



Department of Civil & Environmental Engineering
Missouri Water Center (MWC)
Seminar in Environmental Engineering

Time:

Friday, April 17, 2026
2:00 – 3:00 P.M.

Location:

E2511 Lafferre Hall



Susan J. Masten

Dr. Masten received her Ph.D. in Environmental Engineering from Harvard University in 1989. She is Professor Emerita of Civil and Environmental Engineering at Michigan State University, where her research focused on drinking water treatment and the use of chemical oxidants for remediation of contaminated soils and water.

Her work includes studies on ozonation and chlorination of organic contaminants, ozone-based treatment systems, and technologies to mitigate lead and arsenic in drinking water. She has authored more than 100 publications and advised over 50 M.S. and 15 Ph.D. students. Dr. Masten has more than 40 years of experience in drinking water and served on the Michigan Board of Drinking Water Examiners and the State of Michigan Science Advisory Committee on PFAS Chemicals. She also led independent lead testing of homes and schools in Flint, Michigan. She is a co-author of Principles of Environmental Engineering and Science (5th ed.) and Water and Wastewater Engineering: Design Principles and Practice (3rd ed., forthcoming 2027)). She retired from Michigan State University in 2025.

The Flint Water Crisis:
Interactions Between Treatment
Chemistry, Distribution Systems, and Policy

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Much has been written about the Flint Water Crisis since the City of Flint, Michigan, USA, switched from purchasing treated Lake Huron water from the Detroit Water and Sewer Authority to treating and distributing Flint River water on April 26, 2014. Elevated lead concentrations in residential drinking water, along with the associated public health impacts, are well documented. Less well understood are the engineering and operational decisions that exacerbated water quality challenges, as well as the historical and contemporaneous policy choices that created the conditions under which these failures occurred.

This presentation analyzes the crisis through the lens of treatment process chemistry and distribution system dynamics, with particular attention to corrosion control, water quality changes, and system-scale interactions. These factors contributed not only to lead mobilization, but also to trihalomethane formation, chlorine residual variability, and broader distribution system instability. The discussion integrates technical and policy perspectives to identify key lessons for engineering practice aimed at preventing similar failures in the future.