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(he/him)

Areas of Expertise

- Polycyclic Aromatic Hydrocarbons (PAHs)
- Contaminant Fate & Transport
- Read-Across Assessment
- Environmental Sampling & Data Interpretation
- Vapor Intrusion

Services

- Chemistry/Forensics
- PRP Cost Recovery/Allocation
- Cost Estimation and Analysis
- Insurance Claims
- Historical Site Analysis
- Product Safety Assessment
- Sustainability Consulting

Education

- Ph.D., Chemical Engineering, Brown University
- Sc.M., Engineering, Brown University
- B.S., Chemical Engineering, Northeastern University

James W. Rice, Ph.D.

Senior Environmental Scientist

Dr. Rice is an environmental scientist specializing in contaminant transport and source identification, read-across assessment, and the evaluation of organic compound contaminants. He applies his expertise to environmental cost allocation, site remediation, groundwater and vapor intrusion assessment, insurance cost recovery, and chemical compliance. Before joining Gradient, Dr. Rice was a postdoctoral research associate and state agencies liaison in Brown University's Superfund Research Program (SRP), where he served as a knowledge broker between the Brown SRP and its government and business stakeholders. During his doctoral and postdoctoral work, Dr. Rice evaluated the thermodynamics and phase behavior of PAH mixtures and used passive samplers to monitor petroleum hydrocarbons in an oil-contaminated river.

Selected Projects

Vapor Intrusion Assessment: Investigated a collection of former industrial properties for potential vapor intrusion impacts. Performed forensic data analyses to determine the likely source of chemicals detected in soil gas in a mixed-use neighborhood near one such former industrial facility.

Former Manufactured Gas Plant Operations Review: Performed a detailed historical review of former manufactured gas plant (FMGP) operations as part of a cost allocation study. Estimated the mass loadings of tar and PAHs from FMGP operations to the sediments of an urbanized water body.

Superfund Site Cost Allocation: Developed a potentially responsible party (PRP) cost allocation for remedial design work. Applied cost causation factors, including historical and forensic evaluations of contaminant releases, to sediments of an urbanized water body.

Groundwater Assessment: Provided technical and strategic support to a PRP group at a Superfund site to address a tetrachloroethylene (PCE) plume in groundwater. Services have included overseeing remedial operations, planning and overseeing a remedy suspension test, and evaluating proposed amendments to the remedial approach.

Metals Contamination Assessment: Identified and assessed potential sources of metals contamination in an industrialized watershed, including industrial discharges and municipal stormwater. Provided a comprehensive review of the processes that influence metals contamination in sediments and the potential sources of this contamination.

Read-Across Chemical Determination: Determined read-across chemical analogs for substances that have no readily available toxicity data to ensure the safe use of chemicals, minimize analytical costs and dependence on animal testing, and assist in compliance with hazard communication frameworks.

NAPL and Groundwater Assessment: Evaluated chemical characteristics of groundwater and free product (NAPL) samples to help determine the timing of a gasoline release.

Selected Publications and Presentations

Cohen, JM; **Rice, JW**; Lewandowski, TA. 2018. "Expanding the toolbox: Hazard-screening methods and tools for identifying safer chemicals in green product design." *ACS Sustain. Chem. Eng.* 6(2):1941-1950.

Rice, JW; Bals, T; Suuberg, EM; Burgess, R. 2014. "Use of LDPE Passive Samplers for Monitoring PAHs in the Water Column of a Suburban, Freshwater Oil-Spill Site." Presented at the American Institute of Chemical Engineers Annual Meeting, Atlanta, GA, November 18.

Pennell, KG; Thompson, M; **Rice, JW**; Senier, L; Brown, P; Suuberg, E. 2013. "Bridging research and environmental regulatory processes: The role of knowledge brokers." *Environ. Sci. Technol.* 47(21):11985-11992.

Rice, JW; Fu, J; Suuberg, EM. 2011. "Thermodynamics of multicomponent PAH mixtures and development of tar-like behavior." *Ind. Eng. Chem. Res.* 50(6):3613-3620.