

Biographical Summary

Andy Bittner, M.Eng., P.E. Environmental Engineer

Mr. Bittner is a licensed environmental engineer with nearly 10 years of experience specializing in the fate and transport of contaminants in porous and fractured media, NAPL transport, groundwater hydrology, groundwater and surface water modeling, remedial investigation and design, and soil vapor intrusion modeling. Mr. Bittner has applied these skills to develop cost effective remedial solutions at pharmaceutical facilities, manufacturing plants, and dry cleaning facilities at sites located both in the U.S. and internationally. Mr. Bittner has also provided litigation support for cost allocation projects and used groundwater and surface water models to support environmental forensic analyses. In his previous consulting positions, Mr. Bittner has had extensive experience designing and operating bench scale treatability studies and building hydraulic models for pharmaceutical wastewater treatment plants.

Representative Projects

Groundwater and Solute Transport Modeling: Designed and calibrated a groundwater flow and solute transport model for a Superfund Site that has groundwater impacted with volatile organic compounds. The model was used to demonstrate that additional source remediation would provide only limited additional benefit.

Cost Allocation: Managed large scale cost allocation for litigation at a Midwestern Superfund Site. Project involved a forensic evaluation of the sources of tar to river sediments considering site industrial operational history, contaminant fate and transport, forensic chemistry evaluation, site modification and filling history, and observed contaminant patterns. The project also included the detailed calculation of tar mass present in the environment using both visual observations and analytical data.

Groundwater and Solute Transport Modeling: Developed 3-D numerical groundwater and solute transport model for a site in Brazil using MODFLOW and MT3D for volatile organic compounds and pesticides. Used model to evaluate hydraulic barrier remediation alternatives.

Remedial Design: Managed multiple conceptual and detailed engineering remedial design projects for a soil vapor extraction system, dual phase extraction system, and a pump and treat system at a site in Brazil. Remediation efforts focused on soil and groundwater contamination by pesticides and chlorinated solvents.

Groundwater and Solute Transport Modeling: For a PRP group, managed the development of a 3-D numerical groundwater and solute transport model for PCE at a Superfund Site in New Hampshire. Calibrated model using approximately 10 years of data with review and oversight by EPA and USGS. Designed an optimization algorithm to develop an optimal groundwater pump and treat system.

Solute Transport Modeling: Developed a two-dimensional contaminant transport model for PCE using MT3D to demonstrate that contaminant contribution from a dry-cleaning operation in a co-mingled plume was insignificant compared to contribution from other sources. Managed the installation and operation of a pump and treat system at the Site.

Remedial Design: Managed conceptual and detailed engineering remedial design project at a site in Argentina to construct and operate dual phase extraction system focused on the remediation of volatile organic compounds in soil and groundwater.

Vapor Intrusion Modeling: Performed site-specific vapor intrusion modeling using the Johnson-Ettinger Model for a pharmaceutical facility. Performed a detailed sensitivity analysis for each model input parameter.

NAPL Transport: Performed NAPL transport and travel time calculations through porous media vadose and saturated zones and clay confining layers.



Practice Areas & Expertise

- Contaminant Fate & Transport
- NAPL Transport
- Groundwater & Surface Water Modeling
- Groundwater Hydrology
- Remedial Investigation & Design
- Soil Vapor Intrusion Modeling

Education

M.Eng., Environmental Engineering and Water Resources, MIT

B.S.E., Environmental Engineering, University of Michigan

B.S., Physics, University of Michigan
Licensed Professional Engineer in New Hampshire

Selected Publications

Bittner, AB., Baffrey, RN, and Esakkiperumal, C. 2006. "Using Sediment Transport Modeling to Support Environmental Forensic PCB Analyses." Presented at Society of Environmental Toxicology and Chemistry Conference. Montreal, CN. November 8

Bittner, AB. 2006. "Groundwater and Air Modeling Used to Support Forensic Analyses." Presented at the Gradient Breakfast Seminar Titled: Forensic Chemistry – The Intersection of Science and Law. May 16.

Bittner, AB. 2006. "M&A Emerging Issues and Requirements." Gradient Trends: Risk Science & Application. Page 4. Spring.

Sharma, M., Saba, T., and Bittner, A. 2003. "Optimization of Groundwater Pump and Treat Systems." Presented at the 19th Annual International Conference on Contaminated Soil, Sediments and Water in Amherst, Massachusetts. October 23.

Sharma, M., Saba, T., and Bittner, A. 2003. "Optimization of Groundwater Pump and Treat Systems Using Numerical Modeling and the Monte Carlo Approach." Presented at the National Ground Water Association Mid-South Focus Conference. Nashville. September 19.

Bittner, AB; Halsey, P; Khayyat, A; Luu, K; Maag, B; Sagara, J; Wolfe, A. 2002. "Drinking water quality assessment and point-of-use treatment in Nepal." Civil Eng. Practice 17:5-24.

Bittner, AB. 2000. "Drinking Water Quality Assessment in Nepal: Nitrates and Ammonia. M.Eng. Thesis, Massachusetts Institute of Technology.



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