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(he/him)

John M. Kondziolka, M.S.

Principal Scientist

Mr. Kondziolka is a principal scientist with a successful record leading projects in contaminant fate and transport, risk assessment, and multimedia site characterization. He uses a variety of analytical and numerical modeling techniques, coupled with statistical analyses, to support technically robust reports and presentations. His expertise has been applied to interstate groundwater resource disputes, risk-based investigation and remediation of Superfund sites, coal combustion residual surface impoundment impact analyses, and green chemistry product assessments for refrigerants in emerging markets.

Before joining Gradient, Mr. Kondziolka performed research on a fellowship at the MIT Environmental Fluid Mechanics Laboratory, where he developed numerical models of sediment transport, turbulence, and the implications for the landscape evolution of wetlands. He has worked in surface water, drinking water quality, air quality, and geotechnical engineering laboratories.

Areas of Expertise

- Contaminant Fate & Transport
- Risk Assessment
- Hydrogeology
- Fluid Mechanics
- Numerical Modeling
- Remedial Investigation & Risk-Based Corrective Action

Services

- Chemical Fate & Transport
- Environmental Remediation Strategies
- Water Resources
- Insurance Claims
- Environmental Justice
- Alternatives Assessment

Education

- M.S., Civil and Environmental Engineering, Massachusetts Institute of Technology
- B.S., Civil and Environmental Engineering, Arizona State University

Selected Projects

Water Resources Numerical Modeling: Managed the production of expert reports filed with the Supreme Court of the United States (SCOTUS) using a large-scale groundwater flow and particle tracking model to support opinions on historical groundwater flow patterns and groundwater-surface water interactions. Oversaw a modeling team and presented results frequently to the client group.

Green Chemistry Product Evaluation: Managed a green chemistry product risk assessment using computational fluid dynamics (CFD) modeling with OpenFOAM and ParaView to support fault tree analysis. Conducted a site visit in support of model development.

Coal Combustion Residual (CCR) Risk Assessment: Developed a relative risk framework to assess impacts to water resources from CCR associated with different surface impoundment closure options. Created and compared two contaminant transport models (MYGRT and EPACMTP) to predict receptor risk from metals. Modeled infiltration using the Hydrologic Evaluation of Landfill Performance (HELP) model.

Interstate Chlorinated Solvent Plume Insurance Litigation: Produced expert reports based on soil, vapor, and groundwater quality data for an insurance cost recovery case.

Probabilistic Refrigerant Risk Evaluation: Developed Monte Carlo models to forecast product risk from the introduction of new chemical blends into existing markets.

Multimedia Site Investigation and Risk-Based Corrective Action: Designed a phased site investigation and risk-based corrective action for a former manufactured gas plant (MGP) site in a commercial/urban area. Modeled potential vapor intrusion into residences. Worked with a multi-firm team to produce work plans, remedial investigation/feasibility study reports, remedial action work plans, remedy implementation reports, closure reports, and presentations to regulators. Managed expert report production to support insurance cost recovery.

Selected Publications and Presentations

Bittner, A; **Kondziolka, J;** Benson, C. 2019. "Relative Liner Performance for Coal Combustion Product Management Sites: Conceptual Review and Model Evaluation for Surface Impoundments." *Electric Power Research Institute (EPRI) Technical Report* 3002016498, June.

Kondziolka, J; Kim, S; Abbas, L; Dale, A; Briggs, N; Lewandowski, T. 2019. "Flammability and Risk Assessment of Low GWP Refrigerants." Presented at American Society of Heating, Refrigerating, and Air-Conditioning Engineers (ASHRAE) Winter Conference, January 12-16.

Kondziolka, J; Nepf, H. 2014. "Vegetation wakes and wake interaction shaping aquatic landscape evolution." *Limnol. Oceanogr. Fluid. Env.* 4:106-119.

Meire, D; **Kondziolka, J;** Nepf, H. 2014. "Interaction between neighboring vegetation patches: Impact on flow and deposition." *Water Resour. Res.* 50(5):3809-3825.