

# *Southwest Onsite Wastewater Conference 2016*

Sponsored by ACDEHSA  
Arizona County Directors of Environmental Services Association

***Wednesday & Thursday  
February 3 & 4, 2016  
Riverside Resort Hotel  
1650 S Casino Drive  
Laughlin, NV 89029***

*Hotel Group Reservations (800) 227-3849 Option 1*

*Group Code: C/SOUTH Group Rate: \$40+ tax per night*

*Use the Group Code to get 2 breakfast and 2 choice buffet tickets per room, plus free Wifi*

*[Click to Register](#) or go to [www.SouthwestConference.net](http://www.SouthwestConference.net)*

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ACDEHSA 2016 Southwest Onsite Wastewater Conference Agenda -- – Preconference 2/1-2 and Conference 2/3-4/2016

Time	Topic	Topic Summary	Speaker
<b>Monday and Tuesday, February 1-2, 2016</b>			
<p>Feb 1-2, 2016 8:00am-5:00pm</p> <p><b>Pre-Conference Session</b> For class information, and to register, contact</p> <p>Bernadette Capossela Administrative Associate Univ. of Arizona Ag &amp; Biosystems Engineering 520-621-3691 <a href="mailto:bcaposse@email.arizona.edu">bcaposse@email.arizona.edu</a></p>	<p>NAWT Inspection Training &amp; Certification</p>	<p>Whether you are an experienced industry professional or just starting out in the business, you will find a great deal of value in the National Association of Wastewater Transporters, Inc. (NAWT) Inspection Training &amp; Certification course. Your successful completion of the training will allow you to be recognized as a national certified inspector by NAWT you will be listed on a national registry of certified industry professionals for two years, and is part of the eligibility to becoming an inspector the Arizona Transfer of Property Inspection program. Certified Inspectors must complete a comprehensive onsite sewage treatment systems course covering terminology, treatment, tanks, construction methods, and application and pass a rigorous exam to receive national certification. There are only a selected number of professionals throughout the United States and Canada who have successfully completed both courses.</p>	<p>Kitt Farrell-Poe, University of Arizona</p> <p>David Gustafson, Woodland Engineering</p>
<b>Tuesday, February 2, 2016</b>			
<p>Feb 2, 2016 3:00 – 7:00 PM</p> <p><b>Pre-Conference Session</b></p> <p><b>Registration:</b> Contact Jake Garrett at 928-474-7177 or <a href="mailto:jgarrett@co.gila.az.us">jgarrett@co.gila.az.us</a></p>	<p>Construction Track <i>Bridgeview Room</i></p> <p>Design Track <i>Mirror Room</i></p>	<p>3 PM: Best Practices for Precast Concrete Tank Inspections</p> <p>5 PM: Anua Grease Guardian Product Overview</p> <p>3 PM: Presby System Innovative O&amp;M Solutions</p> <p>5 PM: Orenco Design Aid for High Strength Waste</p>	<p>Claude Goguen, PE, LEED AP National Precast Concrete Association</p> <p>Colin Bishop REHS, RS, President Environmental North America, Anua</p> <p>Jerry Lewinson, Environmental Quality Control</p> <p>Jeff Pringle, Account Manager, Western US Region, Orenco Systems, Inc.</p>
4:00 – 8:00 PM	Exhibitor Set-up		
6:00 – 8:00 PM	Registration		

**Wednesday, February 3, 2016**

7:00 – 8:00 AM	Registration		
8:00 – 8:10 AM	President's Welcome (Arizona County Directors of EH Services)		
8:10 – 9:00 AM	<p><b>KEYNOTE PRESENTATION:</b>  <u>Solving for Pattern: Integrated Sustainability Assessment of Alternative Centralized and Decentralized Water Service Options</u>                      The adoption of alternative paradigms for providing water and wastewater services such as fit-for-purpose water and resource recovery could allow for more sustainable alternatives to water management in the future. This talk will describe the development of tools and metrics to aid system-level water services decisions using the case study of Falmouth, MA, a Cape Cod community working to develop a wastewater plan to counteract eutrophication of coastal areas due to nutrient release from aging and damaged septic systems. Alternatives to septic systems were identified, and several metrics were applied to the different systems (Life Cycle Assessment, Life Cycle Cost, human health risk assessment, resilience). Very few studies include metrics that span health, environment, economic, and technological aspects of water service options, and even fewer have considered variability and uncertainty when comparing metrics. We found tradeoffs between the human health impact and the cost/energy consumption metrics that were not initially apparent in the individual metric assessments. This work indicates the need for, and continued refinement of, integrated assessment to better define clear sustainable paths for providing water services.</p>		Jay Garland, EPA Office of Research and Development National Exposure Research Laboratory U. S. Environmental Protection Agency Cincinnati, Ohio
9:00 – 9:50 AM	Online Tool for Creation of Customized Septic System Owner's Guides	With over 25% of the US population being served by septic systems and that percentage on the rise, the need for proper management is a key issue to accelerate adoption of current technologies and improve existing onsite wastewater treatment systems. This project provides an online vehicle for wastewater professionals to transform rural wastewater management by developing a customizable Community System Owner's Guide (CSOG). H2OandM.com is an online tool to create customized homeowner operation and maintenance (O&M) manuals for onsite septic systems from a single family home to a large cluster system. The tool will work for newly design/installed systems or those that have been in the ground a long time. A septic system professional creates an account where all their projects are stored. Using the web interface they enter specific site and system information and the tool creates an electronic or hard copy O&M manual which includes stock image and text along with the customized information entered by the professional.	Sara Heger, Ph.D, Engineer and Instructor, University of Minnesota
9:50–10:20AM	<b>Break – visit exhibits</b>		
10:20–11:10 AM	Precast Concrete Tanks – How Sustainable Are They?	Green building can no longer be classified as a fad. It is an industry that is growing by leaps and bounds every year. College students are already learning about building more with less and focusing on how to preserve natural resources. Decentralized wastewater treatment is truly a remarkable sustainable system. The energy savings from avoiding moving waste through miles of pipelines and treating it at a waste facility cannot be ignored. Sustainability of the system can be further enhanced by using products that are sourced and manufactured responsibly. And most importantly, the components have to be durable in the presence of aggressive environments. During this session, we will discuss the sustainable attributes of precast concrete tanks, and what manufacturers are doing to make a more durable structure with fewer impacts on our precious resources.	Claude Goguen, PE, LEED AP National Precast Concrete Association

11:10 – 12:00PM	A Risk-Based Approach to Onsite Regulations	Treated effluent testing standards have been utilized for many years, including NSF/ANSI Standard 40, ETV, BNQ, and CEN. Furthermore, some regulatory authorities are requiring product field verification. While economic globalization has facilitated technology distribution throughout the world, broad acceptance of different third party standards is lacking. This regulatory rigidity may result in the stifling of innovation and impedance of trade. This session will compare standards and discuss product approval challenges before proposing a regulatory framework for product/technology acceptance that is risk-based, yet provides flexibility and accountability.	Colin Bishop, REHS, RS President Environmental North America, Anua
12:00 – 1:10 PM	<b>Lunch and visit exhibits</b>		
1:10 – 2:00 PM	How Colorado Applies Regulation Flexibility on Tough Lots	The 2013-2014 Colorado state and county regulation changes significantly modified the previous regulations, but did not advance the innovation or flexibility of the regulations much at the state level. Most flexibility in Colorado comes at the county health jurisdiction level. The presentation will include foundational aspects of the regulatory process, and demonstrate how regulatory flexibility translates to practice for design, installation and operational compliance. Examples of flexibility for difficult sites in Colorado will be discussed.	Bob Wright, PE Alles Taylor & Duke, LLC Evans, Colorado
2:00 – 2:50 PM	Gray Water and Wastewater Reuse	Water is increasingly viewed as a scarce resource that must be managed aggressively. Water resources must be considered fit for use and fit for purpose; but all water need not be treated to potable use standards to be fit for purpose end uses. A variety of water resources should be considered as alternate sources of water. These include wastewater, gray water, storm water, harvested rainwater, cooling tower water discharge and drainage water from building foundations. Each of these alternative source may be developed to meet non-potable use applications in residential, commercial, or industrial applications. This paper will summarize some of the water quality concerns and management issues associated with developing alternative sources of water for local use.	Robert Rubin, Ph.D Professor Emeritus North Carolina State University
2:50 – 3:20 PM	<b>Break – visit exhibits</b>		
3:20 – 4:10 PM	Reuse Standards in California; An Onsite Perspective	The drought in California has brought national attention to water issues in the state. A practicing consulting engineer will speak on current reuse standards in California and the application of of these standards for onsite wastewater facilities. Are policy and rule changes under consideration due to the drought conditions?	Nick Weigel PE, LEED AP BD+C Senior Engineer NorthStar Engineering Chico, California
4:10 – 5:00 PM	Pathogen Treatment Guidance and Monitoring Approaches for On-Site Non-Potable Water Reuse	As the reuse of alternative water sources continues to gain popularity, public utilities and other stakeholders are seeking guidance on pathogen treatment requirements and monitoring approaches for nonpotable use of onsite collected waters. Given that alternative water sources (e.g. graywater, stormwater, and roof runoff) experience lower pathogen loadings than municipal wastewater and that nonpotable uses (e.g. toilet flushing and irrigation) minimize direct contact with the water, it is likely that lower treatment requirements may be necessary to protect public health. However, science-based pathogen reduction targets for nonpotable reuse are currently lacking, forcing system	Jay Garland, EPA Office of Research and Development National Exposure Research Laboratory U. S. Environmental Protection Agency Cincinnati, Ohio

		<p>operators and regulatory agencies to use conservatively high-level treatment for all water sources and reuse applications. In addition, specific requirements for onsite collected waters, which experience greater variability in pathogen density than municipal wastewater due to scaling and dilution effects, have not been considered. This talk will present risk-based pathogen log-reduction requirements for various types of onsite collected wastewaters used for a range of nonpotable uses. In addition, approaches for monitoring treatment performance for pathogen removal will be discussed, emphasizing the limitation of traditional fecal indicators and the potential use of more commonly occurring and abundant microorganisms as process indicators.</p>	
5:00 – 6:30 PM	<b>Exhibits and Mixer</b>		

**Thursday, February 4, 2016**

7:00 – 8:00 AM	Registration		
8:00 - 8:50 AM	Case Studies of High Strength Wastewater	<p>Onsite systems used for non-residential high strength waste (HSW) applications which can encounter significantly different usage patterns, waste strength and waste stream characteristics. An overview of key design parameters will be discussed as well as potential design solutions. Then the presentation will discuss two recent research project as case studies of HSW. Adult foster homes provide assisted-living services—including nursing and 24/7 care— for individuals requiring special medical and behavioral needs. Wastewater from these homes and the corresponding effects on conventional onsite sewage treatment systems, likely differs from average residential sources but is not fully understood. This presentation summarizes the project findings and recommends septic system management practices that may help prevent future problems. In addition, 52 existing septic systems on rest stops were evaluated across Minnesota. The goal of the assessments was to evaluate risk. The full assessment included a preliminary review of the site, a facility assessment, effluent sampling, septic tank inspections, evaluation of advanced treatment units when present and an inspection of the soil treatment system. The information from the assessment was used to develop a risk matrix. This risk matrix and the results will be presented along with recommendations for future design and management. This risk analysis process could work well for other state and local jurisdictions looking to evaluate systems with a systematic approach.</p>	Sara Heger, Ph.D, Engineer and Instructor, University of Minnesota
8:50 – 9:40 AM	Designing larger on-site subsurface drip reuse and dispersal projects	<p>This session covers the information required to design a large SDI system. 1. Map Making; 2. Soil – Parent material, Relief, Time. Organisms, Color, Texture, Depth, Profile and Restrictive Horizons; 3. Site Evaluation – Grade, Soil Drainage, Landscape Position and Flooding; 3. Design Process – Treatment Systems, Dispersal Systems, System Efficiency and Storage; 4. Component Selection – Treatment, Controller, Filter, Pump, Valves and Dripline; 5. Designing; 6. Reuse for Irrigation; 7. Design factors for Maintenance</p>	Rodney Ruskin, CEO, Geoflow
9:40 – 10:10 AM	<b>Break – visit exhibits</b>		
10:10 – 11:00 AM	Effluent Sewer Systems Can Affordably Service Communities of All Sizes	<p>For decades, effluent sewers have had a difficult time competing against other collection technologies for projects because there was not enough data on the real costs to install and operate effluent sewer systems. There is now long-term data that demonstrates that effluent sewer collection systems can affordably serve communities of all sizes. This presentation will compare capital cost information compiled from over 50 publicly funded bids for effluent sewer, grinder sewer, and gravity sewer, as well as look at operational costs for these technologies.</p>	Grant Denn, Senior Manager for Engineered Projects, Orenco Systems, Inc.
11:00 – 11:50 PM	Where is the Box? (and How Do I Think Outside It?)	<p>This is a discussion of the mental tools/skills practitioners need to troubleshoot/problem solve OWTS projects. What is the box and how do we identify it? What skills do we need to be good troubleshooters? What tools do we use when troubleshooting? What pitfalls do we encounter and how can we circumvent them using our knowledge and experience. Examples will demonstrate the use of these processes in troubleshooting and problem solving in design, installation, O&amp;M and repairs.</p>	Bob Wright, PE Alles Taylor & Duke, LLC Evans, Colorado

11:50 – 1:00 PM	<b>Lunch and visit exhibits</b>		
1:00 - 1:50 PM	Developing Sustainability Criteria	<p>As resources become more scarce and management needs expand to address resource recovery efforts, sustainability issues emerge as critical elements for local programs. Local management efforts must address a variety of issues including:</p> <ol style="list-style-type: none"> <li>1. defining the resource and describing opportunities for beneficial use,</li> <li>2. developing local management efforts to assure the resource is managed in accordance with sound practices</li> <li>3. developing programs - both public and private - to assure the resource recovery effort becomes incorporated into local infrastructure</li> </ol> <p>This paper will address some of the critical management issues associated with resource recovery from societal by-products: wastewater, wastewater residuals, gray water, solid waste and other potential sources.</p>	Robert Rubin, Ph.D Professor Emeritus North Carolina State University
1:50 – 2:20 PM	<b>Break – visit exhibits</b>		
2:20 – 3:10 PM	Because of Recent Discoveries of MRSA and Multidrug Resistant Genes in Chlorinated Wastewater Treatment Plant Effluents, Should Disinfection Standards be Modified?	<p>In the US, over 2 million people are sickened (23,000 dying) each year from MRSA and other superbugs, according to the CDC. Worldwide, the numbers are much larger. A number of studies conducted by U of Minnesota, VA Tech University, and Rice University, have shown that these microorganisms are resistant to normal levels of chlorination, as is the multidrug resistant gene NDM-1. This gene is able to transfer antibiotic resistance to E. coli, Salmonella, and other bacteria. Possible solutions to this problem include higher chlorine doses, or other methods, such as Ozone or UV light. This presentation will compare alternatives, and show preliminary data. Modification of the fecal coliform and E. coli standards may be necessary to achieve proper monitoring of these microorganisms</p>	Jim Cruver, Ph.D. President, Salcor Inc.
3:10 – 4:00 PM	High Strength Winery/Brewery Waste: Design Approach for Onsite Treatment	<p>We've learned plenty about the winemaking process since installing our first winery system in California in 2002, with nearly 100 systems now installed throughout the world. Because of its high strength and surge flows, winery process wastewater requires ample primary tankage followed by a robust secondary treatment system. The presentation describes how a multiple-pass, packed bed aerobic onsite system is adapted to treat large volumes of winery waste in a small space. Micro-breweries are now opening in rural communities. Options for brewery waste will also be discussed.</p>	Jeff Pringle, Account Manager, Western US Region, Orenco Systems, Inc.