weftec® 2017
the water quality event™

Master Lecture:

Microbiome of Household Water Systems

Organized by WEF and AEESP

Monday, October 2, 2017
10:30 am – 12:00 pm

Nancy G. Love, Ph.D., P.E., BCEE

Borchardt and Glysson Collegiate Professor
Department of Civil and Environmental Engineering
University of Michigan, Ann Arbor Michigan USA

The Association of Environmental Engineering and Science Professors (AEESP) and the Water Environment Federation (WEF) are proud to announce the 2017 WEF/AEESP Master Lecturer, **Dr. Nancy Love**. This prestigious lecture is awarded to a prominent researcher who has served the profession and WEF with distinction. The lecture alternates each year between an academic and a practitioner, with Dr. Love representing academics. Join us at the session to hear Dr. Love's thoughts.

We are pleased to announce an enhancement to this prestigious lecture to include the applied research views of a utility recognizing the dependence utilities have on the work of academics and vice versa. Immediately following the lecture, **Dr. Charles Bott**, Hampton Roads Sanitation District, will present a practitioner's perspective and will share his thoughts on HRSD's Vision for Managed Aquifer Recharge in Eastern Virginia: Sustainable Water Initiative for Tomorrow (SWIFT). This session is a "must attend" each year, and this year we expect it to be standing room only with this combination of popular and respected researchers! This session is open to all WEFTEC registrants. Registration is available on **http://weftec.org/**

Speaker Biographies

Nancy G. Love, Ph.D., P.E., BCEE

Borchardt and Glysson Collegiate Professor
Department of Civil and Environmental Engineering
University of Michigan, Ann Arbor Michigan USA

Dr. Nancy Love is a professor of Civil and Environmental Engineering at the University Michigan. She served as chair of the department from January 2008 – August 2011, and Associate Dean in the Rackham School of Graduate Studies at the University of Michigan from 2011 through December 2012. Prior to 2008, Dr. Love was a faculty member in the Departments of Civil and Environmental Engineering and Biological Sciences at Virginia Tech. Her research uses both experimentation and modeling to assess and advance environmental and public health. She has distinct expertise in: evaluating the fate of chemicals, pathogens and contaminants in water; using technologies to sense and remove contaminants; and advancing technologies that recover useful resources from used water. Dr. Love prefers to focus her work on basic questions at the interface between disciplines, and on topics that have direct application in practice. She has B.S. and M.S. degrees in Civil Engineering from the University of Illinois, a Ph.D. in Environmental Systems Engineering from Clemson University, is a licensed professional engineer (P.E.) in the state of Michigan and a Board Certified Environmental Engineer (BCEE). After completing her M.S. degree, she worked as a process design engineer for 3 years.

Dr. Love has served or serves as major advisor for 41 M.S. students, 21 Ph.D. students, 7 post-doctoral research associates and 26 undergraduate research assistants. She has been involved with a wide range of collaborative research projects totaling $27 million (total). She has published 90 peer-reviewed journal articles, 2 book chapters, 3 peer-reviewed research reports, and over 250 conference papers, abstracts, presentations, invited lectures and research editorials. In 2011 she co-authored the third edition of the textbook Biological Wastewater Treatment with Les Grady, Glen Daigger and Carlos Filipe. She has served on the Board of Directors for the Association of Environmental Engineering and Science Professors and was president from 2010-2011. She was a member of the Academic Committee at the Water Environment Federation from 2007-2013, and chaired the committee from 2010-2013. In 2014, she became Chair of the Environmental Engineering Educators Specialists Group for the International Water Association. Dr. Love is the recipient of a number of awards, including: the National Science Foundation CAREER Award; the Paul L. Busch Award for Innovation in Applied Water Quality Research from the Water Environment Research Foundation; the Harrison Prescott Eddy Medal, the Rudolf's Industrial Waste Management Medal, and the Gordon Maskew Fair Distinguished Engineering Educator from the Water Environment Federation; and the Civil and Environmental Engineering (Virginia Tech) Alumni Teaching Excellence Award. She was recognized as an Outstanding Young Alumnus by the College of Engineering and Science at Clemson University in 2002. She served as the 2015-2016 Distinguished Lecturer for AEESP, a traveling lecture series. She was inducted as a Fellow of the Water Environment Federation in 2011 the International Water Association in 2014 and the Association of Environmental Engineering and Science Professors (AEESP) in 2015.

Charles B. Bott, PhD, PE, BCEE

Director of Water Technology and Research
Hampton Roads Sanitation District

Dr. Charles B. Bott is the Director of Water Technology and Research at the Hampton Roads Sanitation District (HRSD) in southeast Virginia, where he currently is managing research and development efforts for HRSD's thirteen wastewater treatment plants (2.5 M p.e. combined capacity) and collection system. Charles was formerly an Associate Professor in the Department of Civil and Environmental Engineering at the Virginia Military Institute (VMI) and a consulting engineer with Parsons Engineering Science.

- Fellow of the Water Environment Federation
- Adjunct Professor in the Departments of Civil and Environmental Engineering at Virginia Tech and Old Dominion University
- BS in Civil Engineering from the Virginia Military Institute
- MS in Environmental Engineering from the Johns Hopkins University
- Ph.D. in Civil and Environmental Engineering from Virginia Tech
- Professional Engineer in Virginia
- Board Certified Environmental Engineer
- Licensed Wastewater Treatment Plant Operator – Virginia Class I

Abstract for Dr. Bott

Declining aquifer levels, land subsidence, and saltwater intrusion are occurring in the Potomac Aquifer System in Eastern Virginia. The Hampton Roads Sanitation District (HRSD) has developed an innovative program called the Sustainable Water Initiative for Tomorrow (SWIFT) that will address these challenges and provide additional benefits to the region, including nutrient credits for urban stormwater and other needs. SWIFT will add advanced water treatment (AWT) to seven of HRSD's existing water resource recovery facilities (WRRFs) to produce finished water that meets drinking water standards and is compatible with the receiving aquifer. Finished water will be injected into the Potomac Aquifer System (PAS) as part of a managed groundwater recharge program to counter the documented aquifer and water supply challenges. This presentation will describe the SWIFT program including concept development and aquifer modeling, AWT pilot testing results, regulatory considerations, construction of a 1 MGD demonstration facility, and plans for full-scale build-out at a combined capacity of more than 100 MGD.

Photos from the WEFTEC 2016 Lecture