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10 Defendant Tejon Ranchcorp

11 **SUPERIOR COURT OF THE STATE OF CALIFORNIA**
12 **COUNTY OF LOS ANGELES - CENTRAL DISTRICT**

13 ANTELOPE VALLEY GROUNDWATER) Judicial Council Coordination No. 4408
14 CASES)
15 Included Actions:) Santa Clara Case No. 1-05-CV-049053
16 Los Angeles County Waterworks District No. 40 v.) Assigned to Hon. Jack Komar
17 Diamond Farming Co., Superior Court of California,)
18 County of Los Angeles, Case No. BC 325201;) **TEJON RANCHCORP'S EXCHANGE**
19) **OF EXPERT WITNESS INFORMATION**
20 Los Angeles County Waterworks District No. 40 v.) [Code Civ. Proc., § 2034.260]
21 Diamond Farming Co., Superior Court of California,)
22 County of Kern, Case No. S-1500-CV-254-348;) Phase 3 Trial Date: September 27, 2010
23)
24 Wm. Bolthouse Farms, Inc. v. City of Lancaster,)
25 Diamond Farming Co. v. Lancaster, Diamond Farming)
26 Co. v. Palmdale Water Dist., Superior Court of)
27 California, County of Riverside, Case No. RIC 353)
28 840, RIC 344 436, RIC 344 668)
_____)

29 COMES NOW the defendant and cross-complainant TEJON RANCHCORP ("Tejon") and
30 submits the following expert witness information.

31 **I. RETAINED EXPERTS**

32 1. E. John List, Phd., P.E., 723 East Green Street, Pasadena, California 91101
33 (626) 304-1134.

1 2. Richard A. Rhone, 101 North Brand Blvd., Ste. 1780, Glendale, California 91203
2 (818) 552-6400.

3 Tejon reserves the right to (a) call any expert witness disclosed by any other party to this
4 proceeding although not included herein; and (b) call any expert witness to impeach the testimony
5 of any expert witness offered by any other party at trial.

7 Dated: July 15, 2010

KUHS & PARKER

8
9 By  _____

Robert G. Kuhs, Attorney for Tejon

11 **II. DECLARATION OF ROBERT G. KUHS**

12 I, Robert G. Kuhs, declare as follows:

13 1. I am an attorney at law duly admitted to practice before all courts of the State of
14 California and a partner of Kuhs & Parker, counsel for Tejon.

16 2. Tejon may call the following expert witnesses:

17 A. E. John List, Phd., P.E. Mr. List has agreed to testify at trial. Mr. List is a
18 licensed professional engineer in the State of California. A summary of Mr. List's professional
19 qualifications is attached as **Exhibit A**. Mr. List will testify regarding the following issues:

21 i. The safe yield of that portion of the Antelope Valley
22 Groundwater Basin lying westerly of the Bedrock Ridge and
23 southerly of the Willow Springs Fault (West Antelope Valley Basin
24 or WAVB) and whether the WAVB is in a state of overdraft.

25 Mr. List will be sufficiently familiar with this proceeding to submit to a meaningful oral deposition
26 concerning his testimony. His fee for providing such testimony is \$250.00 per hour.

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B. Richard A. Rhone, P.E. Mr. Rhone has agreed to testify at trial. Mr. Rhone is a registered civil engineer in the State of California. A summary of Mr. Rhone's qualifications is attached as **Exhibit B**. Mr. Rhone will testify regarding the following issues:

i. The safe yield of the WAVB and whether the WAVB is in a state of overdraft.

Mr. Rhone will be sufficiently familiar with this proceeding to submit to a meaningful oral deposition concerning his testimony. His fee for providing testimony and consulting is \$225 per hour.

I declare under penalty of perjury under the laws of the State of California that the foregoing is true and correct.

Dated: July 15, 2010


Robert G. Kuhs

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Exhibit A

ERICSON JOHN LIST

Principal Consultant, Flow Science Incorporated
Principal Consultant, Environmental Defense Sciences
Professor *Emeritus* of Environmental Engineering Science,
California Institute of Technology

TEL: 626-233-6014 (cell), 626-304-1134 (office)

FAX: 626-304-9427

e-mail: ejlist@flowscience.com

PERSONAL

Citizenship:	U.S.A. Passport No. 031734111
Birthdate:	March 27, 1939
Place of Birth:	Whakatane, New Zealand
Home Address:	196 Wandolea Drive, Mt. Pleasant, SC 29464
Office Address:	723 E. Green Street, Pasadena, CA 91101

EDUCATION

1965 Ph.D.	California Institute of Technology (Applied Mechanics and Mathematics)
1962 M.E. (Civil Eng.)	University of Auckland, N.Z.
1962 B.Sc. (Mathematics)	University of Auckland, N.Z.
1961 B.E. (First Class)	University of Auckland, N.Z.

POSITIONS HELD

Dr. List is currently Principal Consultant of Flow Science Incorporated and Environmental Defense Sciences. He was Professor of Environmental Engineering Science at the California Institute of Technology from 1978-1997. He joined the faculty at Caltech in 1969 as an Assistant Professor, after spending three years as a lecturer and senior lecturer at the University of Auckland. For the period 1980-1985, he was Executive Officer for Environmental Engineering Science at Caltech.

TEACHING EXPERIENCE

Fluid mechanics, turbulent diffusion, density-stratified flow, flow in porous media, introductory oceanography and meteorology, classical applied mathematics, singular perturbations, non-linear waves, mathematical programming and simulation, probability and statistics, solid mechanics, hydrologic transport processes, environmental fluid mechanics.

RESEARCH INTERESTS

Turbulent diffusion, buoyancy-modified flows, particle coagulation, coastal ocean and estuarine processes, transient flows, flow in porous media.

INSTITUTE AFFAIRS

Professor List served on sixteen different administrative and faculty committees, including a term as Vice-Chair of the Faculty (1979-81), and chair of the following Faculty Committees: Athletics and Physical Education (1975-79), Curriculum (1981-84), Membership and Bylaws (1979-81), and Nominating (1978-79). He served on the JPL Classified Research Oversight Committee for a period of six years.

EDITOR

Journal of Hydraulic Engineering, American Society of Civil Engineers, 1984-1989

MEMBERSHIP

Fellow of American Society of Civil Engineers
Chair, Hydrologic Transport and Dispersion Committee, 1983-84
Chair, Awards Committee, Hydraulics Division, 1994
Co-Chair, Third International Symposium on Stratified Flows, 1987
Consulting Engineers Association of California
Chair, Engineering Excellence Committee, 1989

AWARDS AND RECOGNITION

Fulbright Scholar, 1962
National Science Foundation Award for Special Creativity, 1982
Who's Who in America
Who's Who in Engineering
Who's Who in the West

REGISTRATION

Professional Civil Engineer No. 36791, State of California
Professional Civil Engineer No. 57786, State of Florida
Professional Civil Engineer No. 027270, State of North Carolina
Professional Civil Engineer No. 20646, State of South Carolina
Professional Civil Engineer No. 015627, State of Nevada

VISITING COMMITTEES

University of California, Irvine, School of Engineering, 1983, 1989
Stanford University, Palo Alto, Department of Civil Engineering, 1984
University of British Columbia, School of Engineering, 1990

BOARDS

Flow Science Incorporated, Pasadena, California (Chair) 1982-Present
City of Pasadena, Blue Ribbon Commission 1976-1978
Environmental Defense Sciences, Pasadena, California 1997-Present

CONSULTING

Professor List has consulted with more than 400 industrial organizations, consulting engineers and governmental agencies, including Southern California Edison, Chevron, Exxon, Astra-Zeneca, City and County of San Francisco, City of Los Angeles, City of Seattle, City of San Diego, City and County of Honolulu, Southern California Metropolitan Water District, Southern Nevada Water Agency, Los Angeles and Orange County Sanitation Districts. He has authored reports in the following areas of work: geothermal flows, river control modeling, power plant cooling systems, brine and wastewater diffusers, dredge spoil disposal, river dispersion, solar heat storage systems, reservoir destratification and mixing, well testing and failure, pulsation control and water hammer, pipeline failure, groundwater mass balance, ocean current and temperature analysis, acoustic resonance in piping systems, gas transfer, ocean dispersion, and biodegradation of organo-chlorines.

PUBLICATIONS

Professor List is co-author of the texts *Mixing in Inland and Coastal Waters* (Academic Press, 1979), *Turbulent Buoyant Jets and Plumes* (Pergamon Press, 1983), and *Handbook of Groundwater Development* (Wiley, 1990). In addition, he is the author or co-author of the following refereed publications:

- [1] "Steady flow of precipitation to an infinite series of tile drains above an impervious layer," *J. Geophys. Res.*, **29**: 3371-3381, 1964.
- [2] "A quasi-stable density-stratified flow in a saturated porous medium," *Proc. 2nd Aus. Conf. Fluid Mech.*, Auckland, N.Z., December 1965.
- [3] "Lateral dispersion in saturated porous media," *J. Geophys. Res.*, **72**: 2531-2541, 1967 (with N.H. Brooks).
- [4] "A two-dimensional sink in a density-stratified porous medium," *J. Fluid Mech.*, **33**: 529-543, 1968.
- [5] "An exact solution for a diffusive flow in a porous medium," *J. Fluid Mech.*, **36**: 17-19, 1969.
- [6] "Laminar momentum jets in a stratified fluid," *J. Fluid Mech.*, **45**: 461-574, 1971.

- [7] "A technique for smoothing river flows during hydro-electric power production," *Water Resources Research*, **7**(6): 1437-1447, 1971 (with R.B. Tattle).
- [8] "Energy and the environment in Southern California," *Engineering and Science*, **35**(2): 14-17, 1971.
- [9] "A study on disposal of brine in an estuary," *J. Water Polln. Cont. Fed.*, **45**(11): 2335-2344, 1973 (with A.B. Pincince).
- [10] "Turbulent entrainment in buoyant jets and plumes," *J. Hyd. Div., ASCE*, **99**(HY9):1461-1474, September 1973 (with J. Imberger).
- [11] "Turbulence measurements in a two-dimensional buoyant jet using laser-Doppler velocimetry," *Proc. LDA Symposium*, Tech. Univ. of Denmark, Copenhagen, August 1975 (with N.E. Kotsovinos).
- [12] "Hydraulic modeling of thermal outfall diffusers - Interpretation of results," *Proc. XVI IAHR Congress*, Sao Paulo, Brazil, July 1975 (with R.C.Y. Koh).
- [13] "Variations in coastal temperatures on the Southern and Central California coast," *J. Geophys. Res.*, **81**(12):1971-1979, April 1976 (with R.C.Y. Koh).
- [14] "Spreading of buoyant discharges," *Proc. 9th Intern. Conf. Heat and Mass Transfer*, Int. Centre for Heat and Mass Transfer, Dubrovnik, Yugoslavia, 171-182, September 4, 1976 (with J.-C Chen).
- [15] "Plane turbulent buoyant jets - Part 1: Integral properties," *J. Fluid Mech.*, **81**(1): 25-44, June 9, 1977 (with N.E. Kotsovinos).
- [16] "Turbulent jets and plumes," *Ann. Rev. of Fluid Mech.*, **14**:189-212, 1982.
- [17] "Formation of frontal waves in density-induced fluid spreading," *Symposium on Flows in Stratified Fluids*, ASME Winter Annual Meeting, Boston, MA, 1983.
- [18] "Monte Carlo simulation of particle coagulation in continuous size distributions, I: Brownian motion and fluid shearing," *J. Fluid Mech.*, **143**: 367-385, 1984 (with H.J. Pearson and I.A. Valioulis).
- [19] "Monte Carlo simulation of particle coagulation in continuous size distributions, II: Interparticle forces and the quasi-equilibrium hypothesis," *J. Fluid Mech.*, **143**: 387-411, 1984 (with I.A. Valioulis and H.J. Pearson).
- [20] "Numerical simulation of a sedimentation basin, I: Model development," *Env. Sci. Tech.*, **18**: 242-247, 1984 (with I.A. Valioulis).

- [21] "Numerical simulation of a sedimentation basin, II: Design application," *Env. Sci.Tech.*, **18**:248-253, 1984 (with I.A. Valioulis).
- [22] "Collision efficiencies of diffusing spherical particles accounting for hydrodynamic, van der Waal's and electrostatic forces," *Adv. Colloid and Interf. Sci.*, **20**:1-20, 1984 (with I.A. Valioulis).
- [23] "A numerical evaluation of the stochastic completeness of the kinetic coagulation equation," *J. Atmos. Sci.*, **41**(16):2516-2529, 1984 (with I.A. Valioulis).
- [24] "Statistical and spectral properties of tracer concentration in round buoyant jets," *Int. J. Heat and Mass Trans.*, **30**(10):2059-2071, 1987 (with P.N. Papanicolaou).
- [25] "Turbulence structure near a sharp density interface," *J. Fluid Mech.*, **189**: 189-209, 1988 (with I.A. Hannoun and H.J.S. Fernando).
- [26] "Turbulent mixing at a shear-free density interface," *J. Fluid Mech.*, **189**: 211-234, 1988 (with I.A. Hannoun).
- [27] "Investigations of round vertical turbulent buoyant jets," *J. Fluid Mech.*, **195**: 341-391, 1988 (with P.N. Papanicolaou).
- [28] "The Third International Symposium on Density-Stratified Flows," *J. Hydr. Eng., Proc. ASCE*, **114**(2):125-133, 1988 (with G. Jirka).
- [29] "Large-scale structure in the far field of buoyant jets," *J. Fluid Mech.*, **209**: 151-190, 1989 (with D. Papantoniou).
- [30] "Diffusion and dispersion in coastal waters," *J. Hydr.Eng.*, **116**(10):1158-1179, 1990 (with G. Gartrell and C.D. Winant).
- [31] "Kinetic analysis of virus adsorption and inactivation in batch experiments," *Water Resources Research*, **29**(7):2067-2085, 1993 (with S. Grant and M. Lidstrom).
- [32] "An experimental investigation of vertical mixing in two-layer density- stratified shear flows," *Oceans and Atmospheres*, **19**:147-174, 1993 (with G. Sullivan).
- [33] "Transition from jet plume dilution to ambient turbulent mixing," *Recent Res. Advances in the Fluid Mechanics of Turbulent Jets and Plumes*, 1-11, 1994 Kluwer Publishers (with Regina Dugan).
- [34] "On mixing and transport at a sheared density interface," *J. Fluid Mech.* **273**:213-239, 1994 (with G. Sullivan).
- [35] "Sudden pressure drop and pipeline failure - Case studies," *Hydraulics of Pipelines*, ASCE, pp.339-355, 1994

- [36] "Environmental Fluid Mechanics" *Research Trends in Fluid Mechanics*, J.C. Lumley et al (Eds), American Institute of Physics, pp.148-166, 1996.
- [37] "A novel approach for determining flow patterns in a reservoir," *Proc. North American Lake Management Society*, Minneapolis, Minn. Nov. 14-15, 1996 (with G. Pasek, I.A. Hannoun and S.C. Paulsen)
- [38] "A study of transport and mixing in natural waters using ICP-MS: Water-particle interactions" *Water, Air and Soil Pollution*, **99**:146-156, 1997 (with S.C. Paulsen).
- [39] "Tracing discharges in ocean environments using a rare earth tracer" *Proc. 27th IAHR Congress*, San Francisco, August, 1997 (with S.C. Paulsen).
- [40] "Simulation of sludge pumping" *Water Env. Res.* **70**(2): 197-204, 1997 (with I.A. Hannoun and W-L. Chiang)
- [41] "Using hydraulic modeling to optimize contact time" *J. AWWA*, **90**(8): 77-87, 1998 (with I.A. Hannoun and P. Boulos).
- [42] "Vapor cavity formation and collapse: Field evidence for major pipeline damage" FEDSM99-6886, *Proc. 3rd ASME/JSME Joint Fluids Eng. Conf.*, San Francisco, July 18-23, 1999 (with R. Solbrig, J. Burnam and J. Hoggatt)
- [43] "Modeling variability in ²¹⁰Pb and sediment fluxes near Whites Point Outfalls, Palos Verdes Shelf, California. *Env. Sci Tech.*, **33**:3077-3085, 1999 (with S. C. Paulsen and P.H. Santschi)
- [44] "Comment on 'In situ measurements of chlorinated hydrocarbons off the Palos Verdes Peninsula, California" *Env. Sci. Tech.*, **33**:3927-3928, 1999 (with S.C. Paulsen and P.H. Santschi).
- (45) "Use of ELCOM and CAEDYM for Water Quality Simulation in Boulder Basin", In the Proceedings of the NALMS 23rd International Symposium, November 4 - 8, 2003, Mashantucket, CT (with I.A. Hannoun, K. Bowman-Kavanagh, W. Chiang, L. Ding, D. Karafa, I. Rackley).
- (46) "Receiving Water Analysis for Regional Seawater Desalination Plant in Carlsbad, California", In the Proceedings of the American Membrane Technology Association (AMTA) 2006 Biennial Conference and Exposition, August 2, 2006, Anaheim, California (with E. J. List, L. Ding, N. Martin).
- (47) "Joint Water Pollution Control Plant outfall modeling," Proceedings, Marine Waste Water Discharge Organization Symposium, October 27, 2008 (with I.A. Hannoun, L. Ding, and N. Hicks).

- (48) “3D modeling of a treated effluent discharge off the Palos Verdes Shelf, California,” Proceedings, Marine Waste Water Discharge Organization Symposium, October 31, 2008 (with I.A. Hannoun, L. Ding, and N. Hicks).
- (49) “Development and application of a three-dimensional water quality model for Lake Mead,” Proceedings, North American Lake Management Society, November 13, 2008 (with I.A. Hannoun, Al Preston, Kristen Bowman Kavanagh, Lynn Orphan, and Peggy Roefer).
- (50) “Development and application of a three-dimensional water quality model to Lake Mead,” Proceedings, Lake Mead Science Symposium, January 13, 2009 (with Al Preston, Imad Hannoun, Kristen Bowmand Kavanagh, Lynn Orphan, Kent Turner, and Peggy Roefer).

Richard A. Rhone, PE, Senior Consultant



Education

B.S., Civil Engineering, University of Southern California, 1959

Registration

Arizona, California: Registered Civil Engineer

Diplomat American Academy of Environmental Engineers

Background

Mr. Rhone has over 50 years of experience in all aspects of water resources development, engineering, management, and operations, including planning studies related to surface and groundwater resources management, hydrologic studies, watermaster services, water demand estimates, preliminary designs, preparation of bid documents, and cost estimates.

Mr. Rhone also specializes in water rights and water system evaluations, managing and conducting operational studies of conjunctive use projects, and evaluating projects related to the California State Water Project and the Colorado River. Since 1960, he has represented water contractors in numerous matters related to the California State Water Project including contract issues, cost allocations and annual budgets. He has also provided expert testimony before the California State Water Resources Control Board, California Superior Court, and federal court on such matters as water rights, water supply, and water resource development.

Experience

Groundwater Banking Program, Kern County, CA, Semitropic Water Storage District (1996 through present). Semitropic Water Storage District's Groundwater Banking Program has been a primary effort for Mr. Rhone since 1996. The work included completion of the original one million acre-foot Semitropic Groundwater Bank including finalizing contracts for storage of 1 million acre-feet, facility planning, design, and construction supervision. The expanded groundwater banking project was developed with Mr. Rhone's aid including project conception, feasibility studies, environmental documentation, and facility planning. The finalization of pre-design activity is under way. The original project stores one million acre-feet of water in the groundwater basin; the expansion adds 650,000 acre-feet of storage and up to 200,000 acre-feet per year of return flow to the California Aqueduct. Studies included hydrogeologic modeling, facility planning of pipelines, canals, wells, reservoirs, distribution systems and a well field of 65 wells.

While under Mr. Rhone's direction, Semitropic has constructed several million dollars of facilities including lining of existing canals, expanded and constructed eleven new pumping plants, added over 35 miles of distribution pipeline and constructed numerous production and monitoring wells.

Central and West Basin—Los Angeles County, Water Replenishment District of Southern California. Participated in the development of and managed one of the largest conjunctive use programs in California for the Water Replenishment District of Southern California. Groundwater basins are recharged using local water; water imported from the Metropolitan Water District of Southern California, and reclaimed water from the County of Los Angeles. Project included spreading, well injection, and in-lieu methods to accomplish recharge. Mr. Rhone continues to advise WRD on replenishment and groundwater management issues.

In the early 1960's Mr. Rhone verified over 200,000 acre-feet per year of groundwater production in Central Basin to determine individual production rights in the Central Basin Adjudication. Also participated in the pre-adjudication planning and in preparation of trial exhibits.

Saw the need and organized in 1980 the San Gabriel River System Groundwater Recharge Committee. This group, which continues to regularly meet, includes all parties concerned with spreading operations along the river. It coordinates the spreading of local, imported and recycled water so that the groundwater basin is maintained at an optimum level to protect against droughts and to allow room to store wet year water.

Developed an overpumping program to pump an additional 50,000 acre-feet over the court-adjudicated amount from the Central and West Basins of Los Angeles County during droughts.

Performed a hydrogeological analysis to determine the availability of recharge water, storage capacities, direction of movement, basin balance, and subsurface inflow and outflow. Prepared annual reports for the Water Replenishment District of Southern California that summarized activities for the current year and recommended operational criteria and financing of future water purchases.

Managed a continuing water quality monitoring program for the Water Replenishment District of Southern California, including about 200 wells and 10 surface water-sampling points. The program also includes reviewing data collected by the Regional Water Quality Control Board on possible sources of pollution, reviewing federal and state regulations and requirements, investigating wells that exhibit low levels of volatile organic compounds, and developing remediation programs for their removal.

Prepared a report for Central Basin Municipal Water District on the effects of the Alameda Corridor construction on water systems because of the deep trench severing of distribution systems.

In 1987, designated as consulting engineer for the Water Replenishment District of Southern California and served for several months as its interim general manager.

Based on studies and procedures he developed, an in-lieu groundwater replenishment program was instituted in 1978 for the Water Replenishment District of Southern California. Under this program, a groundwater producer with a water right would take surplus imported water and forgo groundwater production, resulting in increased groundwater in storage. The producer was provided with an incentive payment to participate.

Conceived for the Water Replenishment District of Southern California the development of a successful financial incentive program to encourage groundwater producers to extract water with low levels of volatile organic compounds.

Estimated long-term movement of recharge water in Los Angeles County, based on changes in ion concentrations.

Watermaster Service

Appointed by the Court in 1986 as the San Gabriel River Watermaster, representing the lower area. Beginning in 1962 provided technical analysis to support the adjudication of the San Gabriel River. Beginning in 1965 provided staff support for the determination of annual hydrologic conditions and flow as required by the judgment, determined the annual amount of required make-up water deliveries and prepared annual reports. Also testified before the State Water Resources Control Board on operations and water accounting.

Serves as court-appointed Watermaster since 1986 for the Puente Basin, The three person Watermaster verifies pumping rights, determines safe yield operations, and prepares annual reports and holds public hearings.

Prepared documents for the Santa Ana River adjudication including a legal description of the Santa Ana River Watershed.

Provided engineering services to Six Basins Watermaster including drafting of the annual operating safe yield report and the annual report.

State Water Project

While with the California Department of Water Resources, worked on the feasibility study for the State Water Project (DWR Bulletin 78). In addition to route studies, developed and prepared cost allocations of aqueduct facilities; the basic procedures became the basis for the water contracts.

Beginning in 1960, provided technical support to water contractors, including Castaic Lake Water Agency, San Geronio Pass Water Agency, Santa Barbara County Water Agency, Semitropic Water Storage District, Wheeler Ridge-Maricopa Water Storage District, and the Coachella Valley and Desert Hot Springs areas, during water purchase contract negotiations with the Department of Water Resources. Emphasis was on cost allocation from the state to the local water contractor. Also prepared studies of urban and agricultural water demands, local water supply availability, requirements for supplemental water, local facilities required to treat and transport state water, cost estimates, and financial analysis.

Provided staff engineering for the Castaic Lake Water Agency from inception through 1982. The effort included project facility planning, water demand estimates, supply availability projections, water balance analysis sitting study for a 50-million-gallon-per-day water treatment plant, required storage capacities, cost estimates, and financial and rate studies. Planned the primary distribution system for the Agency taking advantage of the hydraulic head in Castaic Reservoir to minimize pumping by local purveyors. Prepared preliminary plans for the Earl Schmidt Treatment Plant and prepared cost estimate for a bond issue. Project was constructed within budget. Managed the design of a 54-inch-diameter transmission pipeline with a pressure head of 200 pounds per square inch and prepared plans, sizing, right-of-way documents, and routing studies for the Agency's distribution system pipelines, which ranged from 18 to 60 inches in diameter.

Represented State Water Contractors in reviewing the State Water Project annual budget and in quarterly meetings on design and construction reviews. Has maintained a continuous connection with the State Water Project and particularly the cost and cost allocation thereof.

For the Santa Barbara County Water Agency, participated in the planning of a countywide water system, which included population projections, water demand studies, route studies, and cost estimates of facilities. Prepared financial data for purchasing imported water.

Developed salinity/water quality mass balance flow model of California Aqueduct to study the downstream water quality effects of introducing high salinity groundwater into the aqueduct.

Participated in a study of capacity limitations in East Branch Aqueduct.

Prepared water supply evaluations for an integrated water resource study for Castaic Lake Water Agency, Los Angeles County, California.

Reviewed allocation of cost of off-peak pumping for the Coastal Aqueduct and reached agreement with water contractors regarding allocation.

Prepared operations studies to determine the capacity of the facility required to serve State Water Project water in Santa Barbara County.

On behalf of Semitropic and Wheeler Ridge Maricopa Water Storage District in the 1960's provided staff engineering for negotiations with Kern County Water Agency for a supply from the State Water Project.

Mojave Water Agency

Managed the conclusion of the Mojave Water Agency/Metropolitan Water District Conjunctive Use spreading. From this study the plan was conceived to first spread State Project water in the previous Mojave River bed, adding wells near the River and pumping the now potable water and delivering by pipeline to the West, allowing the tighter regional aquifer system to recover. The plan became known as the R Cubed Plan.

Prepared studies to locate and size four groundwater spreading facilities for the Mojave Water Agency to be located along the Mojave River Pipeline. Also responsible for major conveyance facility sizing studies. Spreading facility studies considered soil conditions, surface culture, aquifer conditions, water quality, and any impediments to water infiltration.

Imperial and Coachella Valleys

Project manager for a conjunctive use and surplus water storage program for the Coachella Valley funded by Coachella Valley Water District and The Metropolitan Water District of Southern California. Projects were developed to use surplus surface water to reduce groundwater overdraft in the Coachella Valley. In dry periods, Coachella Valley would increase groundwater use to make surface water available to others. Projects included spreading, increased irrigation, and golf course irrigation with canal water. These studies led to development of CVWD's Mid Valley Project, which delivers Colorado River water to the golf courses in lieu of their use of groundwater.

Participated in the development of the water conservation and transfer program for the Imperial Irrigation District; performed the hydrologic and operational analysis to determine quantities of water to be conserved. An estimated 300,000 acre-feet of water can be saved from a combination of water conservation measures, thus reducing the demand on the Colorado River system. The conservation measures include canal lining, a tailwater recovery system, reservoirs, and gate automation. Total construction amounted to \$125 million for the first-phase savings of 106,000 acre-feet. Conducted before-and-after ponding tests, measured reductions in water releases, analyzed data from the newly installed gauging stations, and monitored water savings.

Prepared hydrologic data, reports, and analyses regarding water operations of Imperial Irrigation District in several litigations regarding water use and the Salton Sea. Studies included a water balance for 500,000 irrigated acres, a salt balance, cost estimates, a hydrologic balance of Salton Sea, and a groundwater flow analysis. Prepared exhibits and testified before the State Water Resources Control Board, California Superior Court, and federal District Court on the district's behalf.

Managed the design of a pumping plant, reservoir, and four-mile, 48-inch-diameter pipeline that are part of the Imperial Irrigation District's water conservation facilities.

Management of Groundwater and Water Systems

On behalf of The Metropolitan Water District of Southern California, prepared analyses and participated in studies of the need for additional pipeline facilities to serve the foothill area of its system, which includes the Raymond Basin and the San Gabriel and San Fernando Valleys.

Evaluated water resources management options for the city of Claremont, California. Water supply sources include imported water from the State Water Project purchased through overlying agencies and a local groundwater supply from four unadjudicated basins within the city limits supplied by a private utility.

Operations and rate studies were performed. Recommended future development strategy of 15,000 acre-feet of supplemental water and mitigation measures to remediate the rising groundwater problems in the city.

Performed water supply studies for the city of Glendale that included the development of blending procedures to mix high nitrate groundwater with imported Metropolitan Water District of Southern California (MWD) water for municipal supplies. Hydraulics and operations of the distribution system (seven pressure zones) were evaluated. An additional 3,000 acre-feet of groundwater pumped from four wells are blended to supplement the surface supply. Work also included an analysis of a power generation facility from the MWD supply service connection. Provided input on the draft of the water conservation ordinances during the 1991 drought.

In association with another firm, analyzed all pertinent hydrologic data on five major groundwater basins in southern California (Central and West Basin, San Fernando Basin, San Gabriel Basin, Chino Basin, and Orange Basin) for the possible development of conjunctive use operations within the Metropolitan Water District of Southern California's five-county service area.

Studied the extension of a pipeline for conjunctive use purposes from Bunker Hill into the Chino Basin.

Evaluated the cost allocation of a pipeline and other facilities for Tri-City Municipal Water District regarding a disputed allocation; prepared reports and was deposed.

Water Rights

Participating in the groundwater adjudication of the Antelope Valley. Chaired a technical committee which compiled an extensive hydrologic report and a Statement of the Problem summarizing groundwater conditions and water demands in the Antelope Valley.

Performed operation studies of Lake Arrowhead, including the development of a simulation model which can forecast lake levels, using 50-year historical hydrological data. Prepared studies on hydrology of Lake Arrowhead and testified before State Water Resources control Board on Pre 1914 Rights and proper operation of Lake Arrowhead.

Represented the City of Pomona in developing water rights, preparing technical analysis and participating in negotiations that led to stipulated Six-Basin groundwater adjudication.

For Eastside Reservoir, on behalf of land appraisers, prepared analyses of water supply and sewage disposal conditions for several parcels being appraised for The Metropolitan Water District of Southern California.

Prepared a hydrologic analysis of moving a water right storage permit from Fallbrook Dam to Lake Skinner for storage by Fallbrook.

Prepared appraisals of water rights and water systems, including wells and canals, of the Anaheim Union Water Company, water rights in San Diego County for City of Escondido and for County Counsel, and water rights in Puente Basin for a golf course.

Prepared an appraisal of the Suburban Water System, conducted rate studies, and assisted in the purchase negotiations for the City of Santa Fe Springs.

Valued the water rights tributary to the Puddingstone Reservoir for the County of Los Angeles.

Prepared appraisals of water rights and water facilities in City of Escondido. Also prepared a hydrologic analysis of natural flow in the San Luis Rey River system.

Determined validity of claim of riparian rights in the Nacimiento Reservoir area through a detailed search of historic ownership.

Design and Construction

From 1973 to 1979, responsible for preparation of construction specifications. Prepared specifications for over 30 construction contracts valued at over \$60 million, including canals, pipelines, pumping plants, wells, water treatment plants, water storage tanks, and miscellaneous support facilities. Also prepared about 15 specifications for furnishing of over \$20 million of equipment, including pumps, valves, meters, automatic controls, and electrical equipment.

Spreading Grounds

Analyzed the effects of gravel mining on groundwater recharge capabilities for the upper Santa Ana River system in southern California.

Sited the city of San Bernardino's regional tertiary treatment plant, which utilizes the rapid infiltration/extraction (RIX) process. As part of the Phase I work, located a site whose geologic conditions would allow the intended infiltration to occur.

Other Representative Experience

Supervised groundwater model study that used MODFLOW™ and a solute transport for a desert basin in Imperial County. A report was prepared and publicly presented. Also participated in EIR/EIS regarding extraction of water from desert basin for industrial use.

On behalf of The Metropolitan Water District of Southern California, was project engineer for a salinity management study to evaluate the effects of salinity including the economic impacts. Most salinity inflow to southern California enters in Colorado River water. The study recommended a strategy for dealing with the short-term and long-term effects of salinity buildup, particularly in groundwater basins and in recycled water projects.

Prepared a proposal on behalf of a private water company to acquire and operate utilities at Fort Ord, California.

Developed governance options for the Sacramento Metropolitan Water Authority.

Publications

VOC-Contaminated Water Cleanup Incentive Program, presented by co-author at American Society of Civil Engineers conference in Baltimore, Maryland, 1992.

Ground Water Recharge in the Central and West Coast Basins, presented at American Society of Civil Engineers, Environmental Section, Reno, Nevada, 1991.

Conjunctive Use Operations in the Central and West Coast Basins of Los Angeles County, presented at U.S. Committee on Irrigation and Drainage, El Paso, Texas, 1991.

Artificial Recharge with Imported and Reclaimed Water, presented at International Symposium on Artificial Recharge, Anaheim, California, 1988.

Financing Recharge: The California Experience, Tempe, Arizona, 1985.

PROOF OF SERVICE

I, Valerie Hanners, declare:

I am employed in the County of Kern, State of California. I am over the age of 18 and am not a party to the within action; my business address is Kuhs & Parker, 1200 Truxtun Avenue, Suite 200, Bakersfield, California 93301.

On July 15, 2010, I caused the foregoing document(s) described as: **TEJON RANCHCORP'S EXCHANGE OF EXPERT WITNESS INFORMATION** to be served on the parties in this action, as follows:

(X) (BY ELECTRONIC SERVICE) by posting the document(s) listed above to the Santa Clara County Superior Court website: www.scefilng.org regarding the Antelope Valley Groundwater matter.

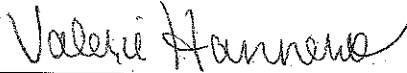
() (BY U.S. MAIL) I am readily familiar with the firm's practice of collection and processing of documents for mailing. Under that practice, the above-referenced document(s) were placed in seal envelope(s) addressed to the parties as noted above, with postage thereon fully prepaid and deposited such envelope(s) with the United States Postal Service on the same date at Bakersfield, California, addressed to:

() (BY FEDERAL EXPRESS) I served a true and correct copy by Federal Express or other overnight delivery service, for delivery on the next business day. Each copy was enclosed in an envelope or package designated by the express service carrier; deposited in a facility regularly maintained by the express service carrier or delivered to a courier or driver authorized to receive documents on its behalf; with delivery fees paid or provided for; addressed as shown on the accompanying service list.

() (BY FACSIMILE TRANSMISSION) I am "readily familiar" with the firm's practice of facsimile transmission of documents. It is transmitted to the recipient on the same day in the ordinary course of business.

(X) (STATE) I declare under penalty of perjury under the laws of the State of California that the above is true and correct.

() (FEDERAL) I declare under penalty of perjury under the laws of the United States of America that the foregoing is true and correct.



Valerie Hanners

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