Goldschmidt 2026 Abstract
https://doi.org/10.46427/gold2026.38411

The Complexity of Private Well Research: Challenges, Opportunities, and Improving Public Health

ANN OJEDA

Auburn University

More than 60 million people in the United States and Canada rely on private water wells for household supply, which fall outside of national regulations for water quality and management. These systems are particularly vulnerable to contaminants, including that of arsenic, nitrate, uranium, lead, fluoride, and manganese. However, variable regulation leads to inconsistent monitoring data, leaving many well users unaware of their exposure to potentially harmful constituents in the well water. Population heterogeneity among well users further complicates risk management, as social determinants of health, economic constraints, and behavioral differences influence both testing frequency and the adoption of treatment technologies. Additionally, the individualized nature of well ownership creates persistent gaps between what is known about contamination and the protective actions taken at the household level. In this talk, I will present a transdisciplinary approach to well water research where the broad goals are to (1) understand, predict, and prevent adverse health outcomes and (2) enable individual and collective action to reduce contaminant exposures. I will also present challenges and opportunities aimed at improving contaminant monitoring and data systems, refining hazard identification and exposure assessments for key inorganic constituents, bridging interdisciplinary science with practical household-level action, and sustaining long-term partnerships to support vulnerable populations.