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### Water Organizations in the West

Patricia Mulroy

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**WATER ORGANIZATIONS IN THE WEST**

**Patricia Mulroy  
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Las Vegas Valley Water District  
Southern Nevada Water Authority**

**Water Organizations in a Changing West**

**Natural Resources Law Center  
University of Colorado School of Law  
June 14-16, 1993**

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**I. LAS VEGAS VALLEY WATER DISTRICT**

**A. History**

The Las Vegas Valley Water District (District) was created by special act of the Nevada Legislature in 1947. At that time, the Union Pacific Railroad owned and operated the Las Vegas Land and Water Company (LVL&W), the principal provider of water to Las Vegas. Beyond the city limits many small private water companies had also developed. In 1952, the Railroad agreed to sell LVL&W to the District for \$2.5 million. The District issued bonds in 1954 to raise funds for that purchase and for construction of facilities to deliver Colorado River water from Lake Mead through the Basic Management Inc. (BMI) system in Henderson to Las Vegas. The District officially began operation on July 1, 1954, and the first delivery of water from the BMI system to Las Vegas was accomplished on September 26, 1955.

In 1960, design began on the two-stage Southern Nevada Water System (SNWS) to treat and transmit Lake Mead water to Las Vegas. Construction of the 200 mgpd first stage began in 1968. In 1971, the first water from the SNWS was delivered to Las Vegas. Construction of the second stage began in 1977 and was completed in 1982, increasing system capacity to 400 million gallons per day.

The District is the largest purveyor of drinking water in Nevada, with 85% of water delivered being supplied by the SNWS; the remaining 15% is groundwater pumped from District wells. A statistical comparison of "then" and "now":

	<u>1954</u>	<u>1992</u>
Producing Wells	11	41
Reservoirs	2	16
Pumping Stations	10	18
Miles of Pipe	116	1,854
Customer Accounts	8,405	143,394
Water Production	5.2 billion gal.	80.0 billion gal. (incl. art. recharge)
Average Consumption	14.2 mgpd	204.0 mgpd
Population Served	40,760 (est)	640,000 (est)

**B. Conservation - "Leadership by Example"**

1. Water conservation is the District's first step in protecting its valuable natural resource and assuring adequate future water supplies. Effective water management through conservation and research will help optimize current and future water resources. Conservation is the cheapest "new" source of water, and can be achieved through regulations, voluntary measures and effective public education. Several ordinances have been adopted:
  - a. Landscape guidelines for new development
  - b. Prohibition of man-made lakes for recreational, scenic or decorative purposes, and restriction of the use of other water features
  - c. Definition and procedures for enforcing "water waste"
2. The District has also implemented numerous internal conservation procedures, such as:
  - a. Utilizing a consumption threshold based on service size
  - b. Metering all water uses
  - c. Pressure testing of new construction
  - d. Cathodic protection and monitoring
  - e. Reservoir rehabilitation, well rehabilitation and water main replacement programs, and valve exercising and meter maintenance programs
  - f. Rapid response to reports of system leaks and investigation of high bill inquiries
  - g. Utilization of a Supervisory Control And Data Acquisition (SCADA) computer system to identify flow by pressure zone, reservoir storage and pump operation, enabling rapid response to emergencies

### C. Research Projects

In addition to conservation programs, the District is involved in several research projects to further extend and protect Las Vegas' current water supply. These include:

#### 1. Artificial Recharge

The District injects treated Colorado River water into the groundwater system in the Las Vegas Valley in the low-demand winter months for use in higher demand periods. The program began in 1988, when 1,150 acre-feet was injected; approximately 16,000 acre-feet was stored in 1992. The District has the largest deep-well injection program in the world.

#### 2. Shallow Water Aquifer

Although the water in the Las Vegas Valley's near-surface shallow aquifer is not suitable for human consumption, it may be a viable source of water for irrigating turf areas during peak summer demands. The District, in conjunction with Clark County Comprehensive Planning, the University of Nevada College of Agriculture, and the Nevada Cooperative Extension have initiated a study to that will evaluate the application of this water to turfgrass.

#### 3. Evapotranspiration

The District, the University of Nevada College of Agriculture, and the Nevada Cooperative Extension conducted a study of water use and evapotranspiration rates of various turfgrasses and trees common to the Las Vegas area. This information is publicized for area residents to use in scheduling landscape irrigation.

#### 4. Urban Runoff

Surface water runoff from urban areas may gather contaminants which can ultimately reach Lake Mead

via the Las Vegas Wash. In a project with the Desert Research Institute, the District is attempting to quantify the chemistry of surface flows in selected drainages in an effort to protect the water quality in Lake Mead.

D. Public Education Program

The District's public education program targets schools, businesses, resorts, governmental agencies, residential users, and developers. Among the methods used to reach the various target markets are:

1. A speakers bureau available to groups and businesses
2. Brochures, handbooks and pamphlets on a variety of water related topics
3. Displays for conventions, trade shows and other public functions
4. A demonstration garden featuring over 170 drought-tolerant and native plant species to illustrate alternatives to traditional landscaping
5. Seminars to provide information on conservation, and videos and slide programs that complement the speakers bureau and workshops
6. A water conservation "hotline" to answer questions and give customers advice on water saving techniques
7. Print and electronic media campaigns to add visibility to conservation efforts



## **II. SOUTHERN NEVADA WATER AUTHORITY**

### **History**

The Southern Nevada Water Authority was created in 1991 due to a need to address water on a regional basis rather than an individual purveyor basis, which was recognized as part of a consensus-building effort called the "WRMI Process." All of the water-related entities in southern Nevada were involved in this process, the formation of a water management model. The members of the Authority are the cities of Boulder City, Henderson, Las Vegas and North Las Vegas, and the Big Bend Water District, Clark County Sanitation District and the Las Vegas Valley Water District.

1. Some of the major reasons for the creation of the Southern Nevada Water Authority were:
  - a. To form a regional entity acceptable to the Secretary of the Interior and Nevada's Colorado River Commission to contract for the remaining unallocated portion of Nevada's Colorado River water. It is unlikely that the Secretary would contract directly with the individual water purveyors because the purveyors cannot guarantee that sufficient sewer return flows would be generated to satisfy the contracts.
  - b. To address water resource management and water conservation on a regional basis.
  - c. To plan, manage and develop additional supplies of water for southern Nevada. This can best be achieved if all entities act in a unified and a cooperative manner to the end that southern Nevada will have sufficient water for use now and in the future.
  - d. To allocate the remaining Colorado River water and any other water that becomes available to southern Nevada among the water purveyors.

- e. To manage all water supplies available to southern Nevada through an approved "water budget" which balances the use of potable water, sewer return flows to the Colorado River, and the reuse of sewer effluent. This can only be accomplished on a regional basis.
  - f. To address shortage sharing in periods of drought in the Colorado River such that all purveyors share in a shortage equally. Again, this can only be accomplished on a regional basis.
  - g. To present a unified position on water issues facing southern Nevada and to operate regional facilities (such as the Southern Nevada Water System [pumping and treatment facility on Lake Mead] and artificial recharge programs) in a manner which will satisfy all water purveyors' needs.
2. A summary of the major articles of the Cooperative Agreement follows:
- a. The boundaries of the Authority are all of Clark County, Nevada.
  - b. The contract with the Secretary of the Interior and Nevada's Colorado River Commission for the remaining unallocated Colorado River water is with the Authority, and the Authority will deliver that water to the purveyor members.
  - c. The Authority could, with approval of the Las Vegas Valley Water District, acquire the rights to and develop and implement the Cooperative Water Project initiated by the Water District for surface and groundwater in northern Clark, Lincoln, Nye and White Pine Counties.

- d. The Authority will contract for or construct the necessary capital facilities to deliver the Authority's water to the purveyor members.
- e. The Authority cannot acquire any existing water rights or property of a member without that member's approval.
- f. The Agreement sets forth a method of allocating the first 108,000 acre-feet of water acquired by the Authority. Allocations of water acquired above 108,000 acre-feet will be made by the Board of Directors of the Authority with approval of the governing boards of each of the purveyor members. The Authority will also allocate temporary water available to southern Nevada by use of a method identified in the Agreement.
- g. The entitlements to Colorado River water under the existing Southern Nevada Water System (SNWS) contracts become fixed in amounts set forth in the Agreement. This will avoid future conflicts among the existing SNWS users concerning the "use it or lose it" allocation formula which is in the existing SNWS contracts.
- h. The Water District will be permitted to deliver its 15,407 acre-feet of Colorado River water through the SNWS. Presently the Water District has a separate contract for 15,407 acre-feet of Colorado River water but no approved method for delivery of this water.
- i. The amount of sewer reuse permitted by a member is set forth in the Agreement, and thereby no member can reuse to the detriment of another member.
- j. The City of Henderson agrees that it will

begin returning effluent to the Las Vegas Wash to generate additional return flow credits.

- k. All members are required to implement certain water conservation standards as defined in the Agreement.
- l. The Board of the Authority consists of seven directors -- one director for each member. Each member may also select an alternate director.
- m. Five of the members in the Agreement are identified as "purveyor members" (cities of Boulder City, Henderson and North Las Vegas, and Big Bend Water District and Las Vegas Valley Water District).
- n. Some actions of the Board of the Authority also require approval of the governing boards of each member. Others require approval of the governing boards of the purveyor members only, and some actions require only a 2/3 vote of the directors of the Authority. Routine items require only a majority vote of the directors of the Authority.
- o. The Board of the Authority annually selects a Chairman and Vice-Chairman from its member directors.
- p. The Board of the Authority is responsible for hiring a General Manager who hires staff to be responsible for the proper and efficient administration of the Authority.
- q. Operating budgets are approved by the Board of the Authority and funds for those budgets are derived from assessments to the members.