Kirk G. Scheckel, Research Soil Scientist, in EPA's National Risk Management Research Laboratory

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Mailing Address

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Areas of Expertise: My research focus is solving fundamental issues regarding elemental speciation in soils, sediments, water, plants, and waste materials via advanced, molecular-level spectroscopic techniques coupled with macroscopic kinetic and thermodynamic laboratory studies and field research to elucidate reaction mechanisms that influence fate, transport, reactivity, mobility, bioavailability, and toxicity of elements in the natural environment leading to effective and economical remediation/use strategies. Current emphasis is the development and application of bioavailability methods for improved human exposure and risk assessments, coupled with in-situ remediation efforts to significantly reduce bioavailability. International expert on the application of synchrotron radiation techniques.

Select Publications:

B.N. Stevens, A.R. Betts, B.W. Miller, **K.G. Scheckel**, R.H. Anderson, K.D. Bradham, S.W. Casteel, D.J. Thomas and N.T. Basta. 2018. Arsenic Speciation of Contaminated Soils / Solid Wastes and Relative Oral Bioavailability in Swine and Mice. *Soil Systems*. 2(2): 27.

K.D. Bradham, G.L. Diamond, M. Burgess, A. Juhasz, J.M. Klotzbach, M. Maddaloni, C. Nelson, **K.G. Scheckel**, S.M. Serda, M. Stifelman, D.J. Thomas. 2018. In vivo and in vitro methods for evaluating soil arsenic bioavailability: relevant to human health risk assessment. J. *Toxic. Environ. Health Part B*. 21(2): 83-114.

W.K. Boyes, B.L. Thornton, S.R. Al-Abed, C.P. Andersen, D.C. Bouchard, R.M. Burgess, E. Cohen–Hubal, K.T. Ho, M.F. Hughes, K.T. Kitchin, J.R. Reichman, K.R. Rogers, J.A. Ross, P.T. Rygiewicz, **K.G. Scheckel**, S-F. Thai, R.G. Zepp, and R.M. Zucker. 2017. A comprehensive framework for evaluating the environmental health and safety implications of engineered nanomaterials. *Crit. Reviews Toxicol*. 47(9): 767-810.

R.R. Karna, M. Noerpel, A.R. Betts, and **K.G. Scheckel**. 2017. Lead and Arsenic Bioaccessibility and Speciation as a Function of Soil Particle Size. *J. Environ. Quality*. 46: 1225-1235.

R.R. Karna, T.P. Luxton, and **K.G. Scheckel**. 2017. State of the Science Review - Potential for Beneficial Use of Waste By-Products for In-situ Remediation of Metal-Contaminated Soil and Sediment. *Crit. Revs. Environ. Sci. Technol*. 47: 65-129.

T. Punshon, B.P. Jackson, A.A. Meharg, M.L. Guerinot, T. Warcrack, and **K.G. Scheckel**. 2017. Understanding Arsenic Dynamics in Agronomic Systems to Predict and Prevent Uptake by Crop Plants. Sci. Total Environ. 581-582: 209-220.

View more research publications by Kirk Scheckel.

Education:

- Ph.D., University of Delaware, Newark, DE; Environmental Soil Science, 2000
- B.S., Iowa State University, Ames, IA; Agronomy (Science Option), 1995

Professional Experience:

Workgroups/Project Leads

- Soil Science Interagency Working Group, continuation of NSTC effort with USDA lead, 2018-Present
- Soil Science Interagency Working Group, Subcommittee on Ecological Systems, Committee on Environment, Natural Resources, and Sustainability, National Science and Technology Council, Office of the President of the United States, 2016-2017
- Co-Chair, Technical Review Workgroup Bioavailability Committee, US EPA, 2012-2016
- US EPA Technical Review Workgroup Lead Committee, 2011-Present
- US EPA Technical Review Workgroup Bioavailability Committee, 2005-Present

Associations/Board Memberships

- Vice President, International Society of Trace Element Biogeochemistry, 2017-2019
- Section Editor, Land Pollution of Current Pollution Reports (Springer Science Journal), 2017-2018

Awards and Honors

- Interstate Technology & Regulatory Council (ITRC) Team of the Year, Bioavailability of Contaminated Soils Committee, 2016
- ORD Honor Award, Toxic Elements Team, 2012
- EPA National Honor Award, Science Achievement Award – Earth Sciences (1st recipient), 2011
- ORD Honor Award, Exceptional/Outstanding ORD Technical Assistance to the Regions or Program Offices, ORD West Oakland Research Support Team, 2011
- Fellow – Soil Science Society of America, 2011
- Fellow – American Society of Agronomy, 2011
- Distinguished International Researcher Award from the University of South Australia International Research Collaboration Support Program to support distinguished international researchers to visit UniSA to establish or strengthen research collaborations likely to lead to high profile research outcomes, 2011

Science Matters: New Testing Methods for Arsenic and Lead in Soil