

Barbara E. Cook, PE
Senior Engineer
Waste Science Inc.

PROFESSIONAL REGISTRATIONS AND MEMBERSHIPS/ AWARDS

Registered Professional Engineer, Virginia #0402026778
Registered Professional Engineer, Maryland #24615
Invited member, Montgomery County MD Task Force for Groundwater Protection Strategy, 2001
Invited member, Advisory Board for Johns Hopkins University Part-Time Environmental Engineering Programs
Member, American Society of Civil Engineers (current officer, former chairman, Geotechnical Executive Committee, National Capital Section)
Member, International Society of Soil Mechanics and Geotechnical Engineering
Member, Association of Women Geoscientists
Grand Award (local) and Honor Award (national) from the American Consulting Engineers Council for outstanding achievement in engineering practice for use of coal fly ash as a resource in developing structural fills, 1985.

PROFESSIONAL EXPERIENCE HIGHLIGHTS

Environmental Litigation Support

- Litigation support for a major oil company in an insurance recovery claim for remediation of petroleum-contaminated soils and groundwater under a large midwestern refinery, involving extensive file review and personnel interviews to develop the technical basis for the litigation strategy (ultimately settled favorably for the oil company). Coordinated preparation of expert report.
- Technical support of a two-year case and six-week trial involving utility companies accused of improperly disposing historic manufactured gas plant wastes (oxide box wastes). Involved extensive historic research of manufacturing processes and waste disposal practices, assisting attorneys in development of technical strategies, coordinating with testifying experts, and coordinating historic document usage during the trial. The jury verdict completely exonerated our gas company client of any liability.
- Expert testimony on geotechnical and environmental issues during county administrative hearings for special exception to place coal ash as structural fill at a site in Maryland.
- Litigation support for a major oil company in a groundwater contamination class action suit, involving extensive file review and personnel interviews at various sites.
- Onsite technical representation of litigant during removal of 75 buried drums containing hazardous organic solvents at a manufacturing site in Virginia.
- Litigation support for an insurer of a Maryland county government, related to environmental impacts of multiple county landfills. Litigation was settled satisfactorily for our client.

Summary of Experience and Accomplishments

Ms. Cook is a civil engineer with over 27 years of experience in geotechnical engineering and waste management. She has managed or performed waste management studies as well as foundation investigations for utilities, industries, government, and commercial organizations in many areas of the U.S. and in southeast Asia. She has experience in valuation of environmental liabilities and associated litigation support, including application of decision analysis and probabilistic risk analysis in cost estimating. She has also provided administrative and technical leadership as a group leader of a 6-person Geotechnical Engineering Group and a 22-person Engineering/Remediation Group.

Education

M.E., Geotechnical Engineering (minor in Geology), Cornell University, 1976

B.S., Civil Engineering, Cornell University, 1975

Environmental Liability Valuation

- Identification and costing of environmental remediation liabilities at multiple coal-fired power plant sites in eastern states, for use by a utility company in two bid processes to acquire various deregulated utility assets. Involved development of decision trees and probabilistic risk analysis to create a management tool to procure cost cap insurance as a component of the bids.
- Identification and costing of environmental liabilities at a coal-fired power plant being divested by utility company in a western state, for use in acquiring cost cap insurance. The decision analysis and probabilistic risk analysis will also be used as a tool for risk management.
- Assistance with identification and costing of environmental liabilities at a hydroelectric facility in a western state for use in acquisition of cost cap insurance, including valuation of potential third-party claims and natural resource damage claims.
- Participation in settlement negotiations between utility client and two insurance carriers for cost recovery for remediation of manufactured gas plant sites, including development of detailed remediation cost estimates and presentation to all parties. Settlements very favorable to our client were achieved.
- Remediation cost estimating of environmental liabilities at a refinery site for a major oil company, for purposes of insurance cost recovery.

Environmental Site Investigations

- Bioremediation pilot test program for Ohio riverbank sediments contaminated by steel industry wastes, including sampling and chemical characterization of sediments and water at uncontaminated sites and at a contaminated test site, subsequent subsurface inoculation by fortified microbial consortium, subsequent soil sampling to demonstrate effectiveness of remediation, and estimating costs to expand to full scale program.
- Site Management Plan preparation and development of recommendations for cleanup or closure of 150 solid waste management units at Fort Meade, Maryland, with soil and groundwater contamination by organics, metals, and radiological waste. Includes participation in a partnering team of USEPA, MDE, U.S. Army, and installation representatives.
- Comprehensive review and benchmark analysis of closure plans for in-situ cement stabilization of sediments in a hazardous waste lagoon and a transport canal at a midwestern refinery, including evaluation of logistics feasibility, quantity calculations, adequacy of waste characterization, and slope stability of impoundment berms.
- Site investigation/remedial investigation/feasibility study (SI/RI/FS) for 11 sites at a U.S. Army ammunition plant in Indiana, with soil and groundwater contamination by explosives and metals, and process equipment containing residual chemical warfare agent. Role included project management for five years, and geotechnical input to remedial alternatives evaluation.
- Environmental site assessments and response action plans for multiple sites at a major pharmaceutical manufacturing facility in New Jersey, with contamination by organics and metals. Included task management and integration with other ongoing RFI and corrective action activities.
- Pond closure at a chemical manufacturing plant in Virginia. Supervised resident engineer overseeing sediment and liner excavation and offsite disposal, performed statistical evaluation of confirmatory samples, and prepared closure reports and certification.
- Soil liner reconstruction in a wastewater pond system at a chemical plant in Virginia, including bench scale studies to determine quantities and techniques for mixing of bentonite into soil to create impermeable liner, then oversight of full scale application in field.

- Focused Feasibility Study for capping a landfill at a U.S. Army installation in Maryland, including assistance with evaluation of capping alternatives for a site containing mixed waste and possible unexploded ordnance, and coordinating with Corps of Engineers and Maryland regulatory agencies.
- Contamination assessment and foundation investigation for a new facility at a U.S. Navy training center in Illinois, with soil and groundwater contamination by metals, PCBs, and other priority pollutants.
- Design and construction cost estimation for remedial reconstruction of two lined hazardous waste impoundments at a chemical manufacturing plant in Hopewell, Virginia, including plans and specifications for construction.
- Conceptual design and feasibility study for impoundment of solid and liquid hazardous wastes at an Amoco refinery in southern Virginia.

Permitting Support

- Management of environmental investigations and monitoring programs, environmental and geotechnical consultation, and permitting support for four coal ash structural fill sites for a Maryland electric utility, under a continuous 22-year consulting relationship. Tasks have included:
 - Managing numerous hydrogeologic evaluations, including planning and implementation of well network installation and aquifer testing.
 - Design and management of groundwater monitoring programs.
 - Managing a statistical analysis of a large groundwater monitoring database.
 - Managing multiple iterations of groundwater modeling in support of permit applications.
 - Foundation investigations for buildings supported on ash fill.
 - Slope stability and settlement analyses, and earthwork construction monitoring.
 - Comprehensive alternatives analysis for wetlands permitting.
 - Interaction and negotiation with Maryland regulatory agencies.
 - Assistance with plan development, contractor selection, and implementation of groundwater remediation.
 - Expert testimony during 6 months of county administrative hearings.
 - Design and management of clay cap field testing program.

Geotechnical Investigations

- Site investigations, foundation recommendations, specifications preparation, and construction inspection for numerous commercial, industrial, and government structures in Maryland, Virginia, Washington DC, Pennsylvania, West Virginia, Utah, Illinois, New York, Florida, Alabama, and New Jersey.
- Geotechnical and geologic investigation of feasibility of various vertical and horizontal alignments for a proposed large-diameter water supply main in Maryland, for Washington Suburban Sanitary Commission. Served as project director for investigation involving drilling boreholes to depths greater than 400 feet, and performing packer permeability tests and hydraulic jacking tests.
- Geotechnical investigation for a 96-inch diameter combined sewer overflow pipeline and historic canal restoration in downtown Richmond, Virginia (profiled in a cover story of *Civil Engineering* magazine). Served as project director and technical reviewer for geotechnical and environmental aspects of project, including interaction with numerous existing structures, handling of unknown sources of methane encountered during the field investigation, and evaluation of disposal needs for potentially contaminated soils.
- Foundation investigations for large liquid and gas fuel storage tanks and various associated structures at a chemical refinery in Pennsylvania.
- Foundation analysis for CIA headquarters expansion in residual soils, Langley, Virginia.

- Geotechnical investigations for a major land reclamation project for the Hong Kong replacement airport at Chek Lap Kok, involving extensive offshore investigation and instrumentation, and data reduction and analysis. Supervised onsite installation and readouts from pneumatic and hydraulic piezometers, settlement plates and pipes, pneumatic settlement gages, and inclinometers.

Professional Positions

Associate, Waste Science Inc. Rockville, Maryland	1999- present
Principal and Owner, GeoEnvironmental Group, LLC Silver Spring, Maryland	2000-present
Senior Engineer, Capital Environmental, LLC Subsidiary of Howrey, Simon, Arnold & White, LLP Washington, DC	1997-2000
Associate and Senior Engineer, Dames & Moore Bethesda, Maryland	1985-1997
Geotechnical Engineer, Dames & Moore Various locations	1976-1985

Additional Training and Continuing Education

Liner and Cover Design for Waste Containment Facilities, ASCE Geo-Institute, 2001
EPRI/GRI Conference on the Management of Former MGP Sites, 2000
National Environmental Forensic Conference: Chlorinated Solvents and Petroleum Hydrocarbons, 1998
Management of Manufactured Gas Plant Sites, EPRI/GRI Technology Transfer, 1995
Sanitary Landfill Design, University of Wisconsin, 1990
Clay Liners and Covers for Waste Disposal Facilities, University of Texas - Austin, 1989
US OSHA Hazardous Waste Operations training, 40-hour and supervisors' 8-hour
US OSHA Construction Site Safety training, 1995
USDOT Shipping and Labeling of Hazardous Materials training
American Red Cross CPR and First Aid Training

Publications

K. Makeig, J. Davison, B.E. Cook, S. Jones and J. Ford, "In-Situ Biotreatability Demonstration Using Microbial Consortia for Mahoning River Remediation," Eighth International In-Situ and On-Site Bioremediation Symposium, Baltimore, MD, June 6-9, 2005.

Wyckoff, J., B. Cook, and M. McBride, "An Approach to Estimating Hidden Cost Contingencies Associated with Monitored Natural Attenuation (MNA)," Environmental Claims Journal, Spring 2000.

Technical reviewer for Residential Water Problems, Prevention and Solutions, by A. Sacks, Home Builder Press, 1994.

Nataraja, M.S. and B.E. Cook, "Seismic Liquefaction Analysis for a Pile Supported Nuclear Power Plant Site," Proceedings of First Chilean Conference on Geotechnical Engineering (Santiago, 1984).

Nataraja, M.S. and B.E. Cook, "Increase in SPT N-Values Due to Displacement Piles," ASCE Journal of Geotechnical Engineering (1983).

Cook, B.E. and M.S. Nataraja, "Influence of Sampling, Testing, and Analytical Methods on Factors of Safety Against Seismic Liquefaction," Proceedings of Annual Canadian Geotechnical Conference (Vancouver, 1983).