



PROFESSIONAL PROFILE



Catherine Boston, MPH, DABT

National Director of Human Health Risk Services

Principal Scientist | Risk Assessor

EXPERIENCE SUMMARY

Ms. Boston is a board-certified toxicologist with over fourteen years of experience: Roux (2009-Present); Island Creek Oysters (2005-2009).

TECHNICAL SPECIALTIES

Ms. Boston’s career has focused on the assessment of human health and environmental hazards. Her multidisciplinary training in geology, human health risk assessment and toxicology provides full-spectrum support for remedial investigations, environmental litigation, and risk communication. Ms. Boston’s areas of expertise include:

- Human health risk assessment
- Exposure assessment
- Toxicological evaluations
- Toxic tort evaluations
- California’s Proposition 65 evaluations
- Site investigation and remediation
- Allocation of environmental hazard contribution
- Statistical data analysis, including ProUCL, SAS, Geographic Information Systems (GIS) and R.

Ms. Boston’s work in toxicology and human health risk includes emerging contaminants, quantitative risk assessment, exposure assessments, and interpretation, critique, and analysis of epidemiological and toxicological evaluations. Ms. Boston has experience weaving together multiple lines of evidence to help fully understand general causation issues in toxic tort matters. She is involved in expanding the base of toxicological knowledge through research that seeks to improve understanding of exposures to a variety of per- and polyfluoroalkyl substances (PFAS).

Ms. Boston has leveraged her expertise in a variety of contexts: she has worked closely with industry groups to proactively assess potential human health risks of emerging chemicals, has served as liaison between technical and non-technical audiences, and has provided technical support to local health agencies and municipalities.

REPRESENTATIVE PROJECTS

Risk Assessment, Toxicology, Toxic Tort

Ms. Boston has assessed the potential for increased risk of carcinogenic and non-carcinogenic health outcomes following alleged exposure to a wide variety of chemicals (including but not limited to asbestos, talc, heavy metals, chlorinated solvents, PFAS, microplastics, polychlorinated biphenyls, pesticides/herbicides, and various volatile organic compounds) both under regulatory protocols and in the context of litigation.

- **Los Angeles County, California:** Provide technical assistance and expertise to County related to potential human health impacts and public health decisions in the aftermath of the Palisades and Eaton wildfires.
- **Municipality, Massachusetts.** Advised municipality regarding their potential acquisition of a Superfund site (impacted with 1,4-dioxane, Uranium, heavy metals, and other contaminants). Scope includes risk communication with Town officials, residents, and regulators along with a quantitative RAGS style human health risk assessment outlining potential reuse options for the Site.

CONTACT INFORMATION

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EDUCATION

Master of Public Health,
Environmental Hazard
Assessment and Toxicology,
Boston University, School of
Public Health, 2019
BA, Geology, Colgate University,
2009
Diplomate of the American
Board of Toxicology, 2021

PROFESSIONAL TRAININGS

OSHA 29 CFR 1910.120 40-Hour
Safety Training
OSHA 29 CFR 1910.120(e) (8) 8-
Hour Refresher Training
DOT 49 CFR Hazardous
Materials Awareness, Modal
and Function- Specific
Training
MSHA Part 48 Surface
Metal/Non-Metal Mine Safety
Training Loss Prevention
System (LPS) Trained

- **Industry Group Risk Analysis, Nationally.** Performed assessment of potential health risk implications of product formulation shift related to tire-wear and road emissions on behalf of client. Analysis focused on ecological and human health risk of emerging and traditional contaminants (including microplastics, 6PPD-Q), complex fate and transport dynamics, and relative source apportionment issues.
- **Los Angeles County, California.** Provided technical assistance to the County related to health risk from landfill operations following community concerns.
- **Los Angeles County, California.** Conducted odor evaluation, health screening evaluation, and complex data analytics assessing temporal and spatial trends to evaluate community concerns regarding landfill emissions related to an elevated temperature event.
- **Birth Defects Analysis, Hawaii:** Expert witness assessing birth defects allegedly stemming from in utero maternal exposures to various chemicals associated with sugarcane burning operations (including PAHs, PM2.5, dioxins and others).
- **Roundup and PCB Litigation, Nationally.** Expert witness for general causation assessing exposure to Roundup and PCBs and the potential to develop Non-Hodgkin's lymphoma. The opinion is based on integration of multiple lines of scientific evidence including mechanistic data, animal carcinogenicity assays, and human epidemiological data.
- **PFAS in Papermaking Sludge, Maine.** Retained to provide expert witness services for a class action and personal injury suit alleging exposure to PFAS in drinking water related to application of biosolids containing papermaking sludge (both direct application by paper-making industry, and municipal wastewater treatment biosolids containing papermaking sludge). In the process of assessing the client's relative contribution to observed PFAS impacts and the scientific basis for the health effects alleged by the Plaintiffs.
- **Alleged Asbestos Exposure, Canada.** Prepared expert report quantifying alleged worker exposure to a gasket at a large industrial facility.
- **Large Industrial Client, Nationally.** Assist in PFAS MDL cases providing underlying support related to toxicology, epidemiology and derivation of regulatory standards.
- **Industrial Lagoons, New Jersey.** Performed sophisticated statistical analysis using multiple lines of evidence to demonstrate that elevated arsenic levels in upland soil of an industrial facility were attributable to background/fill conditions, not site operations.
- **City of Napa, Lead Impacts.** Evaluated past, current, and future exposure to City personnel training at the Napa Police Department Firing Range (impacts include lead, metals, and petroleum compounds). Developed best management practices for the City to ensure safe practices moving forward, and advised client regarding potential health risk associated with redevelopment work.
- **Air Modeling, Toxic Tort Case, Louisiana.** Assessed potential exposure to Plaintiffs using surface water to air partitioning model and a Gaussian Plume model. Demonstrated that Plaintiff exposure to a volatile compound present in surface water was not occurring.
- **Multiple PCB Sites, South Boston, Massachusetts.** Performed multiple complex Massachusetts Contingency Plan Method 3 Risk Characterizations for high profile redevelopment Sites in the Seaport of Boston. Demonstrated usability of historical data via spatial and statistical analysis. Statistical support helped to guide and streamline redevelopment and remediation efforts.
- **Prop 65. Litigation, Confidential Client, Japan.** Prepared memorandum for a large electronics manufacturer in response to a Notice of Violation of California EPA's Proposition 65.
- **Assessment for Compliance with Prop65, Multiple Clients.** Advised clients regarding 2018 labeling changes, product sampling and analysis, and evaluation of levels of exposure against Safe Harbor Levels for various consumer and food products.
- **Tank Car Facility, Ohio.** Performed a modified Risk Assessment Guidance for Superfund (RAGs) human health risk assessment for 160-acre tank car maintenance facility impacted with petroleum hydrocarbons, solvents, and metals. Exposure media of concern included soil, soil gas, indoor air, and groundwater. Evaluated current and future scenarios at various exposure units in accordance with Ohio EPA guidance. Prepared weight of evidence evaluation assessing the potential presence of Chromium VI at the Site in the absence of speciated Chromium data. Identified Remedial Action Objectives (RAOs) and calculated Preliminary Remediation Goals (PRGs).
- **Fish Ingestion, West Virginia.** Evaluated surface water and sediment contaminated with heavy metals and polycyclic aromatic hydrocarbons (PAHs) to estimate fish tissue concentrations in two rivers impacted by a former zinc smelting facility. Estimated risk for ingestion of contaminated fish to demonstrate that the exposure pathway not of concern at the Site.
- **Relative Dioxin Toxicity, New Jersey.** Performed toxicity equivalency evaluation of products allegedly containing dioxin congeners discharged to river. Determined congener weighted toxic equivalency factors (TEFs) of products were orders of magnitude less toxic than 2,3,7,8-Tetrachlorodibenzo-p-dioxin.

- **Synthetic Turf Exposure, California.** Performed data evaluation, and exposure assessment, a toxicity assessment, and risk characterization to evaluate potential child, adult and staff exposures to PAHs and metals detected in synthetic turf via incidental ingestion, dermal contact, and outdoor inhalation for a local municipality. Determined that the cumulative cancer risk and non-cancer hazard estimates for the most sensitive populations did not exceed Cal-EPA target health goals.
 - **Risk Evaluations, California.** Performed numerous human health screening evaluations (HHSEs) and human health risk assessments (HHRAs) consistent with Department of Toxic Substances Control (DTSC) Health and Ecological Risk Office (HERO) methodology. Prepared statistical evaluations attributing elevated levels of metals to background conditions and evaluated lead contamination using DTSC's LeadSpread model. Familiarity with derivation of DTSC Screening Levels, and San Francisco Bay Regional Water Quality Control Board Environmental Screening Levels (ESLs).
 - **Former Petroleum Bulk Storage Facility, Vermont.** Performed a modified RAGs Human Health Risk Assessment consistent with VTDOH methodology at a former bulk storage facility impacted with PAHs, metals, solvents and petroleum compounds. Evaluated five solvents, exposure units from a future land use perspective; coordinated deed restrictions limiting future use of the property to position site for regulatory closure.
 - **Surface Water Exposure, New Jersey.** Conducted quantitative human health risk assessment for a pond at a Site for which New Jersey's Surface Water Quality Standards were not applicable (N.J.A.C 7:9b). Risk characterization for VOC impacts determined that the cumulative cancer risk and non-cancer hazard estimates did not exceed target health goals.
 - **Surface Water Exposure, Philadelphia, Pennsylvania.** Completed quantitative human health risk assessment to evaluate potential child and adult residential and recreational exposures to surface water along a stream. Determined that the cumulative cancer risk and non-cancer hazard estimates, using the most conservative assumptions, did not exceed target health goals.
 - **Multiple Sites, Massachusetts.** Prepared Massachusetts Contingency Plan Method 1 and Method 3 risk characterizations at Sites with petroleum, chlorinated solvents, metals, PAHs, PCBs and other environmental impacts. These sites have included dry-cleaning facilities, petroleum terminals and refineries, and redevelopment projects.
 - **Abandoned Uranium Mines, Navajo Nation.** Evaluated environmental hazards and human health risks posed by seventy abandoned uranium mines in Arizona. Compiled a GIS database to assess complete exposure routes, and determine appropriate remediation measures.
- ### Other Litigation Support
- **Former Dry Cleaning Facility, Oklahoma.** Provided expert opinions regarding the nature and extent of contamination, and causation of a release of tetrachloroethylene (PCE) at a former dry-cleaning facility in Oklahoma. Expert opinions supported an allocation indicating a de minimus contribution from client.
 - **Former Iron Smelter, California.** Performed fingerprinting statistical analysis using trace metals signatures of electric arc furnace fugitive emissions (via principal component analysis). Determined arsenic and lead contamination associated with operation of former steel smelter migrated to neighboring school property.
 - **NCP Compliance.** Reviewed technical reports and other documentation for a national electronics manufacturing facility, a wood-treating facility, a mining and chemical processing facility, a cast-plate facility and at two nuclear processing facilities to determine their compliance with USEPA and State requirements. Technical evaluation performed regarding a variety of response actions including remedial actions, non-time critical removal actions, and time-critical removal actions under the National Contingency Plan. Evaluated compliance related to documentation of costs, appropriateness of response, public information, and community relations.
 - **National Industrial Client.** Involved in expert opinion related to multi-billion-dollar trial in Federal Bankruptcy Court. Scope involved estimating costs of legacy environmental liabilities that contributed to a historic \$5.15B environmental settlement. Legacy sites included wood-treating, agricultural and chemical manufacturing, mining, waste disposal and petroleum sites. Evaluated sensitive receptors, contamination pathways and magnitude of environmental impact to develop metric cost estimating methodology for wood-treating, agricultural and chemical manufacturing, and petroleum sites. Prepared sensitivity analyses on estimated costs.
 - **Evaluation of Twelve Historical Paper Mills, Michigan.** Performed an in-depth evaluation of the wastewater treatment systems of twelve paper mills over the span of 50-years in support of a total suspended solids (TSS) loading analysis. Compiled flow diagrams for twelve facilities illustrating operational changes and upgrades to each of the wastewater treatment systems, and evaluated against the historical standard of care and state of knowledge. Provided defensible estimates of TSS effluent from each of the twelve paper Mills, which another expert used to determine polychlorinated

biphenyl (PCB) loadings to the river for allocation purposes. Project manager and client liaison.

- **Chemical Manufacturing Facility, New Jersey.** Evaluated the transport pathways from a large chemical manufacturing plant to the Lower Passaic River, and how contributions from the plant varied between owners/operators. Assessed the historical chemical manufacturing process, and evaluated the effectiveness, implementability and costs of historical large-scale sediment dredging sites. Prepared deposition questions for two opposing Experts, and provided technical support to council during deposition of two opposing Expert witnesses.
- **Former Naval Facility, Various Contaminants, California.** Evaluated metals, PCB, total petroleum hydrocarbon (TPH), volatile organic compound (VOC), semi-volatile organic compounds (SVOC), and chlorinated solvent contamination in soil and groundwater to determine when contamination was known or reasonably knowable, necessity and reasonableness of remediation costs/insurance claims, and nature of the interaction with regulators.
- **Chemical Manufacturing Facility, Chlorinated Solvents, New Jersey.** Evaluated the historical standard of care and state of knowledge of trichloroethylene (TCE) handling and toxicity at a chemical manufacturing facility. TCE disposal allegedly contaminated groundwater and impacted residential neighborhood.
- **Industrial Complex, New Jersey.** Evaluated nexus to the Lower Passaic River, including evaluation of transport pathways, evaluation of historical sewer configuration, and quantification of possible contribution via mass loading calculations. Prepared correspondence to the United States Environmental Protection Agency (USEPA) illustrating de minimus contributions from the Site to the Lower Passaic River.
- **Industrial Complex, New Jersey.** Compiled historical data regarding tenancy, historical operations, chemical usage and standard of care to determine the nature and timing of a release at an industrial complex devastated by a fire. Completed a forensic evaluation to determine the nature and timing of release of petroleum distillates via fingerprinting analysis. Evaluated the necessity and reasonableness of past response costs, and apportioned past and future costs between multiple parties using GIS software Completed an evaluation of NRD claims and settlements for analogous sites in support of settlement negotiations.
- **Former Pesticide Manufacturing Facility, India.** Conducted a literature of background contamination of Indian soils, nallas, and groundwater. Demonstrated that elevated metal and pesticide concentrations surrounding the site were consistent

with background concentrations, and not attributable to site conditions.

- **International Oil and Gas Exploration Client.** Analyzed data pertaining to major oil spill and impacts to shoreline, natural resources, and local industries. Evaluated fate and transport, weathering and fingerprinting of oil using chemical data analysis of product, sediment, water, and shoreline samples.
- **National Electronic Manufacturing Client.** Evaluated the appropriateness of an analytical method of Ozone Depleting Compound detection via data compilation and analysis.

EXPERT RETENTIONS/APPEARANCES

Thomas Ryan, Susan Ryan, Sean Gallagher, Ashley Sultan Gallagher, Michele Burt, Nancy Donovan, and Lauren Ladue, individually and on behalf of other similarly situated, v. The Newark Group, Inc., Massachusetts Natural Fertilizer Co., Inc., Otter Farm, Inc., Seaman Paper Company of Massachusetts, Inc., and 3M Company. 4:22-cv-40089-MRG. Expert Report. March 31, 2025.

Five Point Holdings, LLC and CP Development Co., LLC, v. Tetra Tech EC, Inc. and Tetra Tech Inc. NO. 3:20-CV-01481-JD; CPHP Development, LLP; HPS Development Co., LP; HPS1 Block 50, LLC; HPS1 Block 51, LLC; HPS1 Block 53, LLC; HPS1 Block 54, LLC; HPS1 Block 55, LLC; HPS1 Block 56/57, LLC; Lennar Corp., v. Tetra Tech, Inc.; Tetra Tech EC, Inc., United States of America. NO. 3:20-CV-1485-JD. Linda Parker Pennington, et al., v. Tetra Tech EC, Inc., et al. 3:18-CV-05330-JD. Expert Report. Deposition March 25, 2025.

West Virginia Rivers Coalition, Inc. v. The Chemours Company FC, LLC. United States District Court for the Southern District of West Virginia. Declaration. March 11, 2025.

Doris Banks, Candy Caporale, Bruce Davis, Gene Sullenberger and Christene Wootten, v. E.I. Du Pont De Nemours and Company et al. United States District Court for the District of Delaware. Expert Report. February 28, 2025.

Jeanne Brazell et al. v. Monsanto Company. In the Circuit Court of St. Louis City State of Missouri. NO. 1922-CC11327. Expert Report. Deposition August 5, 2024.

Tyco Fire Product LP v. AIU Insurance Company, et al. District Court of South Carolina. NO. 2:23-CV-02384-RMG. Expert Report. Deposition July 16, 2024.

City of East St. Louis vs. Monsanto Company et al. In the District Court for the Southern District of Illinois. NO. 3:21-cv-00232-DWD. Expert Report. Deposition September 6, 2024.

Mitchell Hargreaves et al. vs. Alexander & Baldwin, LLC. In the Circuit Court of the First Circuit State of Hawaii. NO. 1CCV-21-0001330. Expert Report. Deposition May 30, 2024.

Jeanne Brazell et al. vs. Monsanto Company. In the Circuit Court of St. Louis City State of Missouri. NO. 1922-CC11327. Expert Report. Deposition February 16, 2024.

Kelly J. Martel vs. Monsanto Company, et al. In the Court of Common Pleas of Philadelphia County. NO. 210900084. Motion to Exclude testimony of Plaintiff Expert Witness. Testimony October 26, 2023.

Leonard A. Peters and Aileen H. N. Peters. vs. Monsanto Company. In the Circuit Court of the First Circuit State of Hawai'i. C.A. No. 1CCV-20-0001630. Expert Report. Deposition August 31, 2023.

Melford Berns, et al. vs. Monsanto Company. In the Circuit Court of the City of St. Louis State of Missouri. Case No. 1922-CC11326. Expert Report. Deposition February 3, 2023.

Michael Evard et al. vs. Monsanto Company. In the Circuit Court of Cook County, Illinois. Case No. 2019-L-011574 (Consolidated with 2019 L 010612). Expert Report. Deposition July 28, 2022.

In the matter of Raymond Desrosiers v. Potters Industries Canada. Commission des normes, de l'équité, de la santé et de la sécurité du travail. Expert Report. April 1, 2022. Testimony before Tribunal Administratif Du Travail. PROVINCE DE QUÉBEC RÉGION DE LA MONTÉRÉGIE. February 2, 2024.

Stratford Holding, LLC. vs. Foot Locker Retail, Inc., et al. In the United States District Court for the Western District of Oklahoma. Case No. CIV-12-722-HE. Expert Report.

PUBLICATIONS

Boston, C., Love, A.H., Keck, S. 2022. How the Scientific Community Studies Causation in Toxic Exposure and Disease: Perspectives from the Scientific, Regulatory and Legal Communities on Causation. *The Journal of Science and Law*. 10(1), 1-17.

Schlezing J., Hyötyläinen, T., Sinioja, T., Boston, C., Puckett, H., Oliver, J., Heiger-Bernays, W., and Webster, T.F., 2021. Perfluorooctanoic acid induces liver and serum dyslipidemia in humanized PPAR α mice fed an American diet. *Toxicol Appl Pharmacol*. 2021.

Boston, C., Banacos, N. and Heiger-Bernays, W. "Per- and Polyfluoroalkyl Substances: A National Priority for Safe Drinking Water," *SAGE journals: Public Health Reports*. 2019. Volume 134, Issue 2.

Boston, C. and Love, A. "Understanding the Uncertainty with Unregulated Contaminants," *American Bar Association Environmental & Energy Litigation*. June 13, 2018.

Ram, N. Moore, C. and McTiernan, L. "Cleanup Options for Navajo Abandoned Uranium Mines," *Journal of Remediation*. Spring, 2016.

Sullivan, D.G., Kwan, W., Gerbig, C., and Moore, C. "Proactive Evaluation of PRP Status at Hazardous Waste Disposal Sites," *Environmental Claims Journal*, June 18, 2015.

Ram, N., Kwan, W., Gerbig, C. and Moore, C. "Extricating Membership as a PRP at Hazardous Waste Disposal Sites," *Journal of Remediation*, Spring 2014, Volume 24, Number 2.

SPEAKING ENGAGEMENTS

Boston, C., Meer, S., Edling, M., Colopy, J.H. "What's Next: Emerging Contaminants and New Problems with Old Chemicals." *American Bar Association 2025 Environmental & Energy, Mass Torts, and Products Liability Litigation Committees' Joint Regional CLE*, January 2025.

Boston, C. and Coffin, S. *Environmental Law Explored*. A Podcast SEERies. ABA Section of Environment, Energy and Resources. *Microplastics Human Health and Human Toxicology*. 2023.

Boston, C., Goswami, E., and Cunningham, A.B. "Forever Young, Forever Chemicals? PFAS in Cosmetics: Health and Litigation Risks." *Roux Webinar*. December 8, 2022.

Baroni, M., Boston, C. "Microplastics Regulations on the Horizon – How Might They Impact the Plumbing Manufacturing Industry?" *Plumbing Manufacturers International*. October 25, 2022.

Baroni, M., Boston, C. "Microplastics: Liability and Scientific Uncertainty." *American Bar Association*. September 15, 2022.

Baroni, M., Boston, C., Dunn, A., Fleming, G. Plain, C. "Emerging Chemicals: From Microplastics to 'Forever Chemicals.'" *American Bar Association. Environmental & Energy, Mass Torts, and Products Liability Litigation Committees' Joint Virtual Regional CLE Program*. January 2022.

Boston C., Buermann, G.H., Scholz, A.A., Olear, K. Scian, P. "Microplastics: An Overview of Emerging Risks." *Perrin Conferences Environmental Risk & Litigation*. October 2021.

Boston, C., Baroni, M., Henke, R. "Microplastics: Small Particles: Big Consequences?" *Roux webinar*. September 2021.

Boston, C., DeWitt, J. and Welter, J. "Scientific Analysis, Regulatory Perspective and Court Gatekeeping." *FETTI Chicago*. September 2021.

Boston, C., Arvola, M., Stack, D. "The Gatekeeper: The Court's Rile in Allowing Scientific Evidence" *Perrin Conferences MassTort Litigation Conference*. June 2021.

Boston, C., Buermann, G., Alvina, G., Deluderroy, N., Green, S. "PFAS 3.0: Staying Ahead of the Wave" *Emerging Environmental Claims Management Association*. April 2021.

Boston C., Englot, S., Cunningham, A., Alviggi, C. "Under the Radar: PFAS in Products." *Perrin Conferences Environmental Risk & Litigation*. October 2020.

Boston, C., Miller, M., Valdez, S., Anderson, O., Denton, C. *Environmental & Energy Committee Breakout: "PFAS: Forever Chemicals That Are Everywhere, Even Courthouses."* *American Bar Association 2020 Environmental & Energy, Mass Torts, and Products Liability Litigation Committees' Joint Regional CLE*, January 2020.