Matthew.Tymchak@gradientcorp.com

(617) 395-5558

Areas of Expertise

- Contaminant Fate & Transport
- Hydraulic Fracturing
- Groundwater-Surface Water Hydrology
- Environmental Cost Analysis
- PFAS
- Microplastics
- Renewables
- Emerging Contaminants

Services

- Chemical Fate & Transport
- Water Resources
- PRP Cost Recovery/Allocation
- NCP Consistency

Education

- M.S., Geology, University of South Carolina
- B.S., Geology, James Madison University

Matthew P. Tymchak, M.S.

Principal Scientist

Mr. Tymchak is a principal scientist at Gradient who specializes in hydrology and analyzing the source, transport, and fate of a broad range of chemicals in the environment. As a consultant for the past 15 years, he has managed investigations at a variety of sites, including chemical manufacturing plants, refineries, solid waste landfills, and some of the nation's largest groundwater National Priorities List sites. Mr. Tymchak's background includes evaluating historical manufacturing operations, waste practices, and the timing and magnitude of chemical releases in support of environmental cost recovery and allocation disputes. He has also applied his water resource expertise to assess the impacts of agricultural pumping on aquifer storage and streamflow to solve complex challenges in a large-scale water-allocation case, and in a national-scale case involving contaminant transport to water suppliers throughout the country.

Selected Projects

PFAS Sources and Transport: For multiple cases, evaluated alleged sources of PFAS from multiple facilities and potential transport pathways through surface water and groundwater to public and private drinking water supplies.

Water Rights Dispute: Provided technical evaluation for an equitable water allocation request before the US Supreme Court (Original Action 142). Evaluations included assessments of watershed hydrology, groundwater flow, and human water use.

Stray Gas Migration Investigation: Evaluated whether methane migrated upward from the Marcellus Shale to shallow water supply wells in Pennsylvania. Analyses included methane, gas isotope, and groundwater geochemistry data, in addition to an evaluation of hydraulic fracture growth in the vicinity of shale gas wells.

Remedy Evaluation and Cost Analysis: Performed remedy alternative analysis for addressing TENORM waste in a landfill. Developed remedial action objectives for the impacted media and analyzed costs for each remediation alternative. Resulted in the acceptance of a corrective action plan by the state agency.

NCP Consistency Evaluation: Evaluated the NCP consistency of response actions and their costs undertaken by a municipal water purveyor at one of the nation's largest groundwater NPL sites.

Product Release at a Refinery: Evaluation at a refinery to determine the timing, storage, and transport of a product release. The analysis included forensic chemical data, potential groundwater and contaminant transport pathways, and a review of historical site information to understand the nature and extent of contaminants.

Selected Publications and Presentations

Tymchak, MP. 2022. "Microplastics: Small particles with a global reach." Gradient *Trends – Risk Science & Application* 83 :1-2,7.

Tymchak, MP; Stahl, M. 2017. "The secret life of rain." Gradient *Trends – Risk Science & Application* 69:3,5.

Fitzsimmons, M; Flewelling, SA; **Tymchak, MP.** 2014. "Will earthquakes shake up the shale wastewater debate?" *Law360* 6p. http://www.law360.com/articles/539206/will-earthquakes-shake-up-the-shale-wastewater-debate.

Flewelling, SA; **Tymchak, MP;** Warpinski, N. 2013. "Hydraulic fracture height limits and fault interactions in tight oil and gas formations." *Geophysical Res. Lett.* 40:3602-3606.

Tymchak, MP; Collins, D; Slater, B; Brown, C; Conrad, JA; Papadeas, P; Goldberg, D; Olsen, PE. 2012. "Evaluation of the Newark Basin for Carbon Sequestration: Data Acquisition and Preliminary Results." Presented at US DOE NETL Carbon Storage R & D Project Review Meeting, Pittsburgh, PA, August 21-23.