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Professional Profile

As an environmental scientist and strategic advisor on environmental issues, Dr Boehm has conducted investigations for, consulted with, and advised industrial, legal, and government clients on scientific matters involving regulatory issues and legal claims associated with chemical contaminants in the environment. The main pillars of his professional work include analyzing and explaining the environmental distributions and fates hazardous chemical and petroleum releases, and ecological effects from chemical exposures. His work also includes the evaluation risks and damages due to climate change factors and extreme weather events.

Dr. Boehm is a leading practitioner and a recognized expert in the fields of natural resource damage assessments (NRDA) for oil spills and contaminated sites; maritime environmental incidents; natural gas geochemistry; and the environmental and forensic chemistry of crude and refined petroleum; polycyclic aromatic hydrocarbons (PAHs), polychlorinated biphenyls (PCBs), and other organic chemicals; and natural gas geochemistry. His practice also directly involves the environmental fate and transport of chemicals as well as exposure and impact assessment.

Dr. Boehm's consulting work has focused both historical legacy and contemporary chemical releases and migration from facilities including: oil refineries, fuel terminals, pipelines, and offshore platforms; manufactured gas plants (MGPs); integrated steel mills; pulp and paper mills; other active and legacy manufacturing sites; and natural gas storage fields. Many of his projects involve aspects of historical reconstruction of chemical releases; chemical fingerprinting; divisibility and apportionment; allocation at CERCLA and OPA multiparty sites; and chemical exposure and injury assessment.

His extensive knowledge of the strategic application and practice of environmental chemistry and forensics has contributed to the published literature and to legal matters on source identification, fate, and transport of PAHs, PCBs, other chlorinated organics, solvents (TCE, PCE), stable isotopes, and metals. He was one of the early and formative practitioners in the area of petroleum fingerprinting.

Dr. Boehm is well-known internationally in the field of aquatic and marine pollution, especially matters involving coastal and urban areas. His scientific consulting work over 44 years has been interwoven with oil spill scientific assessments in relation to: emergency response, NRDA, as well as civil and criminal complaints arising from these matters. He has investigated and published extensively on the fate and effects of many major oil spills around the world (e.g., Amoco Cadiz; Haven; Ixtoc 1; Exxon Valdez; Arabian Gulf War spill; BP - Deepwater Horizon). In the NRDA practice area he has also been engaged in numerous cases at CERCLA and state sites, where he has provided expert technical support on exposure and ecological injury assessment; the determination of baseline or background; divisibility and apportionment of contamination, including the applicability of CERCLA's "petroleum exclusion."

Dr. Boehm is an experienced consulting and testifying expert on a range of legal matters involving environmental claims: apportionment and allocation; NRDA; remediation and insurance cost recovery;

toxic torts; class action cases; and maritime cases under the Clean Water Act and MARPOL. Dr. Boehm has published extensively in scholarly journals, is an associate editor of two prestigious journals, and has been appointed to serve on several national panels on environmental/marine pollution and has served on several National Research Council panels.

Academic Credentials & Professional Honors

Ph.D., Oceanography, University of Rhode Island, 1977

M.S., Oceanography, University of Rhode Island, 1973

B.S., Chemical Engineering, University of Rochester, 1970

Prior Experience

Research Leader, Vice President, and Oil and Gas Market Manager, Battelle Science and Technology Inc. (Battelle Memorial Institute), 2001-2004

Corporate Vice President (1991-2001), Managing Director (1999-2001), and Director (1989-1999), Environmental, Health, and Safety Division, Arthur D. Little, Inc., (ADL), Cambridge, 1989-2001

Senior Research Scientist and Geochemistry Section Manager, Battelle Memorial Institute (BMI), Duxbury, MA, 1983-1989

Principal Scientist, Energy Resources Company (ERC0), 1976-1983

Professional Affiliations

American Chemical Society — ACS

Society of Environmental Toxicology and Chemistry — SETAC

Association for Environmental Health and Sciences Foundation - AEHS

International Society of Environmental Forensics — ISEF

American Society for Testing and Materials — ASTM

American Bar Association (associate member)

Publications

Complete listing: http://scholar.google.com/citations?user=eyAmbYEAAAAJ&hl=en

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M. Edwards, J. Pietari, L. Cook, and P. Boehm, “Treatment of Non-Detects Can Lead to Inaccurate Forensic Conclusions,” pp. 181–191.in Detection Limits in Air Quality and Environmental Measurements, ed. M. J. Brisson ASTM International, West Conshohocken, PA:, 2019, http://doi.org/10.1520/STP1618201801163

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Murray K, Boehm P. Towards an understanding of the evolution (fate and transport) of the 2010 Deepwater Horizon Oil Spill. In: Proceedings of the 2017 International Oil Spill Conference, Vol 2017, No 1.

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Project Experience

PAH Forensics and Apportionment

- Gowanus Canal Superfund site: consulting on PAH forensics and historical reconstruction of contamination
- Portland Harbor (Portland, OR) contaminated sediments (PAH): testifying expert in allocation and apportionment of petroleum contamination from fuel terminals
- Hylebos Waterway (Tacoma, WA): testifying expert (PAH sources and forensics) for defense on apportionment of contamination on remediation cost recovery case
- Ashland WI Superfund site (Ashland, WI): testifying expert (PAH sources and forensics) for plaintiff related to apportionment of contamination on remediation cost recovery case
- Gas Works Park (Seattle, WA): Consulting expert for City of Seattle on PAH sources

PCB and Chlorinated Compounds

- Testifying expert on exposure and ecological health regarding San Diego Bay litigation (California)
- Testifying expert on exposure and ecological health regarding the Duwamish River litigation (Washington)
- Testifying expert on exposure and ecological health regarding the Spokane River litigation (Washington)
- Expert in chlorinated solvents (TCE, PCE, TCA) case at manufacturing facility concerning release date(s) and sources (Illinois)
- Testifying expert on PCB fingerprinting and source determination case in the Duwamish River (Washington)
- Consulting expert on PCB matters concerning paper mill inputs to Kalamazoo River (Michigan)
- Mohawk River Hazardous Waste Site Delisting: testifying expert on PCB site delisting petition (New York State)

Natural Resource Damage Assessment

- Environmental Functional Team - provided consulting and training to Chevron response and NRDA teams since 1992
- Deepwater Horizon oil spill: consulting on environmental and NRDA matters (Gulf of Mexico)
- Exxon Valdez: testifying expert for defense on NRDA, reopener, environmental forensics, and chemical persistence issues (Alaska)
- Testifying expert on NRDA claim: St Croix Alumina Site (St Croix, USVI)
- NRDA at Bayway and Bayonne refineries: testifying expert for defense on contamination reconstruction, chemical forensics , and groundwater (New Jersey)
- PAH and petroleum expert on fuels: terminal NRDA case regarding extent of sediment contamination in Penobscot River (Maine)

Oil Spills: Non-NRDA

- Consultant and testifying expert on Prestige oil spill case (Spain) related to fate modeling and shoreline impacts (New York; Spain)
- Technical Review Panel, PPSC Contract, Kuwait National Focal Point for the Kuwait Environmental Remediation Program, set up in Response to UNCC Decision 258
- Hurricane Katrina Class Action: testifying expert for defense on environmental matters regarding oil spill transport, fate, and impacts (Louisiana)
- Supertanker Oily Water Separator Discharge: chemical expert for defense on criminal action under MARPOL regarding alleged oil discharge (California)

Manufactured Gas — MGP-Sites

- Consulting expert on Gowanus Canal Superfund Sites
- Testifying expert on Ashland Wisconsin MGP Site – chemical forensics and apportionment of PAHs
- Testifying expert for third party defendant on PAH sources on case alleging disposal of manufactured gas plant (MGP) wastes in residential area (Rhode Island)
- Consulting expert on cost allocation of petroleum and related contamination at fuel terminal/manufactured gas plant (MGP) site in Astoria OR
- Testifying expert on MGP site in concerning characterization of multiple coal tar sources and contribution to sediments (Washington)
- Testifying or Consulting Expert (Petroleum Refineries and Sites)
- Apportionment and cost allocation at major U.S. refinery: testifying expert for defense on petroleum products contamination reconstruction and chemical forensics (Pennsylvania)
- Testifying expert for defense on Superfund site regarding applicability of petroleum exclusion to site issues (Oklahoma)
- Testifying expert for defense on apportionment at historical petroleum refinery (Oklahoma)
- Expert on chemical fingerprinting of fuels in the investigation of the timing of fuel releases at multiparty service station site (Texas)
- Testifying expert on fuel oil contamination release and age-dating of hydrocarbon contamination at residential site (Long Island, NY)
- Arbitration (Institute for Conflict Prevention and Arbitration): testifying expert in allocation and apportionment of petroleum contamination (diesel fuels, gasoline) at fuel terminal (Michigan)

Petroleum Refineries and Sites

- Apportionment and cost allocation at major U.S. refinery: testifying expert for defense on petroleum products contamination reconstruction and chemical forensics (Pennsylvania)
- Testifying expert for defense on Superfund site regarding applicability of petroleum exclusion to site issues (Oklahoma)
- Testifying expert for defense on apportionment at historical petroleum refinery (Oklahoma)
- Expert on chemical fingerprinting of fuels in the investigation of the timing of fuel releases at multiparty service station site (Texas)

- Testifying expert on fuel oil contamination release and age-dating of hydrocarbon contamination at residential site (Long Island, NY)
- Arbitration (Institute for Conflict Prevention and Arbitration): testifying expert in allocation and apportionment of petroleum contamination (diesel fuels, gasoline) at fuel terminal (Michigan)

Toxic Tort Claims

- Medical exposure: testifying expert for defense on chemical characterization and dose reconstruction on hydraulic fluids exposure case-For Duke University (North Carolina)
- Gasoline release and drinking water contamination: testifying expert on fate and transport matters on pipeline release in Jackson, Wisconsin

Natural Gas and Storage Fields

- Natural Gas Storage Field Geochemical Fingerprinting (Tioga Field): geochemical expert for operator on sources of natural gas in drinking water wells (Pennsylvania)
- Natural Gas Storage Field Geochemical Fingerprinting (Cunningham Field): geochemical testifying expert on natural gas storage field cases involving field expansion and damages (Kansas)
- Natural Gas Storage Field Geochemical Fingerprinting (Elk Basin): geochemical testifying expert for plaintiffs on natural gas escape case (Wyoming)

Metals

- Expert on a Superfund site for one responsible party to determine divisibility of mercury contamination and remediation costs (Massachusetts)
- Assessment of sources of arsenic and other metals at Superfund sites (Oklahoma)
- Determination of lead and lead isotopes in gasoline contaminated site (Texas)

LNG

- LNG: Co-PI for study of environmental impacts of open loop vaporizers on Gulf of Mexico fisheries (for Center for LNG)

Advisory Appointments

Associate Editor, Marine Pollution Bulletin, Elsevier

Associate Editor, Environmental Forensics Journal, Taylor and Francis

National Academy of Sciences/National Research Council committee member on panels addressing marine monitoring systems and design, and oil spill research and development

National Blue Ribbon Panel, 106-Mile Site Monitoring Program (EPA, NOAA)

World Business Council for Sustainable Development—Delegate, Climate Change

Chief EH&S Officer's Council, The Conference Board

Board of Directors, Marine Programs Advisory Council, University of Rhode Island

Peer Reviewer: Environmental Science and Technology; Chemosphere, Marine Pollution Bulletin, Environmental Toxicology and Chemistry

Editorial Board (Former), Marine Environmental Research, Elsevier, Ltd.

Member, Technical Advisory Group for Marine Programs, Secretary of Environmental Affairs, Commonwealth of Massachusetts