Jennifer D. Baldwin, Ph.D., PE

Why Do I Wish to Serve as an UESI Governor and What I Want to Accomplish in this Role?

My involvement in UESI is because of one person: Doug Jenkins. I worked with Doug in Knoxville and Baton Rouge on Sanitary Sewer Overflow programs early in my career, leading into the middle of my career. Doug always encouraged me to challenge myself, including presenting at the Pipelines conference. Even though I was working more with pump stations than pipelines, Doug helped me find a way to make the presentation relevant to the conference. Since my first time attending the conference in Miami in 2012, I have looked forward to attending the Pipelines conference and being a part of the community of engineers and surveyors that convenes every year. Because of my exposure to the Pipelines Division through my conference involvement, I want to do more. Therefore, I wish to serve as an UESI Governor to further Doug's influence on my career and the industry. I am passionate about creating diversity within each organization that I am involved, and I believe that I can bring a different viewpoint to the Board of Governors. My career experience has covered many aspects of the Water industry, including now delving into the world of digital solutions. However, my heart has been in conveyance throughout, starting with writing CSO Long Term Control Plans early on in my career. I wish to serve to bring my diverse ideas to the Board and UESI.

I want to accomplish two main things in this role:

1. Establish a culture of diversity at UESI, encouraging other women, people of color, and people from other cultures to join committees, become involved in conference planning, and take leadership roles.
2. Develop a sustainable future vision for involvement in UESI. I will encourage young engineers and surveyors to become more involved at all levels of the organization. Without students and newly established engineers and surveyors, UESI will not be sustainable, so we need to determine how to keep them engaged throughout their careers.

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List of UESI, ASCE, and Other Professional Organization Volunteer/Committee Activities

UESI

1. Moderator at Pipelines Conference 2019, 2021, and 2022
2. Track Chair at Pipelines Conference 2023 and 2024

ASCE – no committee involvement to-date

Water Environment Federation

1. Collection Systems Committee Member since 2022
2. Abstract reviewer for Collection Systems Conference 2023 and 2024
3. Moderator for Collection Systems Conference 2024

American Water Works Association

1. Member of Inorganics Committee from 2007 to 2012 (Chair from 2009 to 2012)
2. Committee Chair, M64: Gas Transfer Applications in Water, 2011 to 2021

Kentucky-Tennessee Water Professionals

1. Young Professionals Committee member 2007 to 2010

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Digital OneWater Strategic Growth Lead

Summary Biography

Dr. Jennifer Baldwin (she/her) is an expert technologist specializing in assembling and leading large program teams and planning and implementing comprehensive rehabilitation and improvement programs. S

As Jacobs' Digital OneWater Strategic Growth Lead, Jennifer is responsible for looking at the array of digital tools available to our water sector clients and bringing them under a OneWater umbrella. By creating an integrated ecosystem of data-enabled solutions, we can more effectively and efficiently assist our clients with their most complex water challenges, from water scarcity and flood control to overstretched budgets and staffing shortages.

Dr. Baldwin served as quality assurance manager/technical assistance for a $1.6 billion sewer program with 110 projects and as technical manager for conveyance for a $5 billion wastewater treatment and conveyance program. She provides process mechanical expertise on a variety of infrastructure development projects, specializing in wastewater conveyance facilities, such as pump stations and storage facilities. Dr. Baldwin serves in a senior advisory capacity on large and complex water and wastewater infrastructure improvement programs, specializing in pump station hydraulics and design quality assurance. Active in professional organizations, including Water Environment Federation (WEF) and American Society of Civil Engineers (ASCE).

Key Skills/Areas of Expertise

- Wet weather flow management, including pumping and storage
- Wet weather planning
- Water infrastructure planning and design

Education and Qualifications

- Ph.D., Civil (Environmental) Engineering, Purdue University, 2001
- B.S., Chemical Engineering, Purdue University, 1995

Registrations and Certifications

- Professional Engineer, Florida, 2019, 87246, Expiration Date: February 2023
- Professional Engineer, Texas, 2016, 124377, Expiration Date: September 2021
- Professional Engineer, Tennessee, 2006, 00110990, Expiration Date: October 2022
- Professional Engineer, Indiana, 2004, PE10404080, Expiration Date: July 2022

Memberships and Affiliations

- Member, American Society of Civil Engineers, 2019, Active Status
- Member, Water Environment Federation, 2003, Active Status
- Member, American Water Works Association, 2002, Inactive Status

Achievements/Awards

- Golden Spigot Award, 2012, American Water Works Association
- Mentor of the Year Award, 2009, CH2M Hill

Languages

- English (mother tongue)

Employment History

- July 2006 to Present, Jacobs, Principal Technologist
- November 2001 to June 2006, HNTB, Inc., Water Engineer
- August 1995 to November 2001, Purdue University, Graduate Assistant

Project Experience

Capital Project Delivery, CSO Monitoring Expansion Project, Wilmington, DE, City of Wilmington, Project Manager, July 2021 to Present

Jacobs is providing operations and maintenance services for the City of Wilmington as well as delivering capital projects to improve operational efficiency of the wastewater collection and treatment system. The CSO monitoring expansion includes adding level sensors at the 35 unmonitored CSO sites as well as flow meters in select interceptors. The meters will be used to optimize operation and maintenance of the collection system to limit CSOs. Jennifer's role as project manager was to develop a schedule and budget for the project scope. She led the technical team, which developed the design and then implemented deployment of the meters in the system. In addition to project management, Jennifer coordinated with the AquaDNA development team to use Jacobs AquaDNA tool to monitor the level and flow data, provide alerts to maintenance staff, and predict when CSOs may be activated.

State Road 207 Water Reclamation Facility (SR 207 WRF), St. Augustine, FL, St. John's County Utility District (SJCUD), September 2022 to Present

SJCUD is carrying out a wastewater master plan related to population growth and conveyance and treatment capacity. The SR 207 WRF project is a progressive design-build project that includes a new 3.25 mgd, expandable to 6.5 mgd average daily flow WRF, over 15 miles of new force main and reclaimed water transmission mains, a wastewater master pump station, and two reclaimed water booster pump stations. The budget for the project is $145 million. Jennifer's role on the project is the resource manager for the Pipelines team, which includes pipeline and trenchless designers and engineers as well as the hydraulic modeling lead for the wastewater master pump station and reclaimed water booster pump station that is located at the WRF.

One Water Program: South County Potable Water Transmission Main, Hillsborough County, FL, Senior Technical Consultant and QA/QC reviewer, September 2021-Present

Jacobs, as a sub-consultant to McKim and Creed, is working under Westra, the design builder for the South County Potable Water Transmission Main. The project includes design and construction of 42-inch and 48-inch potable water transmission main that will expand service to the South County area. Jennifer's role on the project is to QA/QC the hydraulic modeling report and work with the design leads to ensure that quality reviews have been performed on the deliverables.

Water/Wastewater System Resiliency Program, Jacksonville, FL, JEA, Lead Engineer, November 2018 to December 2020

The wastewater/water system resiliency program is identifying areas that have current capacity and/or resiliency issues within JEA's system as well as into the future. Jennifer assisted with the task orders related to conveyance system capacity and flood resiliency. Jennifer was also the technical lead for assessments of the effluent pumping/outfall systems at two of JEA's Water Reclamation Facilities. The assessment of the Buckman WRF included a condition assessment of the 78-inch outfall pipe.

Rilling Road Flow Management Facility, San Antonio, TX, San Antonio Water System (SAWS), Storage and Mechanical Lead, January 2021 to July 2022

SAWS is carrying out improvements in their wastewater collection system to address the requirements of a Consent Decree. This project includes detailed design and engineering services during construction for the Rilling Road Flow Management Facility. The project includes validation of the 30 percent design for the Rilling Road Flow Management Facility that was developed as part of the Central Basin Planning Consultant project completed in 2018. Jennifer's role on the project is to lead the process/mechanical team for design of the storage facility, including cleaning elements and weirs/gates, and the return pump station.

Central Basin Planning Consultant, San Antonio, TX, San Antonio Water System (SAWS), Storage Lead, July 2016 to October 2018

SAWS is planning improvements in their wastewater collection system to address the requirements of a Consent Decree. Jennifer was the storage lead for the Central Basin Planning Consultant team, determining storage solutions for the sanitary sewer overflow improvements. As storage lead, Jennifer led the feasibility analysis for several storage options within the Central Basin Planning study area. From the feasibility analysis, the alternative that was chosen included a new 15 MG storage facility (expandable to 30 MG) that will be located at the former Rilling Road Wastewater Treatment Plant site and a 30 MGD lift station to return flow into the system, for which Jennifer led the

process mechanical for the 30% design.

Great Lakes Water Authority 96-inch Water Transmission Main Relocation, Detroit, MI, Great Lakes Water Authority (GLWA), Abandonment and Flushing/Disinfection/Service Restoration Lead, October 2020 to Present

GLWA intends to relocate a portion of their 96-inch diameter water transmission main (WTM) around the closed G&H Industrial Landfill. The relocated portion of the WTM will be approximately 2.5 miles long, and approximately 2.5 miles of existing WTM will be abandoned. Jennifer's role as the abandonment lead includes determining the abandonment alternatives, preparing a technical memorandum describing those alternatives, and leading the design of the abandonment of approximately 2.5 miles of 96-inch water transmission main, including the appurtenances along the portion of main to be abandoned. Jennifer's role as flushing/disinfection/service restoration lead includes writing a technical memorandum outlining the steps for flushing, disinfection, and service restoration of the new and existing 96-inch main, isolation valves, existing and new appurtenances, and metered connections at several points during the construction of the project.

Force Main Condition Assessment Plan, Phase 1, and Phase 2, Fort Lauderdale, FL, City of Fort Lauderdale, Technical Lead, November 2019 to March 2020

The City of Fort Lauderdale has entered into a Consent Order with the State of Florida and is planning projects related to the Consent Order. Jennifer's role as the technical lead was to work with the team to evaluate the information received, determine the immediate action projects for force mains whose likelihood of failure is so great that condition assessment is not needed, and development of the force main condition assessment plan for the remaining force mains, prioritizing based on likelihood of failure. Jennifer also led the development of the order-of-magnitude costs and schedule in Phase 1 for the condition assessment that took place in Phase 2. Jennifer also led the team of corrosion engineers who performed the Phase 2 assessment.

Ocean Outfall Legislation (OOL) Program, Miami, FL, Miami Dade WASD, Conveyance Technical Team Lead, November 2014 to July 2018 (project ongoing)

The Miami Dade WASD is undergoing a program to reduce outfalls to the Atlantic Ocean. Jennifer's initial role was to perform the validation of the force main projects and assist with validation of the pump station projects that were included in the 2013 OOL Compliance Plan. Following validation, Jennifer's role was to lead the planning of conveyance improvements needed to meet the OOL. Jennifer also performed an analysis of existing pump stations in the conveyance system that could become under capacity following implementation of the OOL. Jennifer provided reviews of the conveyance-related conceptual design reports. She was also the equalization lead for new equalization tanks at the Water and Sewer Department's South District WWTP and developed the project delivery approach and schedule for the South District, Central District, and West District WWTP conceptual design reports. Jennifer also led a task that revised the flood modelling to take into account different hurricane pathways and wave heights.

Baton Rouge Sanitary Sewer Overflow (SSO) Abatement Program, Baton Rouge, LA, City of Baton Rouge/East Baton Rouge Parish, Quality Assurance Manager and Chief Engineer, September 2007 to December 2014 (program is ongoing)

The City of Baton Rouge/East Baton Rouge Parish is rehabilitating the existing sewer system, upsizing sewer and forcemain pipes to increase the capacity for wet-weather flows, and increasing the capacity of approximately 150 pump stations as part of their Program to eliminate SSOs. Jennifer was responsible for assisting Program staff in resolving technical issues, reviewing storage and pump station design project submittals and calculations, scheduling and planning level cost estimating for the projects, and developing design guidelines for design consultants. Jennifer also produced the Program Delivery Plan, including the cost loaded schedule for the delivery of the Program, on an annual basis from January 2008 through December 2013. Jennifer also assisted with the process training at the South Wastewater Treatment Plant for the operators when the wet weather treatment project at that plant was nearing completion, including operation of the 66 MG of storage. Jennifer continues to provide assistance on an as-needed basis.

Lenoir City Utilities Board Wastewater Treatment Plant Expansion, Lenoir City, TN, Lenoir City Utilities Board (LCUB), Process/Mechanical Engineer and Project Manager, August 2006 to December 2009

The project involved updating an existing trickling filter plant to allow the plant to meet their NPDES effluent limits. The expanded plant (from 2 MGD to 3 MGD maximum month flow) utilizes the trickling filter as a roughing filter and add an oxidation ditch for activated sludge treatment. Construction of the treatment plant expansion was completed in December 2009. Jennifer's role as Process/Mechanical Engineer involved design of treatment processes, including four pumping stations, as well as engineering services during construction, including answering requests for

information (RFIs) and reviewing submittals with respect to process/mechanical equipment. Jennifer's role as Project Manager during design involved coordinating with the project team and client as well as managing the schedule and budget and during construction involved coordinating submittal reviews and RFIs between disciplines as well as attending construction progress meetings.

Published Papers

- Baldwin, J., Francois, D., Griffin, J., and Praturi, P., 2021, "Risk Based Condition Assessment of Force Mains Using External Corrosion Surveys", Proc. American Society of Civil Engineers (ASCE) Pipelines Conference, Paper and Presentation.
- Baldwin, J. Francois, D., Griffin, J., Praturi, P., and Heyerdahl, L., 2021, "Risk-Based Condition Assessment of Force Mains using External Corrosion Survey Methodologies", Proc. North American Society for Trenchless Technology (NASTT) No-Dig Show, Paper and Presentation.
- Sealey, K., Daugherty, D., Cunningham, B, Simms, P., Baldwin, J.D., and Dykes, D., 2019, "Programmatic Approach to I&I Removal", Proc. WEFTEC, Paper and Presentation.
- Griffin, J., Baldwin, J.D., Buonadonna, D., Fernandez, R., Schwarz, W., Leighton, B., 2019, "South Florida Aging Infrastructure: Force Main Condition Assessment and Renewal", Proc. American Society of Civil Engineers (ASCE) Pipelines Conference, Paper and Presentation.
- Baldwin, J.D., Smith, A., and Laryrisson, H.S., 2015, "Value Engineering of Conveyance System Projects on a Large Wet Weather Program", Proc. American Society of Civil Engineers (ASCE) Pipelines Conference, Paper and Presentation.
- Baldwin, J.D. and LeBlanc, M.L., 2014, "Financing of a $1.6 Billion Sanitary Sewer Overflow (SSO) Program in Louisiana", Proc. WEFTEC, Paper and Presentation.
- Baldwin, J.D., Schulze, A.E., and Smith, H.L., 2014, "Construction and Commissioning of a Complex Wet Weather Storage System in Baton Rouge", Proc. American Society of Civil Engineers (ASCE) Pipelines Conference, Paper and Presentation.
- Baldwin, J.D., Schulze, A.E., and Smith, H.L., 2013, "Project Implementation and Construction Sequencing with 93 Projects: The Baton Rouge SSO Program", Proc. American Society of Civil Engineers (ASCE) Pipelines Conference, Paper and Presentation.
- Baldwin, J.D. and Schulze, A. E., 2012, "Planning and Modeling Solutions for a Complex Collection System: The Baton Rouge SSO Control and Wastewater Facilities Program", Proc. American Society of Civil Engineers (ASCE) Pipelines Conference, Paper and Presentation.
- Baldwin, J.D., and Hua, I., 2004, "Alachlor Oxidation by Sonication and Ozonation", Proc. Water Quality and Technology Conference, San Antonio, TX, American Water Works Association, November 2004.
- Schramm, J. D., and Hua, I., 2001, "Ultrasonic Irradiation of Dichlorvos: Decomposition Mechanism", Water Research, 35(3): 665-674.
- Beckett, M., Schramm, J. D., Zhang, G., and Hua, I. 2001, "Electrohydraulic Cavitation and Sonolysis" in Hazardous and Radioactive Waste Treatment Technologies Handbook. Chang H. Oh, Ed., CRC Press LLC (Boca Raton, Fl).