“Water Quality Challenges In Hospitals and Other Buildings: Overview of Recent Case Studies”

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ABSTRACT
Drinking water quality problems in buildings may include microbiological contamination (e.g., pathogen growth in the bulk water or in biofilms attached to pipes, showerheads, faucets) and inorganic contamination (e.g., metals’ release into the water due to corrosion of old lead pipes and brass faucets). Researchers at the US EPA regularly undertake water sampling at various buildings, in order to understand these problems. Water pipes are also excavated and examined, to understand the interaction of water with pipe materials. Aside from residences, hospitals have been of particular interest in recent sampling efforts. This is because corrosion/metallic contamination, inability to maintain sufficient disinfectant residual and resultant pathogen growth have the potential to cause infections or other illnesses to sensitive patients (e.g., Legionnaire’s disease due to Legionella bacteria). Case studies of drinking water sampling in hospitals and in residences will highlight some of these challenges. They will also illustrate how examination of harvested pipe scales can assist in elucidating mechanisms of water contamination.

BIOSKETCH
Dr. Simoni Triantafyllidou is an ORISE post-doctoral research fellow at the US EPA Office of Research and Development in Cincinnati, OH. Some of her recent research involves field investigations of drinking water contaminants in distribution systems and large buildings. Her research interests include aquatic chemistry, corrosion science, drinking water quality/treatment, sustainable drinking water infrastructure and public health. Simoni earned her MS and PhD degrees in Environmental Engineering at Virginia Tech, where she accumulated research experience on the corrosion of drinking water plumbing. She has authored and co-authored more than 20 publications on various scientific aspects of this problem. Dr. Triantafyllidou is the recipient of First Place MS Thesis Awards by AEESP (Association of Environmental Engineering and Science Professors) and AWWA (American Water Works Association), an Outstanding PhD Dissertation Award by AEESP, and a Best Paper Award in journal Environmental Science and Technology.