1) (Water Right) A written document which grants authority to take unused water and put it to *Beneficial Use*. If all requirements of the permit are satisfied, then the permit for water appropriation can mature into a license or *Perfected Water Right*. (2) (Discharge) A legally binding document issued by a state or federal permit agency to the owner or manager of a point source discharge. The permit document contains a schedule of compliance requiring the permit holder to achieve a specified standard or limitation (by constructing treatment facilities or modifying plant processes) by a specified date. Permit documents typically specify monitoring and reporting requirements to be conducted by the applicant as well as the maximum time period over which the permit is valid. Also see *Application, Water Right*.

Permit, Water [Nevada] — The written permission from the state engineer to appropriate public waters for a beneficial use from a surface or underground source, at a specific point of diversion, under limited circumstances. If all requirements of the permit are satisfied, then the permit for water appropriation can mature into a license or *Perfected Water Right*. Also see *Permitted Water Right [Nevada]*, and *Application, Water Right*.

Planning — A comprehensive study of present trends and of probable future developments, together with recommendations of policies to be pursued. Planning embraces such subjects as population growth and distribution; social forces; availability of land, water, minerals, and other natural resources; technological progress; and probable future revenues, expenditures, and financial policies. Planning must be responsive to rapidly changing conditions.

Planning Horizon — The overall time period considered in the planning process that spans all activities covered in or associated with the analysis or plan and all future conditions and effects or proposed actions which would influence the planning decisions.

Policy — (Water Planning) A statement of governmental intent against which individual actions and decisions are evaluated. The wording of policies conveys the level of commitment to action, for example, policies which use the word “shall” are mandatory directives, while those using the word “should” are statements of direction to be followed unless there are compelling reasons to do otherwise.

Preferred Use — A use given some sort of preference not given other uses. Preference can take many forms, depending on state law. One type of use, such as domestic use, may be preferred over others when there are competing applications to appropriate the same water. Persons having water rights for preferred use may be entitled to take water before those having rights for other uses, regardless of their relative priorities. A person needing water for a preferred use may be authorized to condemn (i.e., to buy in a forced judicial sale) water being used for non-preferred purposes. Also see *Designated Ground Water Basin* and *Designated Ground Water Basin [Nevada]*.

Preferred Use [Nevada] — In the interest of public welfare, the state engineer is authorized and directed to designate preferred uses of water within the respective areas so designated by him and from which the ground water is being depleted. In acting on applications to appropriate ground water, he may designate such preferred uses in different categories with respect to the particular areas involved within the following limits: domestic, municipal, quasi-municipal, industrial, irrigation, mining and stock-watering uses and any uses for which a county, city, town, public water district or public water company furnishes the water.

Prescribed Water Rights — (1) Water rights to which legal title is acquired by long possession and use without protest of other parties. (2) Water use rights gained by trespass or unauthorized taking that ripen into a title; on a par with rights to land gained through adverse possession. To perfect the right, the use of water must be adverse, hostile, open and continuous for five continuous years against the recognized water rights holder. Contrast with *Appropriative Water Rights*, *Riparian Water Rights*, and *Littoral Water Rights*.

Prior Appropriation Doctrine — (1) A concept in water law under which a right to a given quantity of water is determined by such a procedure as having the earliest *Priority Date*. (2) The system for allocating water to private individuals used in most of the western United States. The doctrine of *Prior Appropriation* was in common use throughout the arid west as early settlers and miners began to develop the land. The prior appropriation doctrine is based on the concept of “*First in Time, First in Right*”. The first person to take a quantity of water and put it to *Beneficial Use* has a higher priority of right than a subsequent user. Under drought conditions, higher priority users are satisfied before junior users receive water. Appropriative rights can be lost through nonuse; they can also be sold or transferred apart from the land. Contrasts with *Riparian Doctrine* and *Riparian Water Rights*. Also see *Littoral Water Rights* and *Prescribed Water Rights*.

Priority — The concept that the person first using water has a better right to it than those commencing their use later. An appropriator is usually assigned a “priority date”. However, the date is not significant in and of itself, but only in relation to the dates assigned other water users from the same source of water. Priority is only important when the quantity of available water is insufficient to meet the needs of all those having a right to use water. See (*Prior Appropriation Doctrine* and *Appropriative Water Rights*).

Priority Date — The date of establishment of a water right; the officially recognized date associated with a water right. The rights established by application have the application date as the date of priority. Relative to other water rights, the priority date may make a water right senior (predating other rights) or junior (subordinate to other rights). See (*Prior Appropriation Doctrine* and *Appropriative Water Rights*).

Public Interest, or Public Welfare — An interest or benefit accruing to society generally, rather than to any individuals or groups of individuals in the society. In many states, a permit to appropriate water must be denied if the appropriation would be contrary to the public interest or public welfare. These terms are sometimes vague

and state engineers or others administering the water permit systems generally have viewed narrowly the authority granted under such provisions. In some cases they have restricted their consideration to matters of economic efficiency or the effects of the proposed appropriation on existing or future use for the water and have not considered such things as the environmental effects. However, recent developments, such as state environmental policy acts or legislation addressing specific public interest criteria, have placed new emphasis on this issue. Also see *Public Trust Doctrine*.

Public Scoping — The process of soliciting public comments on the issues to be examined in environmental documents such as an *Environmental Impact Statement (EIS)* or water planning documents. The process can be carried out by public meetings, soliciting written comments, or both. The identification of issues, alternatives, impacts, mitigation and/or monitoring all may be addressed during the scoping process.

Public Trust Doctrine — (1) A vaguely defined judicial doctrine under which the state holds its navigable waters and underlying beds in trust for the public and is required or authorized to protect the public interest in such waters. All water rights issued by the state are subject to the overriding interest of the public and the exercise of the public trust by state administrative agencies. (2) Based in Roman Law, the Public Trust Doctrine holds that certain resources belong to all the people and are therefore held in trust by the state for future generations. Since the 1970s, court rulings have expanded the concept of public trust to protect not only the traditional uses of navigation, commerce, and fishing, but also ecological preservation, open space maintenance, and scenic and wildlife habitat preservation. In a 1983 landmark ruling by the California Supreme Court (*National Audubon Society v. Superior Court of Alpine County*), the court held that water right licenses held by the City of Los Angeles and its Department of Water and Power to divert water from streams tributary to Mono Lake remain subject to ongoing State of California supervision under the public trust doctrine and could be curtailed or revoked, if necessary, to protect the public trust. The court held that public trust uses must be considered and balanced when the rights to divert water away from *Navigable* bodies of water are to be considered. Therefore, in issuing or reconsidering any rights to appropriate or divert water, the state must balance public trust needs with the needs for other beneficial uses of water. Also see *Equal Footing Doctrine (U.S. Constitution)* and *Public Interest, or Public Welfare*.

Reasonable Use — A rule with regard to percolating or riparian water restricting the landowner to a reasonable use of his own rights and property in view of and qualified by the similar rights of others, and the condition that such use not injure others in the enjoyment of their rights.

Reasonable Use Theory — A *Riparian Owner* may make reasonable use of his water for either natural or artificial wants. However, he may not so use his rights so as to affect the quantity of quality of water available to a lower riparian owner.

Reservation Doctrine, Reserved Rights Doctrine, and Winters Doctrine (or Winters Rights) — The legal rule which states that when the United States reserves public lands for a particular purpose it also reserves sufficient water to accomplish that purpose. Those who initiate water rights after the date of the reservation are subject to the reserved right. The doctrine was first announced by the United States Supreme Court in the case of *Winters v. United States*, 207 U.S. 564 (1908), involving a dispute between an Indian reservation and a rancher. For many years it was thought that the doctrine only applied to Indian reservations, but in recent years it has been extended to other types of federal reservations, such as national parks and forests. Also see *Winters Rights (Decision)* and *Practically Irrigable Acreage (PIA)*.

Reserved Water Rights (Federal) — (1) A category of federal water rights, created by federal law and recognized by judicial decision. These rights are created when the federal government withdraws land from the public domain to establish a federal reservation such as a national park, forest, or Indian reservation. By this action, the government is held to have reserved water rights sufficient for the primary purpose for which the land was withdrawn. (2) This class of water rights is a judicial creation derived from *Winters v. United States* (207 U.S. 564, 1907) and subsequent federal case law, which collectively hold that when the federal government withdraws land from general use and reserves it for a specific purpose, the federal government by implication reserves the minimum amount of water unappropriated at the time the land was withdrawn or reserved to accomplish the primary purpose of the reservation. Federal reserved water rights may be claimed when Congress has by statute withdrawn lands from the public domain for a particular federal purpose or where the President has withdrawn lands from the public domain for a particular federal purpose pursuant to congressional authorization. The right to such water is not lost by nonuse, and its priority date is the date the land was set aside. Also see *Winters Rights (Decision)*, *Reservation Doctrine*, *Reserved Rights Doctrine*, and *Winters Doctrine (or Winters Rights)*, and *Water Law [Federal]*.

Riparian Doctrine — The system for allocating water used in England and the eastern United States, in which owners of lands along the banks of a stream or water body have the right to *Reasonable Use* of the waters and a *Correlative Right* protecting against unreasonable use by others that substantially diminishes the quantity or quality of water. The right is appurtenant to the land and does not depend on prior use. Under this doctrine, ownership of land along a stream or river (i.e., riparian lands) is an absolute prerequisite to a right to use water from that body of water and each such landowner has an equal right to withdraw “reasonable” amounts of water (whether or not he is presently using it or not) so long as downstream landowners are not unreasonably damaged. Contrast with *Prior Appropriation Doctrine*.

Safe Drinking Water Act [SDWA] (Public Law 93–523) — An amendment to the *Public Health Service Act* which established primary and secondary quality standards for drinking water. The SDWA was passed in 1976 to protect public health by establishing uniform drinking water standards for the nation. In 1986 SDWA Amendments were passed that mandated the *U.S. Environmental Protection Agency (EPA)* to establish standards for 83 drinking water contaminants by 1992 and identify an additional 25 contaminants for regulation every 3 years thereafter. See *Drinking Water Standards, Drinking Water Standards [Nevada], Primary Drinking Water Standards, and Secondary Drinking Water Standards*. [Also see Appendix B–3, Nevada Drinking Water Standards of the *Water Words Dictionary*.]

Senior Rights — A senior rights holder is one who holds rights that are older (more senior) than those of junior rights holders. All water rights are defined in relation to other users, and a water rights holder only acquires the right to use a specific quantity of water under specified conditions. Thus, when limited water is available, senior rights are satisfied first in the order of their *Priority Date*.

Snowpack Telemetry (SNOTEL) — A remote, automated measurement system operated and maintained by the *Natural Resources Conservation Service (NRCS)* in the western United States to assess snowpack accumulation and potential streamflows. The concept is based upon the relationship between the water content in the snowpack and spring runoff under certain assumptions. Forecasts of runoff are made through the coordination of hydrologists with the NRCS and the *National Weather Service (NWS)*. A typical SNOTEL site consists of: (1) a precipitation measurement tube which measures the actual level of precipitation in inches of equivalent water; (2) a snow “pillow” which measures the weight of the snowpack and therefore its water content, and (3) the measurement and transmitting equipment which send the data to NRCS collection offices.

Socioeconomics — The study of the economic, demographic, and social interactions of humans.

Stream — A general term for a body of flowing water; natural water course containing water at least part of the year. In *Hydrology*, the term is generally applied to the water flowing in a natural channel as distinct from a canal. More generally, as in the term *Stream Gaging*, it is applied to the water flowing in any channel, natural or artificial. Some classifications of streams include, *in relation to time*:

- [1] **Ephemeral Streams** — Streams which flow only in direct response to precipitation and whose channel is at all times above the water table.
- [2] **Intermittent or Seasonal Streams** — Streams which flow only at certain times of the year when it receives water from springs, rainfall, or from surface sources such as melting snow.
- [3] **Perennial Streams** — Streams which flow continuously.

And, *in relation to ground water*:

- [4] **Gaining Streams** — Streams or a reach of a stream that receive water from the zone of saturation. Also referred to as an *Effluent Stream*.
- [5] **Insulated Streams** — Streams or a reach of a stream that neither contribute water to the zone of saturation nor receive water from it. Such streams are separated from the zones of saturation by an impermeable bed.
- [6] **Losing Streams** — Streams or a reach of a stream that contribute water to the zone of saturation. Also referred to as an *Influent Stream*.
- [7] **Perched Streams** — Perched streams are either losing streams or insulated streams that are separated from the underlying ground water by a zone of aeration.

Surface Water — (1) An open body of water such as a stream, lake, or reservoir. (2) Water that remains on the earth’s surface; all waters whose surface is naturally exposed to the atmosphere, for example, rivers, lakes, reservoirs, ponds, streams, impoundments, seas, estuaries, etc., and all springs, wells, or other collectors directly influenced by surface water. (3) A source of drinking water that originates in rivers, lakes and run-off from melting

snow. It is either drawn directly from a river or captured behind dams and stored in reservoirs. Also see *Ground Water Under the Direct Influence (UDI) of Surface Water*.

Transfer (Water Right) — (1) The process of transferring a water right from one person to another. (2) A passing or conveyance of title to a water right; a permanent assignment as opposed to a temporary lease or disposal of water. Most states require that some formal notice or filing be made with an appropriate state agency so that the transaction is officially recorded and the new owner is recorded as the owner of the water right.

Truckee–Carson–Pyramid Lake Water Rights Settlement Act of 1990 — See *Negotiated Settlement*.

Underground Injection Control (UIC) — A program required in each state by a provision of the *Safe Drinking Water Act (SDWA)* for the regulation of *Injection Wells*, including a permit system. An applicant must demonstrate that the well has no reasonable chance of adversely affecting the quality of an underground source of drinking water before a permit is issued.

Usufruct, also Usufructuary — (Legal–Civil Law) The right of enjoying a thing, the property of which is vested in another, and to draw from the same all the profit, utility, and advantage which it may produce, provided it be without altering the substance of the thing. For example, in Nevada, the state’s water belongs to the people, but is permitted, through the water rights permitting process, to be used beneficially by other individuals or entities.

Usufructuary (Water) Right — (1) A right to use rather than own the property of another, such as the state’s water. (2) A water right holder’s authority to divert and use a certain amount of water. See *Usufruct*.

Vested Water Right — (1) The water right to use either surface or ground water acquired through more or less continual beneficial use prior to the enactment of water law pertaining to the source of the water. These claims become final through *Adjudication*. (2) A fully executed or finalized appropriative right to use the waters of a state for a beneficial purpose. Also see *Certificated Water Right* and *Perfected Water Right*.

Water Administration (and Management) — A broad term referring to the collective role of defined state agencies to implement state and federal water laws, commonly through the development and implementation of appropriate statutes and regulations. This role can include oversight, approval, and enforcement responsibilities.

Water Duty [Nevada] — The *Alpine Decree* and *Orr Ditch Decree* provide the basis for virtually all irrigation water duties relating to water diversions from the Truckee, Carson, and Walker rivers in Northern Nevada. These decrees provide for an annual maximum irrigation duty of 4.5 acre-feet per acre for water-righted *Bench Lands* and 3.5 acre-feet per acre for water-righted *Bottom Lands* delivered to farm headgates. These duties are based on the *Crop Water Requirement* on the irrigation of alfalfa, as it is the most prominent crop and the highest water-using crop grown in the *Newlands (Irrigation) Project* in west-central Nevada. However, neither decree identifies lands as to bottom or bench. This has created considerable controversy, particularly within the Newlands Project, which constitutes a principal water user of both Carson River waters and Truckee River (diverted) waters. Also see *Alpine Decree [California and Nevada]*, *Orr Ditch Decree [Nevada and California]*, *Bench Lands [Nevada]*, and *Bottom Lands [Nevada]*.

Water Law — A law that has been instigated to control the right to the use of water. See (*Prior Appropriation Doctrine* and *Riparian Doctrine*).

Water Law [Federal] — Except when provided by federal law, e.g., *Federal Reserved (Water) Rights*, federal water rights must satisfy the administration and permitting process of the state in which the federal project is located. An important 1978 U.S. Supreme Court case (*California v. United States*) held that unless state law conflicted with clear Congressional directives, the federal government must obtain water rights under state law for reclamation purposes. Under the federal reserved rights concept, the federal government reserves sufficient water rights when it withdraws land from the public domain to establish a federal reservation such as a national park or Indian reservation. Also see *Reservation Doctrine*, *Reserved Rights Doctrine*, and *Winters Doctrine* and *Winters Rights (Decision)*.

Water Law [Nevada] — Nevada’s water law is based on the *Prior Appropriation Doctrine*. Furthermore, unlike some other states, Nevada has a statewide system for the administration of both ground water and surface water. *Appropriative Water Rights* are based on the concept of applying water to *Beneficial Use* and “*First in Time, First in Right*”. Appropriative water rights can be lost through nonuse and they may be sold or transferred apart from the land. Due in large part to the relative scarcity of water in Nevada and numerous competing uses, Nevada has

had a thriving market for water transfers for a number of years. Water rights in Nevada are administered by the State Engineer. Also see *Application*, *Water Right*, *Riparian Doctrine*, *Riparian Water Rights*, *Littoral Water Rights*, *Prescribed Water Rights*, and *Reserved Water Rights*.

Water Management — (1) (General) Application of practices to obtain added benefits from precipitation, water, or water flow in any of a number of areas, such as irrigation, drainage, wildlife and recreation, water supply, watershed management, and water storage in soil for crop production. Includes *Irrigation Water Management* and *Watershed Management*. (2) (Irrigation Water Management) The use and management of irrigation water where the quantity of water used for each irrigation is determined by the water-holding capacity of the soil and the need for the crop, and where the water is applied at a rate and in such a manner that the crop can use it efficiently and significant erosion does not occur. (3) (Watershed Management) The analysis, protection, development, operation, or maintenance of the land, vegetation, and water resources of a drainage basin for the conservation of all its resources for the benefit of its residents. Watershed management for water production is concerned with the quality, quantity, and timing of the water which is produced. Also see *Basin Management*.

Water Plan — A document of issues, policies, strategies and action plans intended to effectively and economically execute a *Water Planning* process. Also see *Water Policy*.

Water Planning — Water planning is an analytical planning process developed and continually modified to address the physical, economic, and sociological dimensions of water use. As a planning process it must assess and quantify the available supply of water resources and the future demands anticipated to be levied upon those resources. Based upon this continuous supply and demand evaluation, water planning must also give direction for moving water supplies to points of use while encouraging users to be good and effective stewards of available water resources. The water planning process requires constant re-evaluation and updating to address changing social, political, economic, and environmental parameters. While the ultimate objective of such efforts is typically the development of a comprehensive, publicly-supported *Water Plan*, it is also critical to develop and maintain a comprehensive and viable water planning process that covers various aspects of water resource development, transport, water treatment, allocation among various competing uses, conservation, waste-water treatment, re-use, and disposal. Also see *Water Policy*.

Water Resource Plan — A planning document or process which assesses both sources and uses of water and develops strategies for their most effective and efficient use according to public needs and criteria. Also see *Water Plan*, *Water Planning*, and *Water Policy*.

Water Right — (1) The legal right to use a specific quantity of water, on a specific time schedule, at a specific place, and for a specific purpose. (2) A legally-protected right, granted by law, to take possession of water occurring in a water supply and to put it to *Beneficial Use*. (3) A legal right to divert state waters for a beneficial purpose.

Water-Righted Acreage — The land base for which there are water rights.

Water Rights — (1) The legal rights to the use of water. (2) A grant, permit, decree, appropriation, or claim to the use of water for beneficial purposes, and subject to other rights of earlier date or use, called *Priority* or *Prior Appropriation*. They consist of *Riparian Water Rights*, *Appropriative Water Rights*, *Prescribed Water Rights*, and *Reserved Water Rights*. Also see *Water Law*, *Water Law [California]*, *Water Law (Federal)*, and *Water Law [Nevada]*.

Water Rights, Correlative Doctrine — When a source of water does not provide enough for all users, the water is reapportioned proportionately on the basis of prior water rights held by each user.

Water Use — The amount of water needed or used for a variety of purposes including drinking, irrigation, processing of goods, power generation, and other uses. The amount of water used may not equal the amount of water withdrawn due to water transfers or the recirculation or recycling of the same water. For example, a power plant may use the same water a multiple of times but withdraw a significantly different amount. Also see *Water Use, Types*, below.

Water Use Practices — Direct, indirect, consumptive, and nonconsumptive uses of water. These include domestic practices (e.g., washing, bathing, cooking, drinking), navigation, wildlife habitat management, irrigation practices, recreation activities, industrial uses, and hydroelectric power generation.

Water Use, Types — The use of water may be classified by specific types according to distinctive uses, such as the following:

- [1] Commercial Water Use
- [2] Domestic Water Use
- [3] Hydroelectric Power Water Use

- [4] Irrigation Water Use
- [5] Livestock Water Use
- [6] Mining Water Use
- [7] Navigational Water Use
- [8] Other Water Use
- [9] Public Water Use (same as *Utility Water Use*)
- [10] Residential Water Use (same as *Domestic Water Use*)
- [11] Rural Water Use
- [12] Thermoelectric Power Water Use

Watermaster — Often an employee of a court hired to administer a court decree. Also may be an employee of a water department who distributes available water supplies at the request of water rights holders and collects hydrographic data. Also refers to a position within an irrigation project that is responsible for the internal distribution of project water.

Watershed — (1) An area that, because of topographic slope, contributes water to a specified surface water drainage system, such as a stream or river. (2) All lands enclosed by a continuous hydrologic drainage divide and lying upslope from a specified point on a stream; a region or area bounded peripherally by a water parting and draining ultimately to a particular water course or body of water. Also referred to as *Water Basin* or *Drainage Basin*. (3) A ridge of relatively high land dividing two areas that are drained by different river systems. Also referred to as *Water Parting*.

Watershed Management — The analysis, protection, development, operation or maintenance of the land, vegetation and water resources of a drainage basin for the conservation of all its resources for the benefit of its residents. Watershed management for water production is concerned with the quality and timing of the water which is produced. Also referred to as *Water Management* and *Basin Management*.

Watershed Planning — The formulation of a plan, based on the concept of a *Watershed*, a *Water Basin*, a *Hydrologic Region*, or a *Hydrologic Study Area (HSA)*, with the intent to assess climatological conditions, inventory existing ground and surface water resources, determine current water uses, project future socioeconomic and environmental demands for those resources, and explore feasible water-balancing options, so as to maximize the benefits to the inhabitants of a study area while simultaneously preserving and protecting the region's wildlife, habitat, and environmental conditions.

Wellhead Protection (Program) — Programs intended to protect and preserve the quality of ground water used as a source of drinking water. A typical wellhead protection program will have a number of critical elements to include: (1) delineating the roles and responsibilities of state agencies, local governments, and water purveyors; (2) delineation of wellhead protection areas; (3) contaminant source inventories; (4) management options; (5) siting of new wells; (6) contingency and emergency planning; and (7) public participation. Typically, steps taken to protect and preserve the quality of a well are far less costly than actions necessary to restore a contaminated well.

Wetlands [Nevada] — (State Wildlife Management Areas) Wetlands are those areas that are inundated or saturated by surface or groundwater at a frequency or duration sufficient to support, and that under normal conditions do support, a prevalence of vegetation typically adapted for life in saturated soil conditions. Wetlands typically include swamps, marshes, bogs, playas, springs, seeps, and similar areas. Wetlands are land transitional between terrestrial and aquatic systems where the water table is usually at or near the surface, or the land is covered by shallow water.

Winters Doctrine — The doctrine of (federal) reservation rights. See *Winters Rights (Decision)*.

Winters Rights (Decision) — The U.S. Supreme Court precedent decision (*Winters v. United States*, 207 U.S. 564 [1908]) in which the Court prohibited any uses by non-Indians that interfered with the Indian tribes' use of their reserved water. In *Winters*, the Court held that when reservations were established, Indian tribes and the United States implicitly reserved, along with the land, sufficient water to fulfill the purposes of the reservations. The ruling rests on the principle that Indian tribes retain all rights not explicitly relinquished. These federal reserved water rights are commonly known as *Winters Rights* as based on the *Winters Doctrine*. The court recognized these rights as having a priority date coinciding with the date the reservation was established, thus providing a means to integrate federally reserved rights with *Appropriative Water Rights* recognized under state law. Since reserved rights are not created by state law, *Winters Rights* retain their validity and seniority regardless of whether tribes have put the water to *Beneficial Use*. On-going conflicts concerning this ruling tend to involve non-Indian water users appropriating water under state law, water that previously may have been reserved for Indian tribes, though never quantified by courts or fully used on reservations. Also see *Reservation Doctrine*, *Reserved Rights Doctrine*,

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and Winters Doctrine, Practicably Irrigable Acreage (PIA), (Prior) Appropriation Doctrine, and Water Law [Federal].

Yield, Firm — The maximum annual supply of a given water development that is expected to be available on demand, with the understanding that lower yields will occur in accordance with a predetermined schedule or probability. Sometimes referred to as *Dependable Yield*.

Yield, Perennial — The amount of usable water of a ground-water reservoir that can be economically withdrawn and consumed each year for an indefinite period of time. It cannot exceed the sum of the *Natural Recharge*, the *Artificial (or Induced) Recharge*, and the *Incidental Recharge* without causing depletion of the groundwater reservoir. Also referred to as *Safe Yield*.

Yield, Safe — With reference to either a surface- or ground-water supply, the rate of diversion or extraction for *Consumptive Use* which can be maintained indefinitely, within the limits of economic feasibility, under specified conditions of water-supply development. Also see *Perennial Yield*.