

2018 Education Seminar

Wednesday, February 7, 2018 / 8:00a – Noon

Raphael Ballrooms A&B

Session 1: Cooling Tower Fundamentals

presented by Kent Martens, SPX Cooling Technologies



Kent Martens has been employed by SPX Cooling Technologies/Marley for thirty-four years, serving in a variety of technical and commercial positions. His roles have included thermal ratings, product management, sales, management, marketing, training, and technical advisory roles. He is currently a Regional Sales Manager for the Western USA. Kent holds a BSME in Mechanical Engineering from Kansas State University, and serves as the chairman of the Industry Advisory Council for the Mechanical/Nuclear Engineering Department at KSU. He is a registered Professional Engineer in the State of Kansas. Kent is a member of ASHRAE, and is very active in CTI where he currently serves on the Board of Directors, and is Chair of the Performance & Technology Committee.

Have you ever had a “basic” question about cooling towers, but were afraid to ask? You’re not alone! Even seasoned industry veterans are sometimes involved in a very specific area of cooling towers, and may not know everything about the basics. The broad range of topics covered in this presentation will include common cooling tower terminology, how cooling towers work, the parameters that need to be defined to size a cooling tower, the advantages and disadvantages of different tower types, designing and operating towers efficiently, how to design for reduced flow operation, water quality basics, water consumption, and basic sound mitigation techniques.

Session 2: Patient’s Perspective of Legionnaire’s Disease

presented by Tonya Winders, Allergy & Asthma Network



Tonya Winders, MBA is currently the President and Chief Executive Officer of Allergy & Asthma Network, the leading patient advocacy organization dedicated to ending needless death and suffering due to asthma, allergies and related conditions. Tonya has over 17 years of experience in leadership roles within the allergy and asthma industry. From sales and marketing leadership to managed markets access, she has worked tirelessly to ensure patients have access to effective diagnostic and treatment tools. Tonya serves on several expert panels including NAEPP and NIAID Immunotherapy Utilization. Furthermore, she is on the board of directors of Not One More Life, American Respiratory Care Foundation and is the current president of the Global Asthma & Allergy Patient Platform.

Personally, Tonya is the mother of five children, four of whom have asthma and/or allergies, ranging in age from 12-18 years old. She is a fierce patient advocate who overcame cancer twelve years ago. She now enjoys spending time with her husband of twenty years Brian Winders and cheering on her children in various sports.

This session will speak on the patient perspective of Legionnaire's Disease and the need for comprehensive standards focused on the entire water system, not the cooling towers alone.

Session 3: EPRI Research on Cooling System Technologies

presented by Jeffery Preece, Electric Power Research Institute (EPRI)



Jeffery Preece is a senior technical leader at the Electric Power Research Institute (EPRI).

He is responsible for planning and managing power plant water management R&D projects for EPRI’s Water Management Technology program. Focus areas include water requirements for environmental controls; increasing efficiency of water use; and addressing water treatment issues. Prior to joining EPRI in 2014, Jeffery provided technical support for flue gas desulfurization wastewater treatment systems at a U.S. electric utility company. In previous roles, he supported boiler/steam cycle chemistry, demineralized water treatment systems, and cooling water chemistry applications for coal-fired and combined-cycle facilities. Jeffery has a B.S. in Chemical

Engineering from North Carolina State University.

This presentation will highlight the following points: General overview of EPRI research on cooling system technologies and new test center (under development); Review of techno-economic evaluation on flue gas heat recovery combined with membrane distillation for cooling tower water makeup treatment; Review of demonstration using iodine vapor for cooling water biofouling control; and Review of recent projects related to advanced cooling system technologies.

Session 4: Cooling Tower Performance Curves – a Primer

presented by Rich Aull, Richard Aull Cooling Tower Consultant



Richard Aull, PE is an expert in cooling tower design, performance rating and analysis with over 38 years of experience in the industry. Prior to starting his consulting business, he was Director of Application Engineering within the Cooling Tower Group at Brentwood Industries. His responsibilities included application engineering, new product development, product quality assurance standards and sales support for the international business development team. Rich is active in the Cooling Technology Institute (CTI), having served as a board member and Vice Chair of the Performance & Technology (P&T) Committee and is currently serving as the Software Publishing Task Group Chair and Vice Chair of the Multi-Agency Testing Committee. In addition, he has published technical

papers and conducted seminars on a variety of cooling tower topics for the CTI, EPRI, International Water Conference, IAHR, India's National Thermal Power Corporation and ASME. Rich received his B.S. & M.S. Degrees in Mechanical Engineering from the New Jersey Institute of Technology and is a registered Professional Engineer in the States of New Jersey & Pennsylvania.

CTI's cooling tower thermal test code ATC-105, is used as the basis of cooling tower testing around the world. The test code is complete with appendices that illustrate the use of the code with example analysis in both US customary and SI units. Examples of typical performance curves are provided for both mechanical draft and natural draft towers. These curves are used in the interpretation of test results and form the basis of the resulting reported tower's capability and cold-water deviation. This session will center on how typical performance curves should appear for all types of cooling towers, how they differ with regard to tower type, how to recognize curves that are blatantly incorrect, and how the new revision of CTI ATC-105 will address these issues. Also, there will be reference to the CTI Toolkit software and how it can be used as tool for producing and checking performance curves.

Session 5: Fundamentals of Safety for Cooling Tower Inspections

presented by Chad Brown, Amarillo Gear Company, LLC



Chad Brown graduated West Texas A&M University with a Bachelor of Science for Mechanical Engineering in 2008. He has had the opportunity to work for Amarillo Gear since 2004 as an Engineering Intern, Metallurgical Laboratory Technician, Gear Engineer, Research and Development Supervisor, and now Engineering Manager. For three years after college, he worked various positions at Xcel Energy as an engineer as well. Chad has received the Advanced Gear Engineering Certificate from American Gear Manufacturers Association and currently serves as a director on the board for Access Community Credit Union and the engineering advisory board for West Texas A&M University. Most importantly, he loves spending time with his family of 3 young girls and wonderful wife of

12 years. He especially enjoys camping and the outdoors.

Gearbox reliability is imperative in critical and demanding applications. If reliability is out of focus relative to the design work, the result will be frustration and downtime when the gearbox is expected for operation. During the gearbox design stage, there are certain considerations necessary to ensure proper gearbox performance and that the expected equipment life is realized. Design standards, application understandings, and serviceability are key categories to evaluate when designing a gearbox for a specific purpose and duty point. This paper will discuss proven considerations that will build reliability in at the foundation of an air-cooled condenser parallel shaft gearbox yielding a design that is robust, cost effective, and dependable.