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# Jeffrey T. Rominger, Ph.D.

## Principal

Dr. Rominger is an environmental engineer and scientist at Gradient with expertise in environmental fluid mechanics, chemical fate and transport, and environmental forensics. He advises clients on issues, including coastal erosion and inundation, surface and subsurface chemical releases, gas migration, the movement of chemicals in indoor air and building materials, and chemical weathering and fingerprinting. His expertise has helped resolve complex issues at oil and gas facilities, coastal estuaries and sediment sites, and inland watersheds.

Dr. Rominger has provided consulting support at both upland and waterway sites where polycyclic aromatic hydrocarbons (PAHs), metals, pesticides, polychlorinated biphenyls (PCBs), and a variety of other chemicals were present. He has also provided expert testimony regarding subsurface chemical releases. His scientific interests include combining techniques from chemical fate and transport and chemical forensics in order to trace and better understand environmental releases.

## Areas of Expertise

- Fluid Dynamics
- Contaminant Fate & Transport
- Environmental Forensics
- Numerical Modeling
- PCBs

## Services

- Chemistry/Forensics
- Chemical Fate & Transport
- Water Resources
- PRP Cost Recovery/Allocation
- Climate Change
- Pharmaceuticals in the Environment
- Environmental, Social & Governance (ESG)

## Education

- Ph.D., Environmental Fluid Mechanics, Massachusetts Institute of Technology
- S.M., Civil and Environmental Engineering, Massachusetts Institute of Technology
- B.S., Civil and Environmental Engineering, University of Virginia
- Minor, Mechanical Engineering, University of Virginia

## Selected Projects

**Subsurface Modeling:** Provided expert testimony on the timing of a subsurface petroleum leak from an underground pipe.

**Contamination Analysis:** Performed a forensic analysis of contamination from multiple point sources in an estuary located in a heavily populated area. Contaminants included PAHs, PCBs, dioxin/furans, and metals. The forensic analysis was used to provide a scientifically sound cost-allocation model for use in negotiations.

**Groundwater Analysis:** Developed a conceptual framework for the movement of herbicides from their application point to groundwater supplies, and through the subsequent retention and slow release over a multi-decade timescale. Analyzed multiple sites with disparate hydrology using several national databases.

**Sediment and COC Transport:** Evaluated hydrodynamics, sediment transport, and multi-decade movement of COCs at a complex environmental cleanup site with multi-decade history and multiple COCs to support equitable and scientifically justified cost allocation among cooperating parties.

**Chemical Migration Modeling:** Modeled the sorption, desorption, and movement of chemicals in building materials and indoor air.

**Environmental Modeling:** Modeled the transport of treated effluent from the land surface to the groundwater beneath a chemical manufacturing facility. Analyzed the effluent concentrations and discharge practices and modeled the vadose zone transport and degradation of the chemical of interest under a range of environmental conditions.

**Leachate Assessment:** Modeled the transport of leachate from surface impoundments in the continental US within a probabilistic framework for a wide range of climatic and site conditions. Our results provided estimated durations for interactions between the impoundment leachate and nearby surface and groundwaters.

## Selected Publications

**Rominger, JT;** Nepf, HM. 2014. "Effects of blade flexural rigidity on drag force and mass transfer rates in model blades." *Limnol. Oceanogr.* 59(6):2028-2041.

**Rominger, JT;** Nepf, HM. 2011. "Flow adjustment and interior flow associated with a rectangular porous obstruction." *J. Fluid Mech.* 680:636-659.

**Rominger, JT;** Lightbody, AF; Nepf, HM. 2010. "Effects of added vegetation on sand bar stability and stream hydrodynamics." *J. Hydraul. Eng.* 136(12):994-1002.

Luhar, M; **Rominger, JT;** Nepf, HM. 2008. "Interaction between flow, transport and vegetation spatial structure." *Environ. Fluid Mech.* 8(5-6):423-439.