Michael Royer, Physical Scientist in EPA's National Risk Management Research Laboratory

Water Systems Division
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Areas of Expertise: I primarily manage extramural projects that evaluate and improve innovative condition assessment technologies for safe and sustainable conveyance of drinking water:

- US water treatment and conveyance infrastructure systems are aging and deteriorating in many locations, threatening public health, safety, the environment, and the economy
- Effective asset management is recommended by EPA to enable utilities to operate successfully while minimizing water main failure, and wasteful, premature pipe renewal.
- Condition assessment is a key part of asset management, and numerous condition assessment technologies exist and others are being developed.
- Utilities value third-party technical and economic assessments of innovative condition assessment technologies to help them make informed technology selection decisions.

Select Publications:

Nestleroth, J. B., S. A. Flamberg, L. Wang, A. Chen, M. D. **Royer**, and A. F. Williams. Field Demonstration of Emerging Pipe Wall Integrity Assessment Technologies for Large Cast Iron Water Mains - Paper. In Proceedings, ASCE Pipelines 2010, Keystone, CO, August 28 - September 01, 2010. American Society of Civil Engineers (ASCE), Reston, VA, Paper 101, (2010).

Field, R. I., D. J. Murray, M. D. **Royer**, and A. N. Tafuri. Innovation and Research For Water Infrastructure For The 21st Century Research Plan. U.S. Environmental Protection Agency, Washington, DC, 2009.

Royer, M. D. White Paper on Improvements of Structural Integrity Monitoring for Drinking Water Mains. U.S. Environmental Protection Agency, Washington, DC, EPA/600/R-05/038 (NTIS PB2005-109931), 2005.

Royer, M D., L. Xiao, and A. Lai. Animal Source Identification Using a Cryptosporidium DNA Characterization Technique. U.S. Environmental Protection Agency, Washington, DC, EPA/600/R-03/047, 2002.

Xiao, L., J. Limor, A. Lal, K. Alderisio, AND M D. **Royer**. Identification Of Species And Sources of Cryptosporidium Oocysts In Storm Waters By A Small Subunit rRNA-Based Diagnostic and Genotyping Tool. Applied and Environmental Microbiology. American Society for Microbiology, Washington, DC, 66(12):5492-5498, (2000).

Royer, M D., A Selvakumar, and R. Gaire. Control Technologies for Remediation of Contaminated Soil and Waste Deposits at Superfund Lead Battery Recycling Sites. Journal of The Air & Waste Management Association. AWMA, Pittsburgh, PA, 42(7):970-980, (1992).

View more research publications by Michael Royer

Education:

- B.A., University of Pennsylvania, Philadelphia, PA; Natural Science, 1973.

Professional Experience:

- Ongoing project to identify, demonstrate, and evaluate innovative leak characterization technologies at Fort Campbell.
- Project Officer and Contracting Officer's Representative for aging water infrastructure research (e.g., failure analysis; condition assessment; rehabilitation; and, water and wastewater treatment). Over 40 reports were produced. Examples of previous condition assessment projects:
    - Field demonstration and evaluation of pipe wall integrity and leak detection devices.
    - Evaluation of failure modes for carbon fiber reinforced polymer (CFRP) liner for PCCP
    - Cost-effective integration of detailed inspection into small ferrous main rehabilitation
    - SOTA Report: Condition assessment of ferrous transmission and distribution mains
    - A protocol for evaluating opportunities to improve structural inspection capabilities.