Biographical Summary

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

Mr. Sharma, a Licensed Professional Engineer with over 20 years of consulting experience, specializes in evaluating chemical exposures and human health/environmental risks associated with waste sites and products; groundwater and contaminant transport modeling; assessing vapor intrusion into buildings; conceptual remedial design; and providing litigation support. He has successfully applied these skills to assessing environmental risks associated with pharmaceuticals and to developing cost-effective solutions at both small and extremely large contaminated sites, including chemical plants, MGPs, Brownfields, landfills, dry cleaners, and manufacturing facilities in the US and abroad. Mr. Sharma has worked extensively with chlorinated solvents, NAPLs, pesticides, 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.

Representative Projects

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.

Pharmaceutical Risk Assessment: Developed a protocol to establish risk-based effluent discharge limits at pharmaceutical manufacturing and formulation facilities and to conduct regulatory environmental risk assessments in support of global product (drug) registrations. Presented a half-day seminar on pharmaceutical risk assessment issues to the EHS group at a global pharmaceutical firm.

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.

Practice Areas & Expertise

- Groundwater Modeling
- Contaminant Fate & Transport
- Risk-Based Remediation
- Vapor Intrusion into Buildings
- Pharmaceuticals in the Environment
- Chlorinated Solvents
- Pesticides
- Mercury

Education

M.B.A., Boston College

M.S., Civil Engineering, Syracuse University

B.Tech., Civil Engineering, IIT, Bombay

Licensed Professional Engineer

Selected Publications

Saxe, J; Thakali, S; Pollock, M; Sharma, M; Yekel, H. 2007. "Predicting the Environmental Fate of Active Pharmaceutical Ingredients (APIs) in Sediments for Regulatory Environmental Risk Assessments." Society of Environ. Tox. and Chem. (SETAC) N. America 28th Annual Meeting in Milwaukee, WI, November 13.

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, RJ. 2002. "Undertaking Risk-Based Remediations in Brazil." 18th Annual International Conference on Contaminated Soil, Sediments and Water, Amherst, MA, October 22.

Chapnick, SC; Sharma, M; Roskos, D; Shifrin, NS. 1998. "An alternative to the inappropriate use of Toxicity Characteristic Leaching Procedure (TCLP)." *American Environmental Laboratory.* 10(7):18-19.

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