



**PHILIP T. TRINGALE, PHD, PE**  
**Senior Consultant**

**LANGAN**

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ENVIRONMENTAL CONSULTING  
EXPERT WITNESS AND LITIGATION SUPPORT

**EDUCATION**

Ph.D., Civil Engineering, University of California, Berkeley, 1982  
M.Eng., Civil Engineering, University of California, Berkeley, 1979  
M.S., Civil Engineering (Engineering Geology), Drexel University, Philadelphia, 1977  
B.S., Civil Engineering, Northeastern University, Boston, 1974

**PROFESSIONAL REGISTRATIONS**

Civil Engineer in California and New York

**AREAS OF EXPERTISE**

- Site Assessment and Remediation
- Environmental Program Management
- Litigation Consulting and Expert Witness

**SUMMARY QUALIFICATIONS**

Dr. Tringale has directed numerous site assessments and remediation programs involving soil and groundwater contaminated primarily by organic solvents, metals, and petroleum products. He has particular expertise in site characterization and in the use of in-situ testing to evaluate soil properties. Dr. Tringale has provided final design for remedial actions that involve excavation, containment, bioremediation, vacuum extraction, monitoring, and groundwater treatment. Dr. Tringale has also provided expert testimony in support of counsel for cases involving National Contingency Plan compliance, identification of contaminant sources, magnitude and extent of contamination, remedial cost estimates, and allocation of cost and responsibility.

Examples of his recent litigation cases are:

- Expert services associated with assessing drinking water aquifer contamination sources and potentially responsible parties at facilities throughout a major water basin
- Evaluation of impact from ruptured pipe discharging millions of gallons of liquid on major surface water feature
- Assessment of impact from industrial facilities in a business park to groundwater
- Forensic evaluation of industrial facility impact to drinking water aquifer supply in major metropolitan areas
- Forensic evaluation of impact from lead and arsenic discharges throughout extended facilities operations to the environment in a sensitive urban area

Examples of his projects are:

**Landfill Investigation and Closure**

Directed the evaluation of the migration of chlorinated solvents and other constituents at the GBF/Pittsburg Landfill in Pittsburg, Calif. Provided technical support to counsel including designing and implementing field investigations; compiling and interpreting hydrogeologic, chemical disposal, and land use data; and developing a cost allocation model. Applied for a containment zone designation. Directed evaluation of a range of remediation alternatives using cost decision analysis and probabilistic cost estimation. Directed closure and post closure engineering studies including regulatory agency interaction. Participated in mediation proceedings.

**Marina Bay**

Provided technical support of litigation for the investigation and cleanup of a 200-acre site near the Richmond waterfront in California. The area was contaminated with petroleum hydrocarbons, metals, and other constituents. His expert testimony on behalf of the City of Richmond Redevelopment Agency focused on response action compliance with the National Contingency Plan.

**Industrial Groundwater Remediation**

Directed the investigation and remediation of a 5-mile-long plume of contaminated groundwater emanating from beneath a manufacturing facility in Colorado. Perchloroethene-contaminated groundwater affected a major water supply aquifer, and several supply wells were forced out of service. Services included the assessment of subsurface conditions, regulatory agency interaction and reporting, detailed assessments of remedial alternatives, design of remedial systems, preparation of plans and specifications, contractor selection, and technical support of counsel.

**Solvent Investigation and Remediation**

Directed the investigation and remediation of soil and groundwater contaminated with trichloroethene (TCE) and perchloroethene (PCE) at a metal-parts fabrication plant in San Francisco, Calif. with regulatory oversight by Department of Toxic Substances Control and Regional Water Quality Control Board, project activities also included development of a public participation plan, risk assessment, and supporting documents consistent with the National Contingency Plan, and expert witness services.

**Petroleum Remediation at an Industrial Facility**

Directed a site investigation and remediation program at an industrial facility in Burlingame, Calif. Directed technical activities that ranged from a study of site history to the remediation of soil affected by petroleum hydrocarbons. The exploratory program involved soil trenching and onsite quantification of hydrocarbon concentrations in soil. Remediation consisted of soil excavation, controlled backfilling, design and implementation of a treatability study, and the development and implementation of an onsite bioremediation program.

**PROFESSIONAL AFFILIATIONS/HONORS/PATENT**

- American Society of Civil Engineers
- National Ground Water Association
- International Society for Soil Mechanics and Foundation Engineering
- American College of Forensic Examiners (Diplomat/Fellow)
- Chi Epsilon, National Civil Engineering Honor Society
- Patent: Acoustic Penetrometer for Subsurface Soil Characterization