EWTS
Emerging Water Technology Symposium

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MAY 15-16, 2018

THE ONTARIO DOUBLETREE HOTEL | ONTARIO, CA

Co-convened by:

Presented in cooperation with:

Industry and media partners:
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Dear Symposium Participant,

The co-convening organizations of the sixth Emerging Water Technology Symposium (EWTS) welcome you and thank you for your participation.

The plumbing, mechanical, water utility and water-efficiency industries continue to face new and serious challenges. The entrepreneurs, industry leaders, experts and researchers you will hear from over the course of the next two days were selected by our technical committee based on their ability to provide valuable ideas and information that our attendees will find timely and useful.

To make the best use of our time together, we also need to hear from you! It is our hope that by participating in a forum that allows for candid discussion and networking, our attendees will leave the symposium knowing that they are better informed on these complex issues, and the emerging technologies and best practices that are being developed to address them.

As always, we are interested in hearing from our participants. Please make a point to complete our post program survey, which you’ll find in your inbox shortly after the conclusion of the symposium. This feedback is important as we strive to provide the most comprehensive program possible. We look forward to seeing you again at the seventh Emerging Water Technology Symposium in the spring of 2020.
8:00 - 8:30 a.m. **WELCOMING REMARKS**

Russ Chaney, IAPMO, CEO, Kerry Stackpole, PMI, CEO/Executive Director, Billy Smith, ASPE, Executive Director/CEO, and Mary Ann Dickinson, AWE, President/CEO.


**Day 1 AM Moderator – Sharon Rehana**

8:30 - 9:15 a.m. **KEYNOTE SPEAKER**

Dr. Peter Williams, *Independent Consultant and Advisor - Formerly Smart Cities and Resilience Lead for IBM’s Utilities Practice*

**PODIUM PRESENTATIONS**

9:15 - 9:45 a.m. Peter Mayer, *Principal, WaterDM*

*Water Demand Trends, Efficiency and the Future of Urban Water Use*

9:45 - 10:15 a.m. Bill Hoffman, *President, H.W. Hoffman and Associates*

*Institutional, Commercial and Industrial (ICI) Water Use by the Numbers*

10:15 - 10:45 a.m. **REFRESHMENT BREAK AND VISITATION OF SPONSOR DISPLAYS AND UA TRAILER**

10:45 - 11:15 a.m. Paula Kehoe, *Director of Water Resources, San Francisco Public Utilities Commission*

*Advancing Non-Potable Water Systems*

11:15 - 11:45 a.m. Carmen Cejudo, P.E., *Project Manager, PAE*

*Closing the Loop: Approaches to Net-Zero Water*
11:45 a.m. - 12:15 p.m.  
David Crawford, President, American Rainwater Catchment System Association (ARCSA)  
*Rainwater Harvesting in the 21st Century*

12:15 - 1:15 p.m.  
*LUNCH*

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**TUESDAY, MAY 15**  
**DAY 1: AFTERNOON SESSION**

Day 1 PM Moderator – John Mesenbrink

### PODIUM PRESENTATIONS

1:15 - 1:45 p.m.  
Steven Buchberger, PhD, P.E., *Professor and Head, Department of Civil & Architectural Engineering & Construction Management, College of Engineering and Applied Science, University of Cincinnati*  
*Estimating Peak Water Demands in Buildings with Efficient Fixtures – Progress and Prognosis*

1:45 - 2:15 p.m.  
Gary Klein, *Principal, Gary Klein and Associates*  
*What You Don’t Know You Don’t Know About (Hot) Water*

2:15 - 2:45 p.m.  
Jim Lutz, *Principal, Hot Water Research*  
*In Search of the Missing Shower Water*

2:45 - 3:15 p.m.  
W.G. (Walter) van der Schee, BSc, *Concept Developer, Croonwolter&dros B.V.*  
*Thermostatic Balancing Valves in Hot Water Circulation Systems*

3:15 - 3:45 p.m.  
*REFRESHMENT BREAK AND VISITATION OF SPONSOR DISPLAYS AND UA TRAILER*
The ISO Water Efficiency Standard: Reducing Water Use Through Water Efficiency Labelling

Brett Lovett, Senior Manager, Stakeholder Engagement, Standards Australia
Introduction to the ISO Water Efficiency Standard

Carol Grossman, PhD, Director, Water Efficiency Labelling and Standards, Australian Department of Agriculture and Water Resources
Reducing Water Use Through Water Efficiency Labelling - The Australian Experience

Yvonne Orgill, Chief Executive, Bathroom Manufacturers Association
The European Experience

Veronica Blette, WaterSense Program Manager, US EPA
The American Experience

PANEL DISCUSSION
The ISO Water Efficiency / Banding Standard: The Development Process and Co-existing with Mature National Labelling Programs

END OF DAY 1

6:00 - 8:00 p.m.
EVENING NETWORKING RECEPTION
• Wine, beer, soft drinks and light hors d’oeuvres
• Visitation of sponsor displays and UA trailer
## Wed, May 16

### Day 2 AM Moderator – John McNally

<table>
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| 8:00 - 8:30 a.m. | **Joseph A. Cotruvo, PhD, BCES, President, Joseph Cotruvo & Associates, LLC**  
*A Review of the Legionella 2018 Management Conference Findings* |
| 8:30 - 9:00 a.m. | **Thomas Kistemann, M.D., Institute for Hygiene & Public Health, Bonn University (Germany)**  
*Drinking Water Quality: Pathogen Prevention by Controlling Conditions Inherent to the Plumbing System* |
| 9:00 - 9:30 a.m. | **Juneseok Lee, PhD, P.E., Associate Professor, San Jose State University**  
*Development of Premise Plumbing Hydraulic-Water Quality Models* |
| 9:30 - 10:00 a.m. | **William F. McCoy, PhD, Chief Technology Officer, Co-Founder, Phigenics, LLC**  
*Advances in Molecular Marker Negative Screening for Validation of Legionella Control in The Built Environment* |
| 10:00 - 10:30 a.m. | **REFRESHMENT BREAK AND VISITATION OF SPONSOR DISPLAYS AND UA TRAILER** |
| 10:30 - 11:00 a.m. | **Jocelyn Lu, Senior Staff Engineer, Brown and Caldwell, (On Behalf of California Urban Water Agencies)**  
*Adapting to Change: Declining Flows and Utility Systems* |
| 11:00 - 11:30 a.m. | **Dr. Markus Lenger, CEO, Cleanblu Innovations Inc.**  
*Smart Cities and Water Re-use* |
| 11:35 a.m. - 12:00 p.m. | **Mary Ann Dickinson, President and CEO, Alliance for Water Efficiency**  
*Legal Landscapes: How State Laws Do (and Don’t)* |
| 12:00 - 1:00 p.m. | **LUNCH** |
Day 2 PM Moderator – Steven Spaulding

PODIUM PRESENTATIONS

1:00 - 1:30 p.m.  Marty Laporte, Principal, ManageWater, Inc.  
Adoption and Selective Use of Intelligent Technologies: Challenges and Benefits for Significant Value, Increased Safety and Efficiency

1:30 - 2:00 p.m.  David Jacot, P.E., Director of Efficiency Solutions, and Amir Tabakh, USM, P.E., Chief of Efficiency Solutions Engineering, and DWP La Kretz Labs, Los Angeles Department of Water and Power (LADWP), Office of Sustainability  
City of Los Angeles High Efficiency Plumbing Fixtures Ordinance No. 180822

2:00 - 2:30 p.m.  Eli Goldstein, PhD, CEO, SkyCool Systems  
Non-Evaporative, Sub-Ambient Cooling with the Sky  
Presentation sponsored by the Plumbing Contractors Association (PCA)

3:00 - 4:00 p.m.  SPECIAL EWTS PRESENTATION  
The Robo-Rebels of Suzanne Middle School, Walnut, California  
Development of the Pressure Potty Water Saving Sensor

~4:00 - ~4:30 p.m.  DRAWING FOR REGISTRATION / GIFT CARD  
Closing remarks from co-convener CEOs, moderators, speakers, panelists, and attendees
DAY 1 AM MODERATOR
Sharon Rehana is an editor, writer and digital media strategist with more than 10 years of experience working on trade publications. She received her B.A. in magazine journalism from Columbia College Chicago in 2003 and began her tenure in the publishing world at Hanley Wood as an editor/digital community manager for CONCRETE CONSTRUCTION and THE CONCRETE PRODUCER magazines. After taking a brief hiatus from publishing to teach English in South Korea from 2009-2010, Rehana returned to Chicago where she sought her second B.A. in social justice studies from Northeastern Illinois University. During that time, she took on an active role in Amnesty International. In 2016, she returned to the world of publishing and joined TMB Publishing as Editorial Director of Plumbing Engineer, PHC News and The Wholesaler.

DAY 1 PM MODERATOR
John Mesenbrink has been covering the plumbing, mechanical and HVAC industry for more than 15 years for various trade publications. He currently is president of Mechanical-hub.com, an online resource for plumbing, HVAC and hydronic contractors. He also is editor-at-large for Contractor magazine and contributing writer for Net Zero Buildings magazine.

DAY 2 AM MODERATOR
John McNally has been the chief editor of Plumbing & Mechanical Engineer since September 2013. He joined the BNP Media’s Plumbing Group in August 2011 as a senior editor with Supply House Times. He earned a bachelor’s degree in journalism and mass communication from the University of Wisconsin-Milwaukee.

DAY 2 PM MODERATOR
Steven Spaulding is Associate Editorial Director for CONTRACTOR, the news magazine of mechanical contracting. He has been covering the plumbing, heating and piping industry as a writer and editor for more than 20 years.
Dr. Peter Williams has played a major role in the development and delivery of IBM’s smart cities, water management and resilience solutions. He has worked with organizations as diverse as the UN and EU, many city, state and local governments, and many utilities on these issues. He co-wrote the UN’s City Disaster Resilience Scorecard, used by about 40 cities globally, and now scheduled to be used by a further 200.

By background a strategy and change consultant, he has spent his career at the intersection of technology and strategy, and currently focuses on issues including the role of the Internet of Things, artificial intelligence, and block-chains in city and utility operations. He has extensive experience of advising VCs and start-up companies in these areas.

A native of the UK, Dr. Williams has lived in the U.S. since 1999. His Doctorate is from the University of Bath. He also holds the title of IBM Distinguished Engineer and was a Visiting Lecturer on Smart Cities and Communities at Stanford University. He is married with three adult children.
Veronica Blette is the Chief of the WaterSense Branch in the Office of Wastewater Management at the U.S. Environmental Protection Agency. She previously served for several years as Special Assistant to the Director of the national drinking water program and managed the Drinking Water State Revolving Fund program. Before joining EPA in 1997, she worked in the academic research and environmental consulting fields on projects investigating the effects of atmospheric deposition on terrestrial ecosystems and water quality. She has a B.A. in Geology from Smith College and a M.S. in Geology from the University of Massachusetts at Amherst.

Steven G. Buchberger, PhD, PE. has authored over 125 archived publications and directed $11 million in research projects since joining the University of Cincinnati (UC) faculty in 1988. He has advised 65 graduate students at UC and other institutions over the past 30 years. Three of his students have won national best paper awards from the American Society of Civil Engineers. Professor Buchberger served as Associate Editor of the ASCE Journal of Water Resources Planning and Management for 10 years; he was Chief Editor for two special issues on Water Distribution Systems Analysis. He has a B.S. in Civil & Environmental Engineering from the University of Wisconsin at Madison, a M.S. in Civil Engineering from Colorado State University, and a PhD in Civil Engineering from the University of Texas at Austin. He is a Registered Professional Engineer, State of Colorado.

Carmen Cejudo, PE., LEED AP is a project manager and lead plumbing engineer at PAE with a decade of experience. She has provided mechanical and plumbing engineering for a variety of project types ranging from single family homes to large commercial facilities. With a background in environmental engineering, Cejudo is particularly passionate about sustainable plumbing system designs and has provided expertise for numerous projects on the path to achieve high sustainability benchmarks, including the “S” Office Development which is pursuing the Seattle Living Building Pilot Program via the Water Petal. She also recently provided pro bono consulting services for the award-winning Mt. Everest Biogas Project, which aims to reduce human impact on Mt. Everest and the surrounding environment by safely and sustainably processing human waste left on the mountain.
Joseph A. Cotruvo, PhD, BCES is president of Joseph Cotruvo and Associates, LLC, Water, Environment and Public Health Consultants, with a B.S. in Chemistry from University of Toledo, and PhD in Physical Organic Chemistry from the Ohio State University. He is Board Certified in Environmental Sciences, and Research Professor in the Departments of Chemistry and of Environmental Sciences at the University of Toledo, and a member of the School of Green Chemistry and Engineering Science Advisory Board. Cotruvo is a longtime member of the World Health Organization’s Guidelines for Drinking Water Quality Committee, Water Reuse Guidelines, and numerous expert advisory panels on drinking water quality, water reuse and desalination. Including Singapore’s National Environment Agency Water Standards Advisory Committee, and the Nanyang Technical University Environment and Water Research Institute (NEWRI) Advisory Board, and numerous large scale wastewater and potable water reuse projects including Orange County, San Diego and Los Angeles, California.

At USEPA, he was first Director of the Drinking Water Standards Division, and Director of the Risk Assessment Division in Pollution Prevention and Toxics. His Drinking Water Standards Division developed comprehensive national drinking water regulations and risk assessments for microbial contaminants, organic and inorganic chemicals and radionuclides, the original regulations for THM disinfection by-products, surface water filtration, and corrosion control for lead and copper. He also initiated EPA's Drinking Water Health Advisory Program providing health risk guidance for unregulated contaminants and emergencies.

David Crawford put his 22 years of experience in healthcare consulting, marketing, sales, and residential/commercial construction into a new company, Rain Water System, Inc., in 2000. His vision was to address rainwater conservation and management as well as sustainable water applications and practices. Today that company, now known as Rainwater Management Solutions, provides design, consulting, and engineering solutions for rainwater and stormwater management to commercial and residential developers, engineering and architectural firms, and professionals in the agricultural field. To date, the Salem, Virginia-based company has designed and/or installed thousands of rainwater systems across North America.

In 2001, he and his brother Ed lobbied the Virginia House and Senate for passage of the first rainwater harvesting legislation in the U.S. The following year he worked with the Virginia State Health Department to rewrite graywater laws. Crawford was involved in writing Virginia’s first Rainwater Harvesting Manual.
PODIUM PRESENTERS AND PANELISTS

David is the current President of the American Rainwater Catchment Systems Association (ARCSA), is Chairman of the Board of the ARCSA Foundation, and is an ARCSA Accredited Professional. He was also involved in writing the ARCSA Rainwater Harvesting Manual.

David received his B.S. in Economics and Accounting from Mars Hill College in 1976. He has published numerous articles on water conservation and water sustainability issues and practices in local and national publications such as Laundry Today, Consulting-Specifying Engineer, Mother Earth News, Virginia Business Journal, The Roanoke Times, Farm Bureau Monthly, and Southern Farmer.

Mary Ann Dickinson is the President and CEO of the Alliance for Water Efficiency, a non-profit organization dedicated to promoting the efficient and sustainable use of water in the United States and Canada. Headquartered in Chicago, the Alliance works with over 400 water utilities, water conservation professionals in business and industry, planners, regulators, and consumers. In 2014 the Alliance won the U.S. Water Prize in the non-profit category for its work.

In addition, Dickinson is the Executive Director of the California Water Efficiency Partnership, a chapter of the Alliance for Water Efficiency based in Sacramento. The Partnership continues the historical work of the California Urban Water Conservation Council, a non-profit organization that for over 25 years managed the nation’s first set of Best Management Practices.

Dickinson has over 40 years of experience, having worked at the California Urban Water Conservation Council, the Metropolitan Water District of Southern California, the South Central Connecticut Regional Water Authority, and the Connecticut Department of Environmental Protection. A graduate of the University of Connecticut with a degree in environmental planning, Dickinson has authored numerous publications on water conservation, land use planning, and natural resources management, and has co-produced two films which have aired on public television and community cable stations. Dickinson is past Chair of the Efficient Urban Water Management Specialist Group for the International Water Association, past Chair of the American Water Works Association National Water Conservation Division, past President of the California Irrigation Institute, past President of the Lake Arrowhead Community Services District, and currently serves as a Board member of the California Irrigation Institute, the Green Building Initiative and the Texas Water Foundation.
Eli Goldstein, PhD is passionate about reducing energy in buildings. He has his PhD in mechanical engineering from Stanford where he studied ways to burn coal and prevent the emissions of CO2. He is an expert in heat transfer, combustion and understanding energy systems. Also while at Stanford, he worked with researchers to develop a novel material that cools passively when exposed to the sky. In 2016, he left his research appointment at Stanford with the goal of commercializing this novel cooling technology at SkyCool Systems. SkyCool Systems has used this novel material to make a fluid cooling panel which they hope to deploy later this year as an energy efficiency add on to commercial air conditioning and refrigeration equipment. Email info@skycoolsystems.com for more information.

Carol Grossman, PhD is Director of Australia’s Water Efficiency Labelling and Standards (WELS) program in the Department of Agriculture and Water Resources, a position she has held since July 2016. She has been a professional public servant for more than 10 years in water resources and land management areas. Dr. Grossman holds a PhD in Biochemistry from the University of Wisconsin. She moved from the U.S. to Australia in 1991 to take up a research position at the Commonwealth Scientific and Industrial Research Organisation and also served as a lecturer at the Canberra Institute of Technology.

Bill Hoffman is currently President of H.W.(Bill) Hoffman & Associates, LLC. He has over 50 years of experience in water resource planning, conservation, reuse and project engineering. He is a registered professional engineer and holds a B.S. in Chemical Engineering and an M.S. in Environmental Engineering, both from the University of Texas in Austin. He has worked extensively in the area of water efficiency and reuse in the commercial and industrial areas. Work has taken him to six countries. He is a present or past member of numerous codes and standards organizations, including IAPMO, and serves on the Texas Water Conservation Advisory Council to the Texas Legislature and Governor. He has published numerous articles on water efficiency in the commercial, institutional and industrial sectors.
David Jacot, P.E. is the Director of Efficiency Solutions for the Los Angeles Department of Water & Power (LADWP). LADWP operates the largest public power portfolio of energy efficiency programs in the nation, comprised of a broad array of energy resource acquisition and market transformation programs serving LADWP’s customers and trade ally networks.

In this role, Jacot oversees all aspects of LADWP’s offerings and strategies designed to overcome market barriers to the comprehensive adoption of energy efficiency by LADWP’s customers, as well as the integration of energy efficiency with other distributed energy resources to facilitate LADWP’s eventual transition to 100% renewables. Jacot also oversees the integration of electric, gas, and water efficiency programs through a nation-leading joint program partnership with the natural gas utility serving Los Angeles, the Southern California Gas Company. Finally, Jacot manages LADWP’s energy and water efficiency labs, hand-on demonstration facilities, and emerging technology assessment and commercialization efforts at the La Kretz Innovation Campus, home of the world-renowned Los Angeles Cleantech Incubator.

Jacot has a Bachelor’s degree in Mechanical Engineering from the University of Oklahoma, and a Master’s degree in Urban and Regional Planning from California State Polytechnic University – Pomona, as well as 18 years of experience designing high performance building systems, modeling building energy usage, and managing cost-effective and investment-grade energy efficiency programs.

Paula Kehoe is the Director of Water Resources with the San Francisco Public Utilities Commission (SFPUC). She is responsible for diversifying San Francisco’s local water supply portfolio through the development and implementation of conservation, groundwater, and recycled water programs. Kehoe spearheaded the landmark legislation allowing for the collection, treatment, and use of alternate water sources in buildings and districts within San Francisco. Previously, she worked as the Assistant to the General Manager of the SFPUC and supported the utility’s $4.8 billion capital improvement program designed to rebuild and repair the third largest water delivery system in California. As Public Education Director for the SFPUC’s Water Pollution Prevention Program, she received six state and national awards. Kehoe holds a B.A. from the University of Colorado, Boulder and a M.S. from the University of San Francisco.
**PODIUM PRESENTERS AND PANELISTS**

**Thomas Kistemann, M.D.** is the Director of GeoHealth Centre, Vice-Director of the Institute for Hygiene and Public Health, University of Bonn, Germany, and Head of the WHO Collaborating Centre for Health Promoting Water Management and Risk Communication. In these roles, he coordinates the Institute’s international affairs, researches and supervises national and international research projects in the field of epidemiology, environmental health, hospital hygiene and geography of health, teaches, and consults in the field of hospital hygiene. Prior, Kistemann was a senior researcher and head of a working group for Public Health & Medical Geography at the Institute for Hygiene and Public Health, University of Bonn, which included project coordination and research on infectious disease epidemiology, health impact of water quality, and geography of health. Kistemann’s education includes an M.A. from the Department of Geography, University of Bonn, Germany, an M.D., Medical Studies, from the University of Göttingen, Germany, and a Dr. Med. from the Institute for Hygiene and Public Health, University of Bonn, Germany.

**Gary Klein,** President of Gary Klein & Associates, Inc., has been intimately involved in energy efficiency and renewable energy since 1974. One fifth of his career was spent in the Kingdom of Lesotho, the rest in the United States. Klein has a passion for hot water: getting into it, getting out of it and efficiently delivering it to meet customer’s needs. After serving 19 years with the California Energy Commission, he has provided consulting on sustainability since 2008, with an emphasis on the water-energy-carbon connection. Klein received a B.A. from Cornell University in 1975 with an Independent Major in Technology and Society with an emphasis on energy conservation and renewable energy.

The International Association of Plumber and Mechanical Officials (IAPMO) recognized his efforts in 2014, presenting him their Green Professional of the Year award. In 2015, the Department of Energy awarded him the Jeffrey A. Johnson Award for Excellence in in the Advancement of Building Energy Codes.

**Marty Laporte, M.S.** has managed water and environmental programs for more than 20 years. She has broad experience in working with interdisciplinary teams and implementing water compliance, quality, efficiency, emergency, and drought response projects for the commercial, industrial, and institutional sector. Laporte is the Principal with ManageWater Consulting, Inc., focusing on integrating innovative technologies and practices for water management. She is an FAA-certified small Unmanned Aircraft Systems (sUAS) pilot.
Prior to MW, she was the Associate Director at Stanford University’s Utilities Department. She has conducted pilot studies using Advanced Metering Infrastructure, data analytics, and weather-based irrigation technology. Laporte served as a BAWSCA and BAWUA Board member from 1993 to 2015. In March 2015, she was awarded a Lifetime Achievement Award from the Silicon Valley Water Conservation Coalition.

Laporte has an M.S. degree in Geology from San Jose State University and a B.A. in Biology and Environmental Studies from U.C. Santa Cruz. A life-long learner, she completed the Stanford University Graduate School of Business Entrepreneurial Certificate Program.

Juneseok Lee, PhD, P.E. has conducted research on a number of different aspects related to drinking water infrastructure analytics/modeling. Since joining SJSU’s Department of Civil and Environmental Engineering in 2008, Dr. Lee has secured grant funding of over $900k to support his research from organizations including the National Science Foundation, the US Environmental Protection Agency, the California Water Service Company, and Hewlett-Packard. Dr. Lee has more than 50 publications, including articles in highly respected journals and conference proceeding papers presented at national and international conferences on the environment, water resources, and infrastructure engineering. In 2018, he won the Best Paper Award from AWWA. Dr. Lee, whose Ph.D. in Civil and Environmental Engineering was awarded by Virginia Tech in 2008, is a registered Professional Engineer of Civil Engineering in the state of California and was the 2011 ASCE Fellow for Excellence in Civil Engineering Education. In 2013 he received SJSU’s Young Investigator Award. He currently serves as an Associate Editor of the ASCE Journal of Water Resources Planning and Management and has been appointed to the California Water Service Co. Chair, leading an active research collaboration between SJSU students and Cal Water Technical Staff that is addressing a broad range of challenges confronting the state’s water industry.
Dr. Markus Lenger is CEO and Co-founder of CleanBlu Corporation, which is dedicated to inspiring an environmental revolution in wastewater management. Markus holds a Doctorate in High Energy Physics and during his 30-year career in wastewater has developed, patented and marketed the CleanBlu FOG-DS, an at-source, in-situ FOG Disposal System. More recently, Markus has designed and developed water reuse control and building management systems, integrating IoT software and custom PC boards, all while establishing a full in-house production and manufacturing facility in Orange County, CA.

Brett Lovett is a Senior Manager and leads half of Standards Australia’s Stakeholder Engagement and strategic thought leadership work through the Agriculture, Energy, ICT, Manufacturing, Consumer, Education and Transport and Logistics sectors. Through Standards Australia, Lovett and his team have delivered the world-first Digital Hospital Handbook, have pioneered work with APEC on the “Silver Economy” project, focusing on how standardisation can positively impact older people and their interaction with the economy, and most recently delivered an approved ISO project for an International Standard on Water Efficient Products. Lovett was previously a Vice President of Citi Australia, leading Queensland’s business through the transition from Banking to Wealth Management. Lovett holds a Bachelor Degree in Politics from the University of Wollongong in NSW, and an MBA in Leadership and Communication from Deakin University in Victoria.

Jocelyn Lu received a B.S. in Environmental Engineering from the University of California, San Diego. She currently works as a Senior Staff Engineer at Brown and Caldwell, but at the Emerging Water Technology Symposium representing the California Urban Water Agencies (CUWA). Her work includes design and analysis for projects related to wastewater and recycled water infrastructure. She’s most passionate about water reuse and currently serves as Secretary for the Water Reuse San Diego Chapter.
Jim Lutz is an independent researcher whose work focuses on improving the efficiency of residential domestic hot water systems, both the water heaters and the distribution systems. He is active in ASHRAE, currently serving as chair of Standards Project Committee 118.2, Method of Testing for Rating Residential Water Heaters. Lutz is a registered professional engineer and licensed general contractor in California. He has a B.S. in Engineering Science from California Polytechnic University at San Luis Obispo and a B.A. in Sociology from Stanford University.

Peter Mayer is a professional engineer and urban water expert in the areas of water use, water efficiency, demand management, and water resource planning. For more than 20 years, Mayer’s work has focused on urban water management, researching water use patterns, assessing the impact of water rate structures, evaluating water efficiency measures and programs, forecasting future demand with and without conservation, preparing water demand management plans and conducting water supply scenario analysis.

Mayer was the lead author for the Water Research Foundation (WRF) “Residential End Uses of Water” studies published in 1999 and 2016 and a key contributor to the companion “Commercial and Institutional End Uses of Water” study. In 2017, Mayer published ground breaking research on peak demand management through advanced irrigation control. He is currently leading three research studies for WRF and the Alliance for Water Efficiency (AWE) on meter sizing, outdoor water savings, and drought response.

In 2013, Mayer founded WaterDM – Water Demand Management. Throughout his career, Mayer has worked with more than 100 water providers across the United States, Canada, and Australia.

Mayer is vice chair of the AWWA Customer Metering and Practices committed, and he chaired the subcommittee that prepared the 3rd edition of AWWA’s M22 Sizing of Water Service Lines and Meters manual. He is a four time winner of AWWA and ASCE Journal “Best Paper” awards, and is a regular contributor to the AWWA Journal.

Mayer earned his Master’s Degree in water resources engineering from the University of Colorado in Boulder in 1995 and holds a bachelors degree from Oberlin College.
William F. McCoy, PhD is Co-Founder of Phigenics LLC, a provider of solutions to improve the efficiency and safety of water systems in buildings. He serves as the Chief Technology Officer for the company. Prior to Phigenics, McCoy worked for 22 years in commercial development of water treatment products and services for large multi-national corporations.

Since graduate studies beginning in 1978, he has been continuously innovating in the chemistry, microbiology and analytical diagnostics of water management. McCoy has published more than 100 scientific articles, including 29 US patents (all with international equivalents) and 8 book chapters. The International Water Association published his full-length book entitled Preventing Legionellosis.

McCoy is the recipient of the International Water Association Medal for Outstanding Contribution to Management and Science (Berlin 2001), Inventor of the Year Award from the Intellectual Property Law Association (USA 2001), Grand Prize Technical Innovation Trophy from the SUEZ Group (Brussels 2000), Governor’s Pollution Prevention Award from the State of Illinois (USA 1999), and the R&D 100 Award from Research and Development Magazine (USA 1998).

He is currently an advisor to NSF International and is a voting member of their committee to develop an ANSI Standard entitled “Prevention of Disease and Injury Associated With Building Water Systems”. McCoy presently serves as member on the ASHRAE Environmental Health Committee and ASHRAE SSPC 188 standards development committee. He has served previously as past Chairperson for both committees.

His PhD in Microbiology is from the University of Calgary and his M.Sc. is from the University of Hawaii. He has two undergraduate degrees in Chemistry and Microbiology.

Yvonne Orgill is the high profile Director of the Water Label, the voluntary labelling scheme which shows water and energy usage characteristics of bathroom and kitchen products. Orgill launched the scheme in 2006 based on a simple yet ground-breaking idea which emerged from the Bathroom Manufacturers Association in the United Kingdom, which she also leads as CEO. Her long and deeprooted experience of the industry, and her unceasing enthusiasm for the sustainable benefits of the Water Label, has motivated her to grow it from humble beginnings to a unique multi-award winning scheme of 10,872 registered products across 34 European Countries. The Scheme continues to flourish and is now one of four partners working together under the ‘Best of All’ approach. Orgill is a key driver working closely with other Schemes from Sweden, Switzerland and Portugal.
Amir Tabakh graduated from San Diego State University with a Master’s in Mechanical Engineering. Through his employment with LADBS (1985-2008) he managed construction activities for high rise and low-rise structures in HVAC, Plumbing, Fire Protection and Elevators by working as the director of Mechanical Testing Laboratories for LADBS (1999-2008). In this capacity, he served as the chair of Plumbing Technical Advisory Committee (PTAC) and led the code adoptions for the LA City in the above disciplines, as well as working with California Seismic Commission, California Building Standards Commission, and SoCalGas on safety issues related to buildings and seismic gas shut-off valves. Additionally, he has served on IAPMO Uniform & Green Codes, including a member of IAPMO Standard and Product Certification Committee. Tabakh is also an accredited NITC Green Plumber.

Tabakh joined LAWP in October of 2008 as the director of environmental engineering and in this capacity he led the adoption of the most aggressive green plumbing ordinance in the nation less than eight months of his arrival. Then he started to retrofit over 600 buildings owned by LADWP through partnership with union plumbers. In April 2012, he was assigned by David Jacot to be the Chief of Energy Efficiency Engineering and in April 2016 he was promoted to manager of the LADWP La Kretz Labs and Efficiency Solutions Engineering. Tabakh's passion is to promote sustainability and nexus among water, energy and CO2 emissions by supporting the implementation of emerging technologies and codes and standards that are cost effective and of beneficial to customers.

Walter van der Schee, BSc is an employee of Croonwolter&dros, based in Amersfoort, the Netherlands. He is responsible for the engineering of MEP installations. As member of the Dutch Technical Association for Building Installations (TVVL), he is one of the experts consulting for plumbing technologies. He was awarded the BJ Max Award in 2006 for his work within the TVVL. For further information about his employer or the TVVL association, consult their websites at www.croonwolterendros.nl and www.tvvl.nl.
The Robo-Rebels of Suzanne Middle School in Walnut, CA are passionate about water and they have done something about it! The novel device that they have developed, the Pressure Potty Water Saving Sensor, recently won first place in a Los Angeles regional robotics competition and as a result the Robo-Rebels were invited to the World Championship event in Houston, TX. As part of their efforts, this team of sixth graders developed a series of posters that they created about water leaks, which were made into signs and placed throughout the cities of Walnut and Diamond Bar. The Robo-Rebels will report on their device design, the competitions and their plans for the future! The EWTS is proud to have these brilliant and innovative young people as part of our program.
### TABLE PRESENTERS

#### ACT Inc.
ACT Inc. develops and manufactures electronic Hot Water D’MAND KONTROL® Systems for the distribution of potable hot water for residential, commercial and multi-family buildings both existing and new construction since 1992. ACT Inc. products have been tested by Oak Ridge National Laboratories, funded by the US Dept. of Energy and received a Certificate of Recognition in 2001 for their savings of both water and energy.

Acker has been involved in the study and research of energy & water conservation products for the last 45 years. Acker has invented several sustainable products including the electronics for Demand Controls and is consider a leading authority on Hot Water Distribution Systems. Larry coined the term “STURCTURED PLUMBING®” currently being applied to residential and commercial buildings. He has worked with the building industry for over 40 years and was the Chairman of the Pacific Coast Builders Conference in 2001.

Currently Southern California Gas Company has a “No Charge” Rebate program called ODE (On Demand Efficiency) for multi-family buildings with Central Boiler/water heaters that operate on a 24/7 circulation pump. This program incorporates Acker’s technology.

Acker has been a featured speaker at several national and international conferences such as ASHRAE, IAPMO, AWWA, ACEEE, PHCC and the SB-08 International Energy Conference in Melbourne Australia in 2008 and the Australian Master GREENPLUMBERS Conference in Australia in 2005. Acker has written articles that have appeared in National Trade Magazines over the last 15 years on sustainability for residential buildings.

DESIGNED FOR TODAY, DEDICATED TO THE FUTURE®. Learn more at www.gothotwater.com

#### Aqua-Rex LLC
Aqua-Rex LLC is the US distributor for Lifescience Products Ltd, a UK based company. Lifescience is a technology leader in the use of Physical Water Conditioners (PWC’s), non chemical alternatives to conventional ion exchange water softeners. Whilst PWC’s are the industry accepted norm for treating hard water in the UK, where about 95% of hard water treatment is delivered by them, acceptance and use of PWC’s in the US has been held back by the lack of an acceptable US performance standard to measure their effectiveness.

In 2016 Aqua-Rex commissioned IAPMO R&T to develop a performance standard based on the test protocol known as the Rapid Scaling Test which has been used for many years in the UK. This was delivered in October 2017 as IGC 335-2017 and has been modified recently as IGC 335-2018. Aqua-Rex will be demonstrating the test rig defined by IGC 335 on their table top.
IGC 335-2018 has proven the effectiveness of the Aqua-Rex PWC with scale reduction of 83% in Las Vegas water heated to 180oF. This has significant implications for the conventional water softener industry who have until now made the claim that none of these devices are scientifically proven or actually work. The existence of IGC 335 also throws into question the need for the putative protocol currently debated by Z601.

The test rig also enables investigation into the scaling potential of different water qualities. Early results have shown that pH and hardness are not a good indicator of scaling potential in artificial waters produced from RO treatment. This discovery may have significant implications for users of artificial water produced by water treatment processes such as at the Chino Desalter and Orange County Sanitation District. It may have similar implications for desalination systems around the world.

Aqua-Rex is working closely with Prof. Peter Fox at Arizona State University, Prof. Peter Dobson of Queens College, Oxford University and Dr Jitka Macadam at Cranfield University, Department of Water Sciences to research further into scaling potential and its control.

**Elemental Fluid Technologies LLC**

Elemental Fluid Technologies LLC (EFT) is a OEM with a dominant solutions focus on water treatment and hygiene. The company’s vision encompasses a solutions portfolio (copper silver ionization, flocculation, filtration and oxidation) each of which offers an Effective, Environmentally Sustainable and Safe alternative to the use of hazardous, if not sometimes toxic, chemicals.

EFT’s proprietary flagship products (Ionizer 70 and Ionizer 90) offer effective applications to control/inhibit the growth of biofilm and water borne pathogens in both once through and recirculating loops. The only copper silver ionization systems in the world with with regulatory registrations and compliance in both the EU and USA, they have consistently delivered to customers on their expectations in the prevention, deterrence and management of water borne pathogens (Bacteria, Fungi, Viruses, Algae and “In-Hospital” Infections like Legionella, Pseudomonas, E. Coli, Aspergillus, Listeria, etc.).

EFT’s mission is to help drastically reduce recurrent use and discharge of corrosive, hazardous, polluting treatment chemicals in recirculating or once-through water loop systems to extend their life; Increase worker and workplace site safety by eliminating the need to store/handle/dispose water treatment chemicals and eliminating associated compliance requirements.
MOVABOWL
MOVABOWL is the world’s first moveable and flushable toilet. This revolutionary US Patented innovation is designed to help people with disabilities and mobility issues that cannot walk to the toilet. Movabowl is a toilet designed to have the bowl separate from the rest of the toilet, roll to where the patient is located, allow the patient to use the toilet by the bedside, then the toilet is rolled back to the bathroom where it connects to the docking base, and finally the waste is flushed away like a standard toilet. This toilet design saves the patient from having to walk to the toilet and it eliminates the caretaker’s requirement to manually handle the waste. Additionally, Movabowl prevents falls that occur while using the toilet and will prevent tens of thousands of injuries and deaths that occur every year in the USA. Movabowl will greatly benefit the 75 million baby boomer generation that will soon overwhelm the entire healthcare system. Hospitals, Healthcare Facilities, Home Care, and the “Aging In-Place” population will have a need for the solution that Movabowl provides. MOVABOWL has secured the intellectual property of this innovation with a US Patent and is currently seeking investors, licensing agreements, and patent deals to exclusively commercialize this product.

Save Water Save Money
Save Water Save Money is a global organization based in the UK that may very well be the largest source of water data for customer behavior down to the device level in the world. Having worked with 90% of Britain’s water companies, the company is expanding its operations to include the rest of Europe, the US and Australia. The organization uses the aqKWa (water+energy) Savings Engine to engage consumers in understanding the full value of the water and their personal opportunity to save water, energy and $. The data generated through consumer participation in the Savings Engine helps utilities achieve conservation goals, streamline operations, improve customer service and save costs in both the short and long term.

Since 2007, SWSM has used its unique, direct-marketing expertise to distribute more than 3.5 million products to over 1,500,000 million customers, saving Britain 51 billion liters of water and counting.

The secure home of big data: Managing data is core to our customer service, and since 2013, SWSM has been ISO 27001 accredited for data security and information management. The company has been working for the last 10 years in highly regulated environments, and has extensive insight into the unique data requirements of water companies.
Alliance for Water Efficiency (AWE)
The Alliance for Water Efficiency is a stakeholder-based 501(c)(3) non-profit organization dedicated to the efficient and sustainable use of water. Headquartered in Chicago, the Alliance serves as a North American advocate for water efficient products and programs, and provides information and assistance on water conservation efforts. A diverse Board of Directors governs the organization and has adopted a set of guiding principles and strategic plan.

American Society of Plumbing Engineers (ASPE)
The American Society of Plumbing Engineers (ASPE) is the international organization for professionals skilled in the design, specification and inspection of plumbing systems. ASPE is dedicated to the advancement of the science of plumbing engineering, to the professional growth and advancement of its members and the health, welfare and safety of the public.

International Association of Plumbing and Mechanical Officials (IAPMO)
The International Association of Plumbing and Mechanical Officials has been protecting the public’s health and safety for more than 85 years by working in concert with government and industry to implement comprehensive plumbing and mechanical systems around the world.

The IAPMO code development process ensures openness and transparency for the development of consensus-based codes for use in the built environment. Our codes are unique, as they remain the only codes developed exclusively for plumbing and mechanical applications that employ an ANSI-accredited development process, providing a voice and a vote to all industry stakeholders.

IAPMO provides leadership toward addressing the global need for sound water efficiency-based codes and standards while working to avoid unintended consequences that have the potential to compromise health and safety. IAPMO supports science-based research and policy-based initiatives at all levels of government, with the goal of helping provide for the safe use of water in buildings around the world.
Plumbing Manufacturers International (PMI)

Plumbing Manufacturers International (PMI) is the voluntary international industry association of the manufacturers of plumbing products. Our members produce 90% of the products used in the USA.

We’re advocates, not plumbers. We work to harmonize product requirements. We are the voice of plumbing manufacturers on regulatory and legislative issues. We are in the business of information-sharing and serve as an international watchdog and “early-alert system” about issues that will impact our industry. We promote the efficient use of water, while maintaining a focus on health and safety. We build coalitions and bring (sometimes seemingly disparate) groups together on a common cause for the greater good. We build coalitions and bring disparate groups together on a common cause for the greater good.

World Plumbing Council (WPC)

The mission of the World Plumbing Council is to unite the world plumbing industry to safeguard and protect the environment and the health of nations, for the benefit of all.

· To develop and promote the image and standards of the plumbing industry worldwide.
· To encourage and facilitate the exchange of information, ideas and technology between plumbing industry organizations and individuals worldwide.
· To promote and assist in plumbing industry education and training, recognizing the need for appropriate standards and their international recognition.
· To create an awareness of the plumbing industry’s role in protecting the environment by providing safe fresh water and sanitation through proper management, care, reuse, and conservation of natural resources.
· To provide and share information regarding research projects and technology that may be applicable to the plumbing industry and the people they serve.
International Code Council (ICC)

The International Code Council is a member-focused association. It is dedicated to developing model codes and standards used in the design, build and compliance process to construct safe, sustainable, affordable and resilient structures. Most U.S. communities and many global markets choose the International Codes.

The International Codes®, or I-Codes®, published by ICC, provide minimum safeguards for people at home, at school and in the workplace. The I-Codes are a complete set of comprehensive, coordinated building safety and fire prevention codes. Building codes benefit public safety and support the industry’s need for one set of codes without regional limitations.

Fifty states and the District of Columbia have adopted the I-Codes at the state or jurisdictional level. Federal agencies including the Architect of the Capitol, General Services Administration, National Park Service, Department of State, U.S. Forest Service and the Veterans Administration also enforce the I-Codes. The Department of Defense references the International Building Code® for constructing military facilities, including those that house U.S. troops around the world and at home. Amtrak uses the International Green Construction Code® for new and extensively renovated sites and structures. Puerto Rico and the U.S. Virgin Islands enforce one or more of the I-Codes.

Sloan

Sloan is the world’s leading manufacturer of commercial plumbing systems and has been in operation since 1906. Headquartered in Franklin Park, Illinois, the company is at the forefront of the green building movement and provides smart sustainable restroom solutions by manufacturing water-efficient products such as flushometers, electronic faucets, sink systems, soap dispensing systems, and vitreous china fixtures for commercial, industrial and institutional markets worldwide.

Sloan has spent more than a century pioneering smart, water-saving restroom solutions that are built to last a lifetime. Since innovating the Royal® flushometer over 100 years ago, our global team of engineers have developed technologies that improve water-efficiency without compromising design, quality, affordability or performance. Sloan is proud that it’s flushometers and many more Sloan products are designed and manufactured in the U.S.

Every day around the world, Sloan products connect the systems that manage our planet’s most precious resource. Water Connects Us® is more than just Sloan’s tagline. Sloan understands the dynamic relationship between the world’s water management systems and its water ecosystems. We connect communities of engineers, architects, designers, building managers and owners to high-efficient products and systems to promote healthier water ecosystems for generations to come.
United Association (UA)
With over 300,000 members across North America, representing the plumbing and pipe fitting industry, the United Association is very proud of our membership and our work. Our motto, “We Do It Right the First Time,” shows our integrity and determination to not only do our best, but with expertise. We strive to improve our members’ skills and excellence through our robust training programs.

Viega
The Viega Group has always stood out from the crowd, and today the company brings its high-quality, revolutionary piping systems to the water quality movement. Formed in 1899, Viega is the global leader in press technology systems for industrial, commercial and residential industries. Viega LLC, headquartered in Broomfield, Colorado, offers more than 3,000 products. These include Viega ProPress® for copper and stainless, Viega MegaPress® for carbon steel and stainless pipe, the Viega PureFlow® System including PEX and fittings in high-performance polymer and Zero Lead bronze, as well as MegaPress CuNi and SeaPress® systems for marine applications. Viega also specializes in the design, production and installation of ProRadiant™ heating and cooling systems, and offers In-Wall Flushing Technology including carriers and flush plates.

Viega systems are coupled with several products that are changing the way contractors do their jobs and are affecting the lives of the people who rely on them to deliver water safely to the tap. As standards are developed to prevent outbreaks like Legionella, contractors and designers have begun seeking products that improve efficiency and lower operating costs while also keeping bacteria growth at bay.

Everything from double drop elbows, thermostatic balancing valves and Venturi insert fittings to the revolutionary Viega SmartLoop® system, will aid in the flow and temperature maintenance of a building’s piping system. With training and design seminars, together we can help keep our drinking water safe with high quality, innovative products and services.
National Inspection Testing and Certification Corporation (NITC)

National Inspection Testing and Certification Corporation (NITC) is a third-party provider of certification services to the Piping Industry. NITC tests and certifies personnel in the Medical Gas, Plumbing, Pipefitting, HVACR, Fire Protection & Safety Systems.

NITC maintains a Quality Management System registered to the ISO 9001:2008 Standard and offers personnel certifications that include but are not limited to Journey Level and Master Level, and assorted City, County and State Government requirements. NITC also specializes in Test Development and Test Administration.

The purpose of the NITC Personnel Certification Program is to advance the profession of certain crafts, inspectors and businesses in the construction industry by providing (a) a mechanism by which individuals can demonstrate their knowledge of model codes, standards, industry practices, and (b) a mechanism by which stakeholders in the construction industry can readily assess a minimum level of competency for such categories.

NITC is non-discriminatory in accepting applications and issuing certifications to candidates in regards to membership in any trade association, union, etc., and NITC is in compliance with all Federal and State ADA regulations. Since NITC’s work is highly important to the construction industry as well as the public at large, NITC has devised processes to ensure that it practices impartiality, manages conflict of interest issues, and is objective in carrying out its certification activities.

Plumbing Industry Progress & Education (P.I.P.E.)

P.I.P.E. was formed in 1980 to improve communications between labor and management, to explore joint approaches to problems and to prevent potential problems, to improve occupational safety and health and other working conditions. The P.I.P.E. Partnership is a 3-way partnership between Labor, Management, and the customer. We are the joint Labor and Management cooperation committee and trust fund for the unionized plumbing, piping and HVACR industries in Southern California. We are the vehicle through which union contractors and union pipe trades workers advance the industry. By becoming part of the P.I.P.E. partnership you gain the benefits provided, such as media support for affiliated unions & contractors through the development and distribution of audio and video content for training, marketing, education, and public relations.
aquaTECTURE LLC
aquaTECTURE LLC is a full-service water industry solutions provider based in Los Angeles, California with expertise in water technology, financing, policy, and operations. Our team delivers turnkey wastewater reuse projects, managing the entire development vertical including design, engineering, construction, financing, and operations. aquaTECTURE’s subsidiary, waterTALENT LLC, maintains a best-in-class team of over 550 licensed water and wastewater engineers and operators across 39 states with deep operational expertise that ensures project viability throughout the life of the system.

WaterSmart Innovations Conference and Exposition
The 11th annual WaterSmart Innovations Conference and Exposition, Oct. 3-5, 2018 in Las Vegas, is the world’s premier venue to showcase new water-efficiency technology; build and strengthen interdisciplinary relationships; and establish your company as an international leader in innovative water efficiency technology and services. At WaterSmart Innovations, a wide range of professional sessions and workshops - along with an extensive exhibition of water-saving technologies and programs from around the world - will connect attendees with the resources they need in an atmosphere of networking, collaboration and learning, to create a new wave in water efficiency. Visit WaterSmartInnovations.com for more information.