

Biographical Summary

Manu Sharma, M.S., P.E., Principal

Mr. Sharma consults on a wide range of environmental sciences topics, including water quality, contaminant fate and transport modeling, risk assessment, hazardous waste site cleanups, and environmental cost/allocation. With more than 20 years of consulting experience, he has successfully applied these skills to solve a range of complex problems, from assessing health risks associated with chemicals in products to developing cost-effective remedial solutions at both small and extremely large contaminated sites. He has led investigations, risk assessments, and remedial actions at Superfund, RCRA, and state sites, and/or for mergers and acquisitions at: chemical plants, MGPs, mineral mining/processing, landfills, Brownfields, dry cleaners, and manufacturing facilities in the US and abroad. Mr. Sharma has worked extensively with hydraulic fracturing constituents, chlorinated solvents, NAPLs, pesticides, PCBs, dioxin, petroleum hydrocarbons, and mercury. He has served as an expert on cases related to multi-PRP liability assessment and cost allocation, contaminant transport, remedial investigation and design, standard of care, and water resource development.



Practice Areas & Expertise

- Contaminant Fate & Transport
- Risk-Based Remediation
- Cost Allocation/Liability Assessment
- Environmental Forensics
- Pharmaceuticals in the Environment
- Hydraulic Fracturing

Representative Projects

Hydraulic Fracturing Risk Evaluation: Assessed fate/transport and human health risks associated with HF additives and flowback constituents for the Marcellus Shale formation, submitted comprehensive comments in response to the New York State SGEIS and EPA's HF Study Plan, and gave a talk at EPA's HF workshop.

Personal Care Product Risk Assessment: Developed a framework to conduct screening level environmental risk assessments for personal care product ingredients. Approach being used to rank ingredients and make substitution decisions.

Bottled Water Permit: Led a large hydrogeologic investigation and 10-day pump test to obtain a state groundwater extraction permit for a proposed bottled water plant. Presented findings to the public, media, a district court judge, and environmental agencies.

Vapor Intrusion Risk Assessment: Evaluated vapor intrusion and related on-site and off-site risks associated with a chlorinated solvent (PCE, TCE, DCE) plume originating at a Superfund site. Assessment commended and approved by US EPA.

Remedy Negotiations & Design (Brazil): Developed a risk-based soil and groundwater remedial strategy for a chemical plant, which was part of a property transaction between two multi-national companies. Chemicals of concern were VOCs and pesticides.

Groundwater Remedy Optimization: Developed a numerical modeling approach to optimize a groundwater pump-and-treat remedy to address a large PCE plume in a sand and gravel aquifer.

International M&A Due Diligence: Estimated environmental liabilities associated with VOCs and pesticides at 8 international chemical plants. Participated in high-level negotiations and developed risk-based cleanup criteria.

Mercury in Buildings: Provided expert testimony regarding the appropriateness of investigation and remediation techniques used to address elemental mercury in a former industrial building that had been redeveloped into condominium units.

In Situ Groundwater Remediation: Developed the conceptual design for a cost-effective *in situ* remedy to address zinc surface water and groundwater contamination at a former smelter.

Education

M.B.A., Boston College

M.S., Civil Engineering, Syracuse University

B.Tech., Civil Engineering, IIT, Bombay

Licensed Professional Engineer

Selected Publications

Sharma, M. 2011. "Modeling Drinking Water Related Human Health Risks from Hydraulic Fracturing (HF) Additives." In US EPA Hydraulic Fracturing Workshop, Arlington, VA, March.

Thakali, S; Sharma, M; Verslycke, T. 2008. "Environmental Safety Ranking Framework for Surfactants in Personal Care Products (PCPs)." Poster presented at the Society of Risk Analysis (SRA) 2008 Annual Meeting, Boston, MA, December.

Sharma, M. 2004. "Vapor intrusion – EPA vapor intrusion model reliability and role of background concentrations in risk assessments." *Risk Policy Report* 11(8):42-43.

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

Sharma, M; Blanchet, R.J. 2002. "Undertaking Risk-Based Remediations in Brazil." 18th Annual International Conference on Contaminated Soil, Sediments and Water, Amherst, MA, October 22.



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