

PROFESSIONAL RECORDS

WILLIAM R. MILLS JR

EDUCATION

<u>SCHOOLS</u>	<u>GRADUATION YEAR</u>	<u>DEGREE CONFERRED</u>
Colorado School of Mines	1959	Geological Engineer
Loyola University of Los Angeles	1973	M.S., Civil Environmental Engineering

PROFESSIONAL CREDENTIALS

Registered Geologist, California
Registered Professional Engineer, California and Arizona

SPECIALIZATIONS

Groundwater Hydrology and Management	Wastewater Reuse and Recycling
Groundwater Pollution Assessment and Control	Water Rights Litigation
Water Resources Management	Seawater Intrusion Control

EXPERT TESTIMONY EXPERIENCES

Mr. Mills has qualified as an expert and testified in the following actions:

Stephen Jordan, et al, v. City of Santa Barbara, et al., Superior Court of the State of California in and for the County of Santa Barbara, Case No. SM 072350, 1994.

State Water Resources Control Board:

- Hearings on the Bay Delta, 1986
- Hearings on the Cachuma Project and the Santa Ynez River:
 - In the matter of the Permit 11308 and 11310 (Applications 11331 and 11332) of the U.S. Bureau of Reclamation: Santa Ynez River in Santa Barbara County, resulting in to Orders 73-37 (1973), 89-18 (1989) and 94-5 (1994)
 - Application by the Santa Ynez River Water Conservation District, Improvement District No. 1, to appropriate unappropriated water, 1978, Order 78-19
 - In 1990 to consider outstanding issues within the Santa Ynez watershed
 - Phase 1 hearing to review permits for Public Trust and Downstream Water Rights, Cachuma Project, 2000

- Hearing on applications to appropriate water by City of Santa Barbara and Monticeto Water District, from Devils Canyon and Alder Creek, 1990
- Hearing on the Petition to revise the Declaration of Fully Appropriated Streams to appropriate water from the Santa Ana River, 1999

EXPERIENCE RECORD

William Mills and Associates

2002-present

Upon retirement from the Orange County Water District in 2002, Mills reestablished a consulting practice.

Mills continued to represent the Cachuma Conservation Release Board of Santa Barbara County. This has been a long-term effort in determining and settling long standing contentions concerning the water rights of the CCRB members with respect to the Santa Ynez River. His first involvement was in the early 1970's, participating in the development of a release schedule for Bradbury Dam that would be protective of water rights of the CCRB, downstream entities and water conservative. He later testified at a State Board Hearing regarding priority of water rights. In 1990, for the City of Santa Barbara, he testified in a court concerning the City's right to store and divert water from the Santa Ynez River. In 1995, he testified before the State Board as part of the Phase 1 hearing on the Cachuma Project. He also was an initial member of the Santa Ynez Hydrology Committee from 1986-1999. This committee was charged with developing long term hydrology and an accounting model of the River, to assist in the study of the potential enlargement of Bradbury Dam

For a group of growers in Borrego Springs, CA area, he is currently assessing the conditions of the Borrego Valley Aquifer; and a private client in the Uplands, CA area involving the appropriate design of a major groundwater recharge basin. The Borrego Valley aquifer assessment included the proposed siting and construction criteria for three monitoring wells. The purpose of the wells is to better characterize the aquifer and its flow characteristics.

Mr. Mills also recently assisted the Water Corporation, in Perth, West Australia, in developing an artificial ground water recharge program using recycled water.

Mr. Mills was a member and chairman of the State mandated AB 599 legislation that required the development of a State-wide ground water monitoring and evaluation program. The committee completed submitted its report to the legislature in 2002.

Orange County Water District

1987-2002

Mr. Mills recently concluded his career with the Orange County Water District (OCWD) where he served as General Manager for nearly 15 years. OCWD is responsible for management of the groundwater basin in northerly Orange County, California. The District's groundwater reservoir

provides about 75% of the water needs for 2 million residents and has an annual operating and capital improvement budget in excess of \$70 million.

The District is also known for its innovative operations of more than 1600 acres of groundwater recharge facilities. Under his supervision, Mr. Mills, the district prepared a master plan of improvements for the recharge system. The plan required the installation of numerous surface water measurement systems and devices as an initial step. (Later, this comprehensive data collection system was integrated into a SCADA system.)

Mills also directed the siting and construction of approximately 20 deep West Bay monitoring wells, spaced so as to help define the quality and movement of ground waters throughout the multi-layer aquifer system. He also directed the siting of nearly 30 monitoring wells to better define water quality problems (contaminate releases to sea water intrusion) in various locations of the basin.

Mills also reviewed several contaminate investigations that were mandated by the Santa Ana Regional Water Quality Control Board. His review involved an overall assessment of the adequacy of the existing characterization and the need for addition investigation.

Mills directed the construction of a large water recycling landscape irrigation project, the Green Acres Project; improvements at the Water Factory 21 plant and rehabilitation of the seawater intrusion barrier wells. Mills also initiated planning, design and construction of the Groundwater Replenishment System, the largest indirect wastewater reclamation project in the nation. This project when completed in 2005, will provide about 80,000 af per year of recycled water for groundwater recharge. All waste waters will be processed by microfiltration, reverse osmosis and ultraviolet light.

Mr. Mills served from 1978-2002 as one of five Court Appointed Watermasters for the Santa Ana River, responsible for annual investigations and report of the base flows and obligations for the Santa Ana River at Prado Dam and Riverside Narrows.

William R. Mills & Associates

1984-1987

Mr. Mills began a consulting engineering practice, specializing in water resources management in 1984. His primary areas of involvement covered groundwater and surface water investigations including planning and management as well as water quality investigations and water rights representations.

For the Orange County Water District, Mr. Mills directed a study team for the evaluation of alternative groundwater recharge methods that could be used to increase the recharge capability of the District. The investigation collected critical operating information on the district's recharge system. These data were later integrated into the District's improvement plan for the recharge system.

Mr. Mills completed an investigation of the Yorba Linda sub-basin and adjacent areas to determine

the potential for landfill leachates migration from proposed landfill sites in the Chino Hills into the groundwater sub-basin.

Mr. Mills completed an investigation of the source and pollution extent of TCE contamination recently discovered in several wells located in the Irvine area of the Orange County groundwater basin. The area is located down gradient from the El Toro Marine Air Station. This hydrogeologic investigation utilized soil vapor collectors for an initial delineation of the source and areal extent of the pollution. He proposed the construction of a dozen monitoring wells. Later, Mills reviewed and evaluated the transport of contaminants from the Base to the monitoring wells. Ultimately, the Base admitted to the responsibility for the off site pollution. A large scale pump/treat/reuse project is currently under construction.

He also provided expert testimony for the District during the extensive Bay-Delta Hearings. The testimony included presentation of the Districts efforts to capture and recharge all native and imported waters through it's recharge system.

For the Santa Barbara area, Cachuma conservation and Release Board, Mr. Mills participated in an inter-agency Hydrology Committee that developed long-term hydrologic data and an operational model at the Santa Ynez River system. The completed model was used to evaluate the effectiveness of raising Bradbury Dam, as part of DWR's local projects program, and for evaluating the effectiveness of the current downstream water rights release schedule at Cachuma Reservoir.

Mr. Mills acted as project consultant for a High Plains Recharge Demonstration grant for the city of Newton, Kansas. The project was directed at evaluating the feasibility of recharging the city's wastewater into the Ogalala Aquifer. For the Moulton Niguel Water District in South Orange County, Mr. Mills prepared a study that assessed the technical feasibility of utilizing an existing land outfall for conveyance of projected wastewater flows from a new inland wastewater treatment plant. The study involved the estimation of existing and future urban generated brackish flows that are now intercepted and conveyed to the ocean by the outfall.

Mr. Mills also participated in the development of a groundwater management program aimed at restoring the San Juan groundwater basin for domestic use.

For Orange County's Waste Management program, Mr. Mills completed a detailed hydrogeologic investigation of the nearly completed Santiago Canyon Landfill. The report recommended the installation of a leachate collection and recovery system and a groundwater monitoring program. Mills evaluated leachate transport using existing data derived from a down-gradient spring.

As the consultant to the Orange County Water District, Mr. Mills reviewed three proposed class II landfill projects in the Santa Ana River Canyon. He prepared an independent assessment of the potential water quality impacts of the projects, including potential for leachate generation, and state-of-the-art leachate detection and control systems and defined appropriate level of hydrogeologic field investigation and analysis required to fully understand the groundwater regime. Mills also collected water samples for testing and evaluation from existing monitoring wells located near the proposed dump site.

For the cities of San Bernardino and Rialto, California, Mr. Mills completed a feasibility study for developing a groundwater percolation facility to meet future wastewater discharge standards. The investigation focused on the review and analysis of hydrogeologic characteristics of several sites with respect to infiltration rates, percolation capabilities and groundwater migration rates for the application of 40 mgd of secondarily treated wastewaters.

For a 10,000 acre working cattle and guest ranch in Santa Barbara County, Mr. Mills conducted a field investigation (including drilling five monitoring wells) and defined a water development program consistent with the ranch's riparian right to the underflow of the Santa Ynez River. The program resulted in the design, construction and aquifer testing for two production wells.

PRC Engineering, Inc.

1967-1984

During his 17 years with this firm, Mr. Mills held technical positions ranging from staff engineer to principal-in-charge and corporate title of Vice President to Division President.

The following is a brief description of some of the groundwater management, characterization and transport projects that he was involved with.

Project Director for several regional water resources management projects including: a water supply management report for the City of Santa Maria that evaluated future water needs, the adequacy of existing supplies, and the need for groundwater quality management; a comprehensive water resource evaluation of all alternative available water supplies for the South Coast of Santa Barbara County, California; water resources management plans for the South Platte River Basin in Colorado and the Santa Margarita-San Luis Rey Watershed in San Diego County, California.

Participated in the feasibility studies leading to the development of Water Factory 21, an advanced physical-chemical wastewater treatment facility as the primary source for the groundwater injection barrier to control of saline water intrusion into the Orange County Groundwater Basin. Mills supervised the siting and construction of injection and monitoring wells.

Project Manger for studies and investigations in Orange County to determine percolation capabilities of various properties that could be acquired as part of an extensive groundwater replenishment system. Developed a master plan of spreading, grounds to provide for recharging of nearly 300 mgd of blended, imported, and wastewater.

Project Manager for an investigation into the causes and possible solutions to high nitrate concentrations in the city of Tustin's (CA) water supply wells. Principal investigator on several projects involving the deterioration of water quality at production wells. The studies required the characterization and definition of the groundwater flow regime at each location.

Project Manager for several groundwater hydrology investigations involving the recharge (spreading and/or injection) of wastewaters into the local groundwater system. Directed a groundwater hydrology study in the Martis Valley near Truckee, California. The study included

field investigation and testing, including the construction was a recharge pit, diversion of water to the pit, construction of adjacent monitoring wells and data collection during the recharge operation.

California Department of Water Resources

1966-1967

As an Associate Civil Engineer, assisted in the development of the Chino groundwater quality model as part of studies of the planned utilization of groundwater basin.

Los Angeles County Flood Control District

1963-1966

As Associate Engineer, work included hydrogeologic analysis for the design of seawater intrusion projects and operation of the Alamitos Barrier Project. Conducted periodic water quality studies to evaluate the chemical changes resulting from groundwater injection. Mr. Mills was assigned to the Water Conservation Division of the District and during storm events, he operated District recharge facilities at Rio Hondo and Arroyo Seco. Performed studies which included: extent, rate, and amount of seawater intrusion; required injection rate and well spacing; selection of observation well sites; gravel pack design; barrier alignment; barrier cost analysis; pumping well locations and rates of discharge.

Performed aquifer pump tests, logged wells, supervised drilling and construction of observation wells.

Prepared periodic detailed hydrogeologic reports on effects of injection and pumping associated with barrier operations.

Awards

- 2003 Harriett M. Wieder Award for Leadership in the Pursuit of Southern California's Water Future, Southern California Water Committee
- Distinguished Water Leader award by Association of California Water Agencies (1992)
- Outstanding Member, American Desalting Association (1994)
- Outstanding Service - Regular Member, WaterReuse Association of California (1994)
- Engineer of the Year, Orange County Engineering Council (1996)
- Presidential Award for Distinguished Service, American Desalting Association (1996)
- Leadership in Engineering for Water Resources, Institute for the Advancement of Engineering (IAE) (1999)

Professional Achievements

- Fellow, American Society of Civil Engineers
- Diplomate, American Academy of Environmental Engineers

Previous Professional Service

- Member and Chairman of the AB 599 Committee for development of a State-wide groundwater monitoring and assessment program

- Member, Committee on Assessing the Future Value of Ground Water for Water Science and Technology Board of National Research Council
- Member, Governor's (California) External Program Review and Chair, Groundwater Protection Task Force
- Founding President and Board Member, WaterReuse Association of California
- Member, Advisory Committee to the U.S. Geological Society on Data for Public Use, representing the American Society of Civil Engineers
- Member, Research Advisory Council (RAC) for AWWA Research Foundation
- Secretary & Alternate Board Member, National Water Research Institute
- Member, Advisory Committee to the University of California Water Resources Research Center
- Chairman (1990-1993), Groundwater Committee, Association of California Water Agencies
- Chair (1994-2002) Water Quality Committee and Board Member, ACWA
- Board Member, National Water Supply Improvement Association (American Desalting Association)

Publications

- *Wastewater Reclamation and Reuse*, 1998, Author of Chapter on Groundwater Recharge at the Orange County Water District
- *Future Value of Groundwater*, 1997, Co-Authors, National Research Council, Water Science and Technology Board
- *Management of Aquifer Recharge for Sustainability*, edited by Dillon, P.J., Author of paper *The quest for water through artificial recharge and wastewater recycling*. Proceedings of the 4th International Symposium on Artificial Recharge of Groundwater, ISAR-4, Adelaide, South Australia 22-26 September 2002

Special Recognition

Mr. Mills was recognized for his contribution to the field of wastewater reclamation by an interview published in the *National Geographic*, Special Edition, *Water*, and November 1993.

Mills has recently concluded a month-long speaking tour in Australia, where he spoke throughout the continent. He was the keynote speaker for the Fourth International Symposium on Artificial Recharge in Adelaide and presented at the Rosenberg International Forum on Water Policy in Canberra.