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Eric L. Butler, Ph.D.

Principal

Dr. Butler is an environmental chemistry expert with over 20 years experience evaluating the source and fate of chemicals in the environment. He has applied chemical fingerprinting techniques, including isotopic methods, in projects involving petroleum hydrocarbons, PAHs, PCBs, dioxins/furans, and solvents. He specializes in and has testified on oil chemistry, including PCB oils, the composition of petroleum products, source identification, and the fate of chemicals in the environment. At Gradient, he focuses on designing analytical chemistry programs and technical support involving forensic chemistry. Dr. Butler has performed and directed numerous chemical analyses using both laboratory and field chemistry techniques. In addition, he has developed an expertise in contemporary archeology (“garbology”) to date environmental disposal activities by dating the co-disposed artifacts and has testified in court on the topic. Before coming to Gradient, he served the US Congress as a Congressional Science Fellow, directed a municipal laboratory specializing in VOC and bacteriological analyses, and directed numerous environmental studies relating to the Exxon Valdez oil spill.

Areas of Expertise

- Environmental Forensics
- Chemical Fingerprinting
- Analytical Methods
- Source Allocation
- TPH, PAH, PCBs, Dioxins, Solvents, & Metals
- Contemporary Archeology

Services

- Chemistry/Forensics
- Chemical Fate & Transport
- Remedial Strategies
- Insurance Claims
- PRP Cost Recovery/Allocation
- Data Quality Management

Education

- Ph.D., Chemical Oceanography, University of Rhode Island
- B.S., Chemistry, Muhlenberg College

Selected Projects

PCBs in Soils and Sediments: Prepared expert reports and testimony on the nature and source of PCBs at a former metal recycling facility. Supported cost allocation analysis for PCBs in river sediments and floodplain, and oversaw data quality assurance of the investigation and remediation of a transformer manufacturing facility.

Dioxin Fingerprinting: Directed and interpreted dioxin fingerprinting analyses. Evaluated the source of dioxins in plaintiffs’ blood by comparing dioxin fingerprints of local soil, local and national emissions, and food.

Petroleum Hydrocarbons: Conducted major research and authored studies on the water and sediment quality of the Prince William Sound following the Exxon Valdez oil spill. The studies encompassed over 3,000 water samples and over 1,000 sediment samples.

Petroleum Hydrocarbon Fingerprinting: Prepared expert reports and testimony for many clients using advanced GC/FID and GC/MS hydrocarbon fingerprinting to identify sources of fugitive petroleum products, PAHs, and MGP tars in soils, sediments, and groundwater.

Petroleum Hydrocarbons/Indoor Air: Prepared expert report and testimony regarding the sources of indoor air contaminants in a neighborhood underlain by NAPL.

Forensic Chemistry: Identified the sources of chlorinated solvent plumes by compound specific isotope analysis of PCE and TCE in soils and groundwater.

PAH Source Identification: Prepared trial testimony regarding the sources of constituents of interest to a wood-treating site. Designed and implemented an analytical program that demonstrated the presence of non-creosote sources of various PAHs at the site.

Selected Publications

Butler, EL; Sharma, M. 2011. “Proven Environmental Forensic Methods for Determining Liability and Apportioning Allocation Under CERCLA.” Invited Speaker. Presented at American Bar Association 40th Annual Conference on Environmental Law; Salt Lake City, UT, March 17.

Merrill, DE; Drivas, PJ; **Butler, EL;** Jegadeesan, GB. 2011. “Determination of polychlorinated biphenyl (PCB) release time frame using weathered congener and homolog fingerprints and a multicomponent evaporation model.” *Environ. Forensics* 12(1):35-48.

Butler, EL. 2009. Participant in “Environmental Experts: The Keys to Your Case” as expert in Mock Expert Examination presented by the Boston Bar Association, Environmental Section, March.

Butler, EL; Hengemihle, WJ; Brown, ME; Biemer, TS. 2006, 2005. “Better Litigating Through Chemistry.” Invited Speaker. Presented to the Philadelphia Bar Association, September 29, 2005. Presented to the Boston Bar Association, October 6, 2005. Presented to the Pittsburgh Bar Association, April 20, 2006.