

Kathleen (Karrie) A. Radloff, Ph.D.

Senior Environmental Engineer

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Dr. Radloff is an environmental engineer specializing in the geochemistry, fate, and transport of environmental contaminants. Dr. Radloff has used her technical expertise for the characterization of contaminated aquifers, risk-based exposure assessment, site remediation, environmental liability assessment, and litigation support. She has experience with a wide range of contaminants, including trace metals, radionuclides, pesticides, chlorinated solvents, and PCBs. Her doctoral work focused on arsenic fate and transport in Bangladesh and specifically investigated how arsenic mobility restricted viable drinking water options in rural areas. Prior to graduate school, Dr. Radloff worked on human health risk and exposure assessment as an environmental health analyst at Gradient.

Representative Projects

Superfund Site Lead Source Investigation: Evaluated potential sources of lead in soil and identified factors contributing to lead in groundwater. Provided technical support as part of dispute resolution between US EPA and a responsible party.

Mining Site Remedial Strategy Development: Evaluated contaminants in soil, surface water, and sediments to facilitate a remedial strategy at a former mining site contaminated with metals in South America. Characterized the different soil and groundwater types to identify mining operations from local background conditions. Conducted geochemical modeling in support of remedial design.

Radiologic Materials in a Wetland: Evaluated whether remedial activities for addressing radiologic materials were reasonable, necessary, and cost-effective. Evaluated uranium, radium and thorium cleanup levels, identified potential on-site sources based on the nature and extent of contamination, and researched potential off-site sources of radiologic materials from local industrial processes and from natural background.

Metal Contamination of River Sediment: Assessed potential sources of metal contamination of sediment in a tidally influenced river, including industrial discharges and municipal stormwater, in response to a citizen's lawsuit under the Clean Water Act. Researched sediment transport dynamics in an estuary and geochemical processes that influence metal deposition in sediments. Provided a comprehensive review of potential sources and the processes that influence the metals contamination in sediments.

LEAF Overview and Implications: Prepared an overview of the US EPA's Leaching Environmental Assessment Framework (LEAF) to an industry group, including a summary of the methods and how US EPA intends to use information. Reviewed the potential implications of expanded use and adoption of the Framework to other jurisdictions.

Groundwater Characterization in Coal Mining Region: Provided litigation support concerning levels of metals in groundwater and drinking water in a coal mining region. Evaluated metal concentrations observed in drinking water relative to local naturally occurring levels.

Areas of Expertise

- Geochemistry
- Lead, Arsenic, and Metals
- Contaminant Fate and Transport
- Groundwater Hydrology
- Risk-based Remediation
- Source Identification

Education

Ph.D., Earth and Environmental Engineering, Columbia University

B.A., Chemistry, Mount Holyoke College

Water Science and Policy Certificate, International Women's University (Germany)

Selected Publications & Presentations

Radloff, KA. 2020. "Specific Identity: Essential Component for Defining Functionally Equivalent." Presented in Gradient *Trends* Webinar. June 4.

Lewis, A; Bittner, A; **Radloff, K**; Hensel, B. 2017. "Storage of coal combustion products in the United States: Perspectives on potential human health and environmental risks." In *Coal Combustion Products (CCPs): Characteristics, Utilization and Beneficiation*. (Eds.: Robl, T; Oberlink, A; Jones, R), Woodhead Publishing, Duxford, United Kingdom. p481-507.

Radloff, K; Zheng, Y; Stute, M; Weinman, B; Bostick, B; Mihajlov, I; Bounds, Rahman, M; Huq, M; Ahmed, K; Schlosser, P; van Geen, A. 2016. "Reversible adsorption and flushing of arsenic in a shallow, Holocene aquifer of Bangladesh." *Appl. Geochem.*

van Geen, A; Bostick, BC; Trang, PTK; Lan, VM; Mai, NN; Manh, PD; Viet, PH; **Radloff, KA**; Aziz, Z; Mey, JL; Stahl, MO; Harvey, CF; Oates, P; Weinman, B; Stengel, C; Frei, F; Kipfer, R; Berg, M. 2013. "Retardation of arsenic transport through a Pleistocene aquifer." *Nature* 501:204-207.

