

# NATIONAL WATER RESEARCH INSTITUTE

## Independent Advisory Panel for Soquel Creek Water District's Pure Water Groundwater Replenishment Study

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**Channah Rock, Ph.D. (Panel Chair)** Channah Rock serves as a Water Quality Extension Specialist and Associate Professor in the Department of Soil, Water, and Environmental Science at the University of Arizona. Her research interests include microbiology, molecular biology, and wastewater treatment. She evaluates water quality for the protection of public health and promotes water reuse as a safe and practical resource. Her background in both microbiology and civil and environmental engineering has focused her work on understanding the factors that influence pathogens' survival through water treatment and their persistence in the environment. Dr. Rock received a B.S. in Microbiology from New Mexico State University and an M.S. and Ph.D. in Civil and Environmental Engineering from Arizona State University. She conducted post-doctoral research at the U.S. Department of Agriculture's Agricultural Research Service.

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**Joseph Cotruvo, Ph.D., BCES.** Joe Cotruvo is president of Joseph Cotruvo & Associates, an environmental and public health consulting firm in Washington, DC. He is active in the World Health Organization (WHO)/National Science Foundation (NSF) International Collaborating Centre for Drinking Water Safety and Treatment. Previously, he served as director of the Criteria and Standards Division of the US EPA Office of Drinking Water, where his organization developed the Drinking Water Health Advisory System and numerous National Drinking Water-Quality Standards and Guidelines. He served as director of EPA's Risk Assessment Division and is a former vice president for Environmental Health Sciences at NSF International. He is a member of WHO Drinking Water Guidelines development committees, and he led the recently published monograph, "Desalination Technology: Health and Environmental Impacts." Dr. Cotruvo has led studies on bromate metabolism through the American Water Works Association Research Foundation and on recycled water contaminants for the WaterReuse Foundation. He was chairman of the Water Quality and Water Services Committee of the Board of Directors of the District of Columbia Water and Sewer Authority and serves as chair of the WaterReuse Association National Regulatory Committee. He received a B.S. in Chemistry from the University of Toledo and a Ph.D. in Physical Organic Chemistry from Ohio State University.

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**Jason Dadakis, PG, CHG.** Jason Dadakis is Executive Director of Water Quality and Technical Resources for Orange County Water District (OCWD) in Fountain Valley, California, where he has worked since 2004. He is responsible for managing regulatory compliance for groundwater recharge activities and recycled water projects, including the Groundwater Replenishment System. He also coordinates and directs water quality monitoring programs and studies for surface water, groundwater, and recycled water. He has experience in the planning, development, and use of groundwater models and tracer tests for resource management and transport analysis. Mr. Dadakis received a B.A. in Earth Sciences from Dartmouth College and an M.S. in Hydrology from the University of Arizona. He is a licensed professional geologist and certified hydrogeologist in the State of California.



**Lynne Haber, Ph.D., DABT.** Lynne Haber is a Senior Toxicologist and Adjunct Associate Professor at University of Cincinnati's Risk Science Center (RSC). Dr. Haber has more than 20 years of experience in developing risk assessment methods and documents. Prior to joining RSC, she was Associate Director for Science at Toxicology Excellence for Risk Assessment. She has authored or co-authored nine drinking water criteria documents for EPA's Office of Water. In addition, she is the primary author of more than 30 major documents for federal agencies including EPA and the Consumer Product Safety Commission (CPSC), other government agencies, and private sponsors, and was lead author of the noncancer risk assessment chapter for Patty's Toxicology (2001, 2011). Her research interests include mode of action, sensitive populations, and improving extrapolation from animal data. Dr. Haber has served on numerous peer review panels, both as chair and member, including for the RSC, EPA, CPSC, National Academy of Sciences/National Research Council, and has been an officer of specialty sections in the Society of Toxicology and the Society for Risk Analysis. She is a Diplomate of the American Board of Toxicology, and holds a Ph.D. in Biology from Massachusetts Institute of Technology and a B.S. in Chemistry from University of California, Los Angeles.

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**Kara Nelson, Ph.D.** Kara Nelson is a Professor in Civil and Environmental Engineering at the University of California, Berkeley. Her research addresses critical issues at the intersection of public health and the environment, with a focus on reducing the threat posed by waterborne pathogens by improving infrastructure to make it more effective, affordable, and environmentally beneficial. Specific research areas include: mechanisms of pathogen inactivation; molecular techniques for pathogen detection; optimization of treatment processes; water reuse; and challenges to providing safe drinking water and sanitation in the developing world. Dr. Nelson has published more than 50 articles in peer-reviewed journals, including two invited reviews, and one book chapter. She is Director of Graduate Education at the National Science Foundation Engineering Research Center for Reinventing the Nation's Urban Water Infrastructure (ReNUWIt), and the faculty leader of the Research Thrust Area on Safe Water and Sanitation at Berkeley Water Center. Dr. Nelson received the Presidential Early Career Award for Scientists and Engineers (PECASE) at a ceremony at the White House in 2004, which is the nation's highest honor for scientists in the early stages of their career. She received a B.A. degree in Biophysics from University of California, Berkeley, an M.S.E. in Environmental Engineering from the University of Washington, and a Ph.D. in Environmental Engineering from University of California, Davis.

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**Gordon Thrupp, Ph.D., PG, CHG.** Gordon Thrupp is a senior hydrogeologist at Geosyntec Consultants in San Francisco and has more than 30 years of experience providing hydrogeological consulting services. For numerous projects he has developed groundwater flow models, designed wells and hydraulic testing programs, and directed environmental investigations. Dr. Thrupp has developed, applied, and reviewed groundwater models for many applications, including: evaluating groundwater resource capacity; assessing hydraulic connection between surface water and groundwater; investigating potential for contaminant migration and sea water intrusion; designing hydraulic containment alternatives; locating and designing municipal supply wells and coastal margin subsurface intakes; designing sewage and groundwater infiltration basins; assessing impact of open-pit mines on groundwater systems; and predicting groundwater seepage rates into excavations for dewatering feasibility studies. He received a B.S. in Geology from Stanford University and a Ph.D. in Earth Sciences from University of California, Santa Cruz.