

Environmental Forensics of Hydrocarbon Chemicals: Survey of Applications, Approaches, Capabilities, and Limitations

March 10, 2022 from 10:00 am – 2:15 pm

Instructor Biographies:

Deborah Chiavelli, Ph.D., Managing Scientist, Anchor QEA, LLC, 123 Tice Blvd., Suite 205 Woodcliff Lake, NJ 07677, (201) 930-9890, <https://www.anchorqea.com/>

Dr. Deborah Chiavelli is a managing scientist with Anchor QEA, LLC with more than 18 years of experience in contaminated site investigation, environmental statistics, aquatic ecology, and water quality. Her current projects predominantly involve environmental forensic source investigation in contaminated sediments, soil, groundwater, and air vapor. Much of her current forensic work involves former manufactured gas plant (MGP) sites and other sites with polycyclic aromatic hydrocarbon (PAH) releases including crude and refined petroleum products and refined coal tar products. Her forensic investigations have also included source assessment of polychlorinated biphenyls (PCBs), dioxins and furans, pesticides, and metals. Dr. Chiavelli's approach focuses on development and application of robust, site-specific, and quantitative fingerprinting tools for source identification and allocation.

EDUCATION

Ph.D. – 2003 - Dartmouth College - Biology

M.S. – 1995 - University of Mississippi - Biology

B.S. – 1990 - Cornell University - Natural Resources

Graduate Coursework in Petroleum Geochemistry and Environmental Forensics – 2013 - Montclair State College

FORENSIC PROJECT EXPERIENCE

Dr. Chiavelli has been the lead investigator on more than 30 environmental forensics investigations ranging from single facility investigations to multi-party superfund sites.

JOURNAL ARTICLES AND PRESENTATIONS

Dr. Chiavelli is the author or co-author of 8 peer-reviewed journal articles on aquatic ecology, microbiology, and contaminant source assessment. Dr. Chiavelli was also an author and presenter of numerous presentations on plankton population dynamics, cholera ecology and epidemiology and contaminated site investigation and environmental forensics.

David M. Mauro, M.S., President/Senior Scientist, META Environmental, Inc., 1000 Turk Hill Road Fairport, NY 14450, 585-364-0728, www.metaenv.com

Mr. Mauro is an environmental and analytical chemist with more than 30 years of experience in the field. He is co-founder and president of META Environmental, Inc. (META), a nationally-recognized environmental consulting company. Mr. Mauro has served as the project manager or senior technical consultant for dozens of projects involving design and implementation of site characterization, source identification and cost allocation, treatability studies, environmental fate and transport, statistical and quality control assessments, and remedial designs under CERCLA, RCRA, and other programs.

Mr. Mauro has extensive experience in the characterization, fate and transport properties, analytical methods, and quality assurance procedures at sites contaminated with refined petroleum products, former manufactured gas plant (MGP) wastes, wood preservatives (creosote and PCP), PCBs, dioxins and furans, dielectric fluids, and solvents. He has been an expert witness for cases involving coal tar and petroleum releases, PCB and dioxin and furan contamination, fires and explosions of PCB fluids and PCB-containing materials, and other industrial issues.

EDUCATION

Ph.D. Candidate – 1986 - Boston University – Chemistry

Dissertation Title: *"Resolution of Infrared Spectra of Mixtures by Self-Modeling Curve Resolution Using a Library of Reference Spectra with Simplex-Assisted Searching"*

M.S. - 1982 - Florida Institute of Technology - Environmental Science

Thesis Title: *"4-(4-Nitrobenzyl)pyridine Tests for Mutagens Following Chemical Oxidative Activation"*

Independent NASA Research: *"Improved Hypergolic Vapor Removal Systems Testing and Development for Space Shuttle Fueling"*

B.S. - 1977 - Southampton College of Long Island University - Biology & Env. Science

RESEARCH & DEVELOPMENT, SELECTED TECHNICAL REPORTS

Mr. Mauro was author, Principal Investigator, and/or Senior Scientist for over 60 technical reports on environmental topics for EPRI, GTI, DOE, and NASA.

SELECTED JOURNAL ARTICLES AND BOOKS

Mr. Mauro is the author or co-author of over 15 peer-reviewed journal articles or book chapters on MGP chemistry and environmental analytical chemistry.

SELECTED PAPERS, PRESENTATIONS, AND SEMINARS

Mr. Mauro was author and presenter of nearly 100 presentations and seminars on environmental and analytical chemistry of MGP byproducts, PCBs, dielectric fluids, wood treating chemicals, and related topics.

EXPERT TESTIMONY

Mr. Mauro has been deposed and/or testified in 17 cases, 12 of which involved former MGP sites and/or coal tar-related issues.