Gary Norris, Physical Scientist, in EPA's National Exposure Research Laboratory

Systems Exposure Division
Mailing Address

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Area of Expertise: My research focuses on environmental forensics studies that quantify the contaminant sources contributing to air, water, and sediment samples. In addition, I lead the development of mixture modeling tools that are used internationally to quantify the sources contributing to contaminant levels in a wide range of environmental samples providing critical information for exposure, health, and mitigation studies.

I have developed two mixture modeling tools (EPA Positive Matrix Factorization (PMF), EPA Unmix) that are widely used for the evaluation of air, water, and sediment data (US and international software downloads exceeded 2,400 in Oct 2014). I am also developing and evaluating a new mixture modeling approach to quantify the sources contributing PAHs to lake sediments in a collaborative project with the US Geological Survey. I have recently developed the Baltimore Village Blue water sensor and data visualization project in collaboration with the EPA Office of Research and Development Region 3 Liaison and the US Geological Survey. In addition, I am collaborating with the US Fish and Wildlife Service on an innovative frequency analysis application for evaluating surface water sensor data.

Select Publications:

Landis, M.S.; Kamal, A.S.; Kovalcik, K.D.; Croghan, C.; Norris, G.A.; Bergdale, A (2016) The impact of commercially treated oil and gas produced water discharges on bromide concentrations and modeled brominated trihalomethane disinfection byproducts at two downstream municipal drinking water plants in the upper Allegheny River, Pennsylvania, USA, Sci Total Environ., 542(A): 505 - 520.

Norris, G. A.; Kovalcik, K.D.; Landis, M. S.; K. D.; Bergdale, A., Croghan, C.; Kamal, A.S. (2015) Sources Contributing Inorganic Species to Drinking Water Intakes During Low Flow Conditions to the Allegheny River in Western Pennsylvania, EPA/600/R-14/430.

Sawvel, E.J.; Willis. R.; R. West, R.R.; Casuccio, G.S.; Norris, G.; Kumar, N.; Hammond, D.; Thomas M. Peters, T.M. (2015), Passive sampling to capture the spatial variability of coarse particles by composition in Cleveland, OH. Atmospheric Environment 105: 61- 69

Pancras, J. P.; Norris, G.A.; Landis, M.S.; Kovalcik, K.D.; McGee, J.K.; Kamal, A. (20145, Application of ICP-OES for Evaluating Energy Extraction Wastewater Discharge Impacts on Surface Waters in Western Pennsylvania, Sci Total Environ., 529(1): 21–29.

Landis, M. S.; Kamal, A. S.; Kovalcik, K. D.; Croghan, C.; Norris, G. A.; Bergdale, A. (2014) Potential Impacts of Commercially Treated Oil and Gas Produced Water Discharges on

Water Quality in the Allegheny River, Pennsylvania, USA. Sci Total Environ. EPA Clearance

Brown, S.G.; Eberly, S.; Paatero, P.; Norris, G.A. (2014) Methods for Estimating Uncertainty in PMF Solutions: Examples with Ambient Air and Water Quality Data and Guidance on Reporting PMF Results, [EXIT] Sci Total Environ.

Paatero, P.; Eberly, S.; Brown, S.G.; Norris, G.A. (2014) Methods for estimating uncertainty in factor analysis solutions, Atmos. Meas. Tech., 7(3), 781-797.

View more research publications by Gary Norris.

Education:

- Ph.D., Environmental Engineering, University of Washington, 1998
- M.S.E., Environmental Engineering, University of Washington, 1994
- B.S., Environmental Engineering, California Polytechnic State University, 1992

Professional Experience:

- Physical Scientist, USEPA, ORD, NERL-HEASD, RTP, NC 2014 to current
- Branch Chief, USEPA, ORD, NERL – HEASD, RTP, NC (Acting 2008 to 2010; Permanent 2010 to 2014)
- Physical Scientist, USEPA, ORD, NERL-HEASD, RTP, NC 2005 – 2008
- Acting Associate Division Director for Air Research, USEPA, ORD, NERL-HEASD, RTP, NC 2004-2005
- Physical Scientist, USEPA, ORD, NERL-HEASD, RTP, NC 1998-2004