

No. 143, Original

IN THE
Supreme Court of the United States

STATE OF MISSISSIPPI,

Plaintiff,

v.

STATE OF TENNESSEE, CITY OF MEMPHIS, TENNESSEE,
AND MEMPHIS LIGHT, GAS & WATER DIVISION,

Defendants.

**On Bill of Complaint
Before the Special Master, Hon. Eugene E. Siler, Jr.**

**CREDENTIALS OF EXPERT WITNESS
SUBMITTED BY
DEFENDANTS, CITY OF MEMPHIS, TENNESSEE, AND MEMPHIS
LIGHT, GAS & WATER DIVISION**

Pursuant to Section I.A(1) of the Special Master's Corrected Pre-Hearing Scheduling Order (Dkt. No. 69), Defendants, City of Memphis, Tennessee, and Memphis Light, Gas & Water Division, submit the attached Curriculum Vitae of their expert witness **David E. Langseth, Sc.D., P.E., D. WRE.**

Respectfully submitted this 14th day of September, 2018,

/s/ Leo M. Bearman

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CERTIFICATE OF SERVICE

Pursuant to Paragraph 3 of the Special Master's Case Management Plan (Dkt. No. 57), I hereby certify that all parties on the Special Master's approved service list (Dkt. No. 26) have been served by electronic mail, this 14th day of September, 2018.

/s/ Leo M. Bearman

Leo M. Bearman
*Attorney for City of Memphis and Memphis
Light, Gas & Water Division*

David E. Langseth, Sc.D., P.E., D.WRE

Principal

dlangseth@gradientcorp.com

Areas of Expertise

Contaminant fate and transport, surface and groundwater hydrology/hydraulics, contaminated site assessment and management, engineering economics/decision analysis/cost allocation, M&A environmental issues.

Education/Credentials

Sc.D., Civil Engineering, Massachusetts Institute of Technology, 1983

S.M., Civil Engineering, Massachusetts Institute of Technology, 1980

B.C.E. (With High Distinction), Civil Engineering, University of Minnesota, 1977

B.A., Mathematics, University of Minnesota, 1977

Registered Professional Engineer; Alabama (28392-E), Maine (5042), Massachusetts (33446-C)

Diplomate, Water Resources Engineer of the American Academy of Water Resources Engineers

Hazardous Waste Operations and Emergency Response 40-hour site worker training program and 8-hour supervisor training program (inactive)

Professional Experience

2004 – Present GRADIENT, Cambridge, MA
Principal.

2010 – 2015 MASSACHUSETTS INSTITUTE OF TECHNOLOGY, Cambridge, MA
Lecturer/Senior Lecturer/Research Associate, Department of Civil and Environmental Engineering

2000 – 2004 NORTHEASTERN UNIVERSITY, Boston, MA
Associate Professor, Department of Civil and Environmental Engineering. Research areas: water quality management, groundwater/surface water interactions, groundwater hydraulics, and risk management for hydrologic structures.

1996 – 2000 EXPONENT, INC., Natick, MA
Principal Engineer and Regional Manager.

1984 – 1996 ARTHUR D. LITTLE, INC., Cambridge, MA
Vice President and Director.

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1982 –1984 METCALF & EDDY, Boston, MA
Engineer.

1977 – 1982 MASSACHUSETTS INSTITUTE OF TECHNOLOGY, Cambridge, MA
Graduate Research Assistant, Department of Civil Engineering.

1971 – 1977 BARR ENGINEERING COMPANY, INC., Minneapolis, MN
Technician/Engineer.

Professional Affiliations/Activities

- National Ground Water Association (member).
- American Society of Civil Engineers/Boston Society of Civil Engineers (member).
- Advisory Committee on Water Information, National Ground Water Association representative (2014-present). Member, Subcommittee on Groundwater (2007-present).
- Lexington Conservation Commission (1991-1996, 2002-present).

Projects – *Cost Allocation, Liability Evaluation, NCP Consistency*

Municipal Operating Agency: Provided technical evaluation of activities addressed by a claim for insurance coverage of certain costs related to investigation and evaluation of sediment and upland contamination in the context of the insurer's duty to defend.

Global Security Manufacturing Company: Provided technical support for cost allocation negotiations related to a former aircraft and aerospace manufacturing facility. Evaluated facility chemical use and manufacturing process history, likely release scenarios, and subsequent fate and transport in the environment. Site contaminants included chlorinated solvents, petroleum hydrocarbons, PCBs, and chromium.

Global Security Manufacturing Company: Provided technical evaluation and expert testimony for insurance claim litigation related to a former aircraft and aerospace manufacturing facility. Evaluated facility chemical use and manufacturing process history, likely release scenarios, and subsequent fate and transport in the environment. Site contaminants included chlorinated solvents, petroleum hydrocarbons, PCBs, and chromium.

Diversified Manufacturing Company: Provided technical evaluation and expert testimony for cost allocation litigation related to remediation of PCBs in an urban stream. Evaluated PCB sources, transport pathways between the identified sources and the stream, and subsequent behavior in the stream.

Agricultural Chemicals Manufacturing Company: Provided technical evaluation and expert testimony for insurance litigation related to agricultural chemicals in public water supply systems. Evaluated use history and transport pathways in the water/soil environment.

Petroleum Products Company: Evaluated the impact on groundwater quality from historical petroleum product releases as part of an insurance cost recovery case. Prepared an expert report and provided deposition testimony regarding this work.

Financial Services Company: Provided technical evaluation for litigation related to cost contribution claims for remediation on a neighboring property. Evaluated historical site uses, data patterns, and subsurface chemical fate and transport to assess likely contaminant sources on the neighboring property.

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Building Material Manufacturer: In support of cost allocation arbitration, performed forensic evaluation of contaminant releases to sediment from coke ovens and tar refineries, considering site industrial operational history, contaminant fate and transport, forensic chemistry evaluation, site modification and filling history, observed contaminant patterns, and other site investigation data.

Confidential Client: In support of cost recovery litigation, evaluated contributions to a landfill by various parties. Used historical business records to identify waste management practices and potential CERCLA hazardous materials in waste streams. Compared findings during landfill excavation/remediation with results of waste management practices evaluation. Findings were used in support of an out-of-court settlement.

Petroleum Terminal Services Company: Evaluated potential fuel release scenarios from an underground pipeline and other possible sources. Critiqued prior studies and developed alternative chemical fate and transport models that improved consistency with available data. Developed preliminary allocation of costs among the parties and supported mediation efforts that led to a settlement among the parties. Chemicals of primary interest were benzene and EDB.

Private Party: In support of claims related to insurance coverage, evaluated the potential for and expected timing of salt-water intrusion into an irrigation well installed near the coast.

Retail Gas Utility: Provided scoping/approach guidance and senior review for development of probabilistic remediation liability estimates in support of regulatory agency reporting.

Retail Gas Utilities: In support of three Federal Energy Regulatory Commission rate case hearings, provided technical negotiation support and expert witness services to legal counsel for groups of local gas distribution companies. Evaluated historical hazardous material and waste management practices, associated standards of care, release history, site characterization, contaminant fate and transport, and remediation cost estimates for natural gas pipeline systems and associated off-site properties contaminated with PCBs, mercury, petroleum hydrocarbons, and other compounds.

Mining Company: Evaluated historical operations and site conditions, including fate and transport of alleged contaminants, in support of a claim for insurance coverage of remediation costs.

Chemical Producer: Evaluated need for remediation, likely cost of needed remediation, when the contamination occurred, and the party holding the remediation liability in a dispute related to purchase of a chemical plant.

Department of Justice: Forensic evaluation of contaminant release history considering site industrial operations history, contaminant fate and transport, site modification and filling history, observed contaminant patterns, and other site investigation data. Site contaminants included metals, VOCs, pesticides, PAHs, and PCBs.

Confidential Private Client: Evaluated technical aspects of a cost allocation proposal and applied financial modeling incorporating uncertainty in support of settlement negotiations.

Retail Gas Utility: Evaluated historical practices and environmental conditions at four manufactured gas plant sites in support of insurance cost recovery litigation.

Department of Justice: Provided support regarding cost allocation at a contaminated river site related to wartime industrial activities associated with federal agencies. Activities included evaluation of historical waste management practices and relative contributions to sediment and water quality impairments.

Plastics Manufacturing Company: Provided support related to cost allocation for a multi-party remediation at a closed hazardous waste incinerator and landfill. The primary contaminants of potential concern included dioxins/furans, aromatic hydrocarbons, chlorinated hydrocarbon solvents, and metals.

Diversified Manufacturer: Prepared an expert report regarding the impact of specific releases on sediment contamination response actions and consistency of the environmental response actions with the National Contingency Plan. PCBs were the primary contaminant.

Projects – Toxic Torts, Fate/Transport, Historical Exposure, Forensic Studies

Public Water Supply System: Provided technical evaluation for litigation related to a chemical spill that affected a public water supply system. Developed and supervised implementation of a sampling program for the carbon filtration beds at a water treatment plant.

Chemical Manufacturing Company: Provided technical evaluation and expert testimony for litigation regarding sediment remediation in an urbanized and heavily industrial section of an eastern seaboard river. Evaluated natural and anthropogenic sources of arsenic, copper, lead, nickel, and zinc in the watershed. Evaluated metal concentration patterns in the context of likely sources and sediment transport dynamics, including special issues related to estuaries.

Chemical Producer: Evaluated the extent to which the sources and occurrence of dioxins/furans, DDT, lindane, and chlordane on proposed class members' properties in the vicinity of two major chemical plants were similar or different. Testified at class certification hearing on behalf of defendants. The motion for class certification was denied.

Chemical Producer: Evaluated likely sources and environmental media concentrations of chemicals alleged to have caused cancer in individuals who lived in the vicinity of two major chemical plants. The primary contaminants of potential concern were dioxins/furans and DDT.

Chemical Producer: Evaluated the potential for site worker exposure to certain chemicals while performing site maintenance activities at a chemical plant.

Chemical Producer: Evaluated the occurrence and likely sources of DDT on plaintiffs' properties near two major chemical plants. Evaluation included consideration of background sources, other local sources, and chemical fingerprinting.

Clothing Manufacturer: Evaluated potential release scenarios and subsequent fate and transport in groundwater for chlorinated solvents related to a dry cleaning operation and other potential sources.

Individual Plaintiffs: Evaluated rainfall/runoff characteristics, storm drainage system hydraulics, and gasoline source/fate/transport for stormwater drainage system that flowed under a building in Danbury, CT that exploded, causing two deaths and several injuries.

Waste Recycling Company: Reconstructed history of releases from a waste solvent recycling facility based on combination of plant operational information and subsurface fate and transport modeling.

Confidential Client: Project manager for an assessment of PCB fate and transport in a river system, focusing on floodplain deposition. Evaluated flood flow history over period of interest, sediment load as a function of river flow rate, and associated floodplain sediment and PCB deposition.

Projects – Site Characterization, Remedy Selection, Remedy Implementation

Petroleum Products Company: Provided technical evaluation for litigation regarding the adequacy of remedial actions taken in response to a petroleum products pipeline leak.

Insurance Company: Provided peer review for remediation programs being conducted under covered claims at several sites. Sites included a former manufacturing company being redeveloped for residential purposes, a former manufacturing company being purchased by a town for redevelopment, and an active manufacturing facility. Key issues included residual contamination in building materials to be retained, indoor air quality, and DNAPL in bedrock.

PRP Group: Managed the RI at the Ventron/Velsicol NPL site in New Jersey. The site was formerly occupied by a mercury processing facility and used for municipal waste disposal. The project addressed both the uplands waste disposal areas and impacts to adjacent wetlands and tidal creeks. The primary contaminants of potential concern included metals, notably mercury, and aromatic hydrocarbons.

Union Carbide India: Provided guidance, work plan review, and field oversight/training for decommissioning an agricultural chemicals plant in Bhopal, India.

Municipal Government: Evaluated groundwater remediation approach for chlorinated solvents in a karstic bedrock aquifer in the vicinity of a landfill. Serves on expert panel that directs remediation activities. The expert panel was set up in a court-approved settlement.

Retail Gas Utility: Managed a program that included site characterization, contaminant transport and fate evaluation, and risk assessment at two former manufactured gas plant sites. Developed and implemented methods for determining appropriate setback of wells from a tidal water body and for groundwater flux uncertainty analysis.

US EPA: Program Manager for Region I NPL site technical support contract for eight years. The program included 34 work assignments at 14 different NPL sites. Major activities included RI/FSs for the Picillo Farms (RI) and Fletcher's Paint Works (NH) sites; building demolition, UST removal, hazardous material disposal, soil incineration design, and groundwater treatment design for the Ottati & Goss (NH) site; developing probabilistic cost estimates in support of cost allocations and a five-year review at the Western Sand & Gravel (RI) site; treatability studies at the Tibbetts Road (NH) site; and oversight/review of RI/FS, human health and ecological risk assessments, and design/construction at the Linemaster Switch (CT), Norwood PCBs (MA), PSC Resources (MA), Winthrop Landfill (ME), Brunswick Naval Air Station (ME), Saco Municipal Landfill (ME), Somersworth Landfill (NH), Naval Construction Battalion Center (RI), and the BFI Sanitary Landfill (VT) sites. Also provided community relations support at several sites. Developed program management plans and provided senior technical and financial/cost estimating review for all activities. Project manager for the Ottati & Goss site.

Hazardous Waste Management Company: Managed the investigation, characterization, and preliminary corrective action planning for four RCRA waste handling facilities.

Retail Gas Utility: Evaluated benzene transport from groundwater into a river and the associated exposure concentrations in the river water and breathing zone above the river.

Chemical Producer: Evaluated contaminant flux from landfill site into surrounding tidal creek. Developed spreadsheet based model for unconfined flow and calibrated model to site data. Solutes evaluated included Hg, As, Cd, Fe, Pb, Mn, Ni, Se, Na, and Tl.

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Petrochemical Company: Managed a sediment toxicity identification evaluation for a major river in a highly industrialized watershed. This project included sample collection, toxicity and chemical analysis testing, and data analysis to determine the cause of observed toxicity to test organisms. The primary contaminants of potential concern in the river sediments included dioxins/furans, PCBS, pesticides, and metals.

Diversified Manufacturer: Performed an exposure and risk assessment related to organic contaminants, primarily ethylene dibromide, in soil and groundwater.

PRP Group: Led the preparation of a feasibility study for an NPL site in Georgia on a coastal waterway. Contaminants of potential concern included mercury and PCBs.

Mining Company: Prepared remedial options evaluation for the site of a former minerals mining and processing facility in Pennsylvania. Contaminants of potential concern included lithium, boron, chromium, and a variety of other organic and inorganic compounds.

Chemical Producer: Performed a preliminary exposure and risk assessment for the past waste disposal activities at a large chemical manufacturing site. Contaminants of concern included pesticides, metals, and VOCs.

Diversified Manufacturer: Developed preliminary exposure assessment for mercury contaminated residential building.

Diversified Manufacturer: Evaluated contaminant distribution and fate in an aquatic environment. Contaminants included mercury and synthetic organic compounds.

Mercury Refining Company: Provided quality assurance review for development of a RCRA Facility Investigation at the Mercury Refining Company site.

Retail Gas Utility: Evaluated environmental contamination at three former manufactured gas plant sites and a gas transmission system.

Mining/Manufacturing Company: As part of a pre-purchase due diligence investigation, evaluated potential liabilities associated with a phosphoric acid manufacturing operation in Texas that used phosphate ore imported from Florida. Considered both current contamination issues and possible future regulatory changes.

Confidential Client: Evaluated and developed simulation model for fate and transport of leachate from a landfill.

Various Private Clients: Managed and participated in numerous pre-purchase due diligence liability evaluations for a wide range of industrial facilities around the world.

Projects – *Water Resources Evaluation and Management*

State Government: Provided technical evaluation and expert testimony for an equitable allocation request before the U.S. Supreme Court (Original Action 142).

Utility Water Act Group: Developed technical comments regarding proposed changes to the Clean Water Act effluent guidelines for the Steam Electric Power Generation industry category. The comments were submitted as part of the overall UWAG comments on the proposed changes.

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Municipal Utility: Provided technical evaluation and expert testimony for litigation regarding water use. Evaluated impacts of pumping on groundwater flow rates across and water budgets within various political boundaries for selected aquifers in the Mississippi Embayment Aquifer System.

Diversified Chemical Manufacturer: Supported development of a site-specific NPDES permitting approach for mercury in an industrial wastewater discharge to the Ohio River. Project included fish and water sample collection on a major river, data analysis, regulatory comment, permit application preparation/submittal, and agency negotiations. The proposed permitting approach was approved by the Ohio River Valley Water Sanitation Commission (ORSANCO) in October 2012. Currently managing the ongoing monitoring required under the permit conditions.

Rhode Island Water Resources Coordinating Council: Evaluated statewide groundwater resources for water supply development. Developed water budgets, accounting for wetland and low stream flow maintenance. Evaluated groundwater quality issues. Developed cost estimates for well field development and aquifer restoration. Presented the findings at a public hearing.

Energy Company: Evaluated sources and potential control mechanisms for copper and zinc in stormwater discharges from a bulk oil terminal. Provided technical and negotiation support for transition to a discharge permit appropriate for the facility.

US Army Corps of Engineers, Waterways Experiment Station: For a pilot test of horizontal well groundwater extraction feasibility at the Rocky Mountain Arsenal, developed methodology for evaluating horizontal well pump tests and provided senior oversight and review for pump test design, data evaluation, and capture zone evaluation. The pump test program included step tests to determine appropriate long-term test pumping rates and 48-hour pumping tests on each of the two horizontal wells individually and on the two wells pumping simultaneously. Forty-seven wells were monitored during the tests.

Development Authority: Prepared NPDES discharge permit application and supported associated negotiations. Provided technical support to construction dewatering permit applications.

FPL Energy: Developed preliminary evaluation of underground structure seepage control strategies for a coastal nuclear power plant.

Tar Refiner: Evaluated report on wastewater discharges from tar refineries in India. Critiqued the sample collection and analysis methods and evaluated the extent to which the results were applicable to tar refineries in the US.

Eastman-Christiansen: Evaluated the relative performance of horizontal and vertical wells when used to recover contaminated groundwater. Developed specification for using horizontal well technology in environmental remediation applications.

Petrochemical Company: Developed 3-dimensional groundwater flow and transport models for an oil refinery. Evaluated discharge to and dispersion in the St. Lawrence River.

Illinois Dept. of Energy and Natural Resources: Evaluated the economic impact of proposed water quality and effluent standard amendments for the Sangamon River Basin. Provided sworn testimony at a public hearing.

Retail Gas Utility: Evaluated the potential for migration of natural gas reserves stored in an aquifer and the adequacy of the existing monitoring program. This work was performed as part of an overall safety audit of a natural gas storage and transmission system.

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Variety of Water Quality Evaluation Projects, US EPA: Project sites included estuaries, open coastal areas, rivers, and deep impoundments. Activities included analyzing data; applying and modifying mathematical models, including numerical computer based models; and designing field data collection programs. These activities were directed at both permit application and other regulatory analysis. Portions of this work led to new procedures implemented by state environmental protection agencies.

County Water/Sewer Authorities: Evaluated water quality impacts of proposed discharges as part of discharge permit applications, seeking a waiver from secondary treatment requirements.

Manasquan River Basin: Developed a watershed model of hydrology and water quality using the HSPF model as part of a water supply study. Evaluated water supply yield reliability.

Municipal Utility: Developed a 3-dimensional model of groundwater flow to evaluate influence of treated sewage land application on existing and proposed municipal water supply well fields.

Paper Mill: Evaluated water quality impacts of proposed reconstruction of a dam on the Connecticut River. Modified US EPA QUAL II model to incorporate latest research on re-aeration over dams.

Counties in California: Evaluated potential impacts to water resources associated with proposed oil and gas development projects.

Electric Utility: Resident engineer for repair and modification of a hydroelectric power dam on the Flambeau River in Wisconsin.

Watershed Districts: Managed and performed piezometer network installation, groundwater data collection, and lake level monitoring for several watershed districts in Minnesota. Collected and evaluated groundwater and surface water quality data. Assisted with biota collection studies.

Projects – Environmental Management Systems and Compliance

Chemical Producer: Led a study to evaluate the overall corporate environmental management program, with special emphasis on the remediation program. Considered organization structure, staffing, consultant use, management reporting, accrual systems, priority setting, specific site management, and regulatory tracking and management issues.

Mining/Manufacturing Company: Audited the environmental contamination management program of an integrated phosphate ore mining, sulfuric and phosphoric acid production, and fertilizer production operation in North Carolina. Focused on water management and fugitive releases.

Tar Refiner: Audited remediation program at a tar processing facility.

Industry and Government: Developed course in remedial program management. Gave two-day course to a group of industrial environmental managers and gave a one-day course to two groups of international government officials.

Coalition on Superfund: Led a study designed to develop improvements to the US Superfund program. Focused on priority setting, cleanup standards, and technology capabilities.

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Petrochemical Company: Led a study on industry remediation management practices and likely future trends. Interviewed 15 other companies on topics such as organization/management structure and liability estimates. Estimated future remediation expenditures in major categories. Results were used to support restructuring of the company's remediation program.

Telecommunications Company: Led a study on corporate management strategies for dealing with Superfund sites. Dealt with internal organization and consultant use. Considered unique characteristics of the corporate structure.

Amoco Corporation: Supported planning for and gave presentation at internal remediation conference.

Retail Gas Utility: Led a series of assignments, including environmental compliance audits with corrective action plans, laboratory facility reviews, contaminated site investigations, and new sampling and chemical analysis method development.

Diversified Manufacturing Companies: For several companies, evaluated the remediation management functions as part of overall environmental management process redesign studies.

Numerous Clients: Performed environmental regulation compliance audits, environmental management systems assessments, and transaction-related liability assessments at a wide range of industries, including aerospace, energy production, mining, consumer goods manufacturing, chemical and petrochemical, agricultural chemicals formulation, heavy industrial goods manufacturing, tar processing, and wood products manufacturing.

Projects – *Other Studies*

State of Mississippi: Evaluated hydrogeologic issues associated with high-level nuclear waste disposal in Richton dome (a salt dome). Reviewed models developed by others and developed alternative model.

American Petroleum Institute: Evaluated non-BTEX petroleum hydrocarbons fate and transport in soil and groundwater for the American Petroleum Institute. Produced API Publication 4593.

Chemical Producer: Provided quality assurance review for evaluation of closure options for a phosphoric acid and fertilizer manufacturing operation in Canada. Used life cycle analysis approach for the evaluation.

ESEERCO: Evaluated the impact of herbicide applications on surface and groundwater quality and developed future research plans. Applied the US EPA PRZM to predict relative subsurface mobility of candidate rights-of-way management pesticides.

Government Agency: Evaluated accidental radioactivity release risks associated with a proposed gamma irradiation facility.

Courses Taught

Northeastern University

Surface Water Hydrology and Contaminant Transport (CIV 3301; graduate)
Ground Water Hydrology and Contaminant Transport (CIV 3302, G263; graduate)
Hydrology (CIV G260; graduate)
Environmental Protection and Management (CIV 3307, G270; graduate)
Hydraulic and Hydrologic Engineering (CIV 1320, U536; undergraduate)
Capstone Design (CIV 1695, 1696; undergraduate)
Introduction to the Study of Engineering (GE 1001; freshman, supporting instructor)

Massachusetts Institute of Technology

Waste Containment and Site Remediation Technology (1.34; graduate)
Chemicals in the Environment: Fate and Transport (1.725; graduate)
Civil and Environmental Engineering Design (1.013; undergraduate, supporting instructor)

Publications

Langseth, D; Boroumand, A. 2017. "Pumping groundwater impacts rivers." *Gradient Trends - Risk Science & Application* 69:4.

Langseth, DE; Brown, N. 2011. "Risk-based margins of safety for phosphorus TMDLs in lakes." *Journal of Water Resources Planning and Management* 137(3):276-283.

Langseth, DE. 2009. "Environmental media phase-tracking units in the classroom." *Journal of Geologic Education* 57(3):206-213.

Langseth, DE. 2009. "Remedial cost allocation cash out valuation under uncertainty." *Environmental Claims Journal* 21(1):62-72.

Langseth, DE. 2008. "Valuing environmental remediation liability transfers." *Environmental Claims Journal* 20(1):2-22.

Langseth, DE. 2007. "Environmental liability estimation: Gradient survey shows range of practices and uncertainty in key issues." *American Bar Association Special Committee on Environmental Disclosure Newsletter* 4(1), April.

Langseth, DE. 2006. "Environmental liability management." *Gradient Trends – Risk Science & Applications* 36:1-2.

Langseth, DE; Herman, KD. 2006. "Liability estimation frameworks." *Gradient Trends – Risk Science & Applications* 36:1-2.

Langseth, DE; Smyth, AH; May, J. 2004. "A method for evaluating horizontal well pumping tests." *Ground Water* 42(5):689-699.

Lambe, RN; Langseth, DE. 1996. "Remedial assets: Treating cleanup as a corporate business element helps manage costs, satisfy stakeholder needs." *Environ. Solut.* (9):4.

Langseth, DE; Lambe, RN. 1995. "Remediation management: Improving performance and getting results." *Prism* 4:103-112.

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Neff, JM; Langseth, DE; Graham, EM; Sauer, TC; Gnewuch, SC. 1994. "Transport and fate of non-BTEX petroleum chemicals in soil and groundwater." *American Petroleum Institute Publication 4593:5*.

Langseth, DE; Perkins, FE. 1984. "Spillway Analysis in Dam Safety Evaluation." R.M. Parsons Laboratory Technical Report No. 298, Massachusetts Institute of Technology.

Langseth, DE; Bras, RL. 1980. "Empirical Temperature Forecasting: Extensions of the Model Output Statistics Method." Ralph M. Parsons Laboratory Technical Report No. 257, Massachusetts Institute of Technology.

Presentations

Flewelling, S; Tymchak, M; Langseth, D; Waterfield, G. 2017. "Water Rights." Presented at Gradient's Trends 69 Webinar, Cambridge MA, May 31.

Langseth, DE; Grasso, NC; Chandalia, J. 2011. "DDT in Outdoor Air and Indoor Settled Dust." Presented at Society of Environmental Toxicology and Chemistry (SETAC) North America 32nd Annual Meeting, Boston, MA, November 16.

Langseth, DE; Tuit, CB. 2011. "Methyl Mercury in Fish Tissue and the Water Column of the Upper Ohio River." Presented at Society of Environmental Toxicology and Chemistry (SETAC) North America 32nd Annual Meeting, Boston, MA, November 15.

Langseth, DE. 2009. "Solute Flux Rate Uncertainty Estimation at Monitored Boundaries." Presented at 2009 World Environmental & Water Resources Congress, Kansas City, MO, May 17-21. (Published proceedings.)

Langseth, DE; Nicholson, AD. 2008. "Estimating the Timing of a Chlorinated Solvent Release: A Case Study." Presented at 2008 NGWA Ground Water Summit, Memphis, TN, March 30-April 3. (Published abstract.)

Langseth, DE; Wannamaker, EJ. 2008. "Water Budget Results from Selected Models of the Mississippi Embayment Aquifer System." Presented at 2008 NGWA Ground Water Summit, Memphis, TN, March 30-April 3. (Published abstract.)

Langseth, DE; others. 2007. Panel member/speaker for session on "Progress Toward a Nationwide Ground Water Monitoring Network." 2007 NGWA Ground Water Expo and Annual Meeting, December 4-7, Orlando, FL.

Langseth, DE. 2007. Expert Witness in Mock Trial presented at the 2007 NGWA Ground Water and Environmental Law Conference, with attorneys David Ries and Neal Weinfield.

Langseth, DE; Nicholson, A. 2005. "Estimating the Timing of a Chlorinated Solvent Release: A Case Study." Presented at 21st International Conference on Soil, Sediments, and Water, UMASS – Amherst, Amherst, MA, October 17-20. (Published abstract.)

Langseth, DE; Brown, N. 2004. "An approach to establishing risk based margins of safety for total maximum daily loads for phosphorus in lakes." In *Proceedings of the World Water and Environmental Resources Congress, American Society of Civil Engineers, Environment and Water Resources Institute, Salt Lake City, Utah*, June 28-July 1. (Published proceedings.)

David E. Langseth, Sc.D., P.E., D. WRE

Langseth, DE; Guha, B. 2002. "Surface/Ground Water Interactions in an Urban Watershed." Presented at Groundwater Foundation conference on Groundwater, the Forgotten Element of Watershed Planning, Eugene, OR, November 18-19. (Published proceedings.)

Guha, B; Langseth, DE. 2002. "Local Surface Water/Ground Water Interactions in an Urban Watershed." Presented at American Water Resources Association Conference, Philadelphia, PA, November 3-7. (Published abstract.)

Langseth, DE; Smyth, AN; May, J; O'Neil, R. 2000. "Aquifer Parameter Estimation from Horizontal Well Pump Tests." Presented at National Ground Water Association Conference, Anaheim, CA, November.

Langseth, DE. 1996. "Cost Estimating for Environmental Remediation." Invited presentation to the Society of Cost Estimating and Analysis, February 19.

Smyth, AN; Silva-Tulla, F; Langseth, DE; Kozik, M. 1996. "Innovative and Traditional Site Investigation and Remedial Technologies." XIV Seminario Venezolano de Geotecnia.

Langseth, DE. 1995. "Managing Remediation Programs to Increase Company Value." Presented at 1995 Corporate Environmental Excellence Conference, New York, NY, The Conference Board, February 15-16.

Langseth, DE. 1991. "Evaluation of Amoco Site Remediation Program." Presented at Amoco Corporation Remediation Conference, Chicago, IL, June 4-5.

Langseth, DE. 1990. "Hydraulic performance of horizontal wells." In *Proc. of Superfund '90, Hazardous Materials Control Research Institute, Washington, DC*, November 26-28. (Published proceedings.)

Moore, R; Langseth, DE. 1985. "Impacts of stormwater runoff on receiving waters." In *Proc. of the National Conference on Environmental Engineering, Environmental Engineering Division, American Society of Civil Engineers, Boston, MA*, July 1-3. (Published proceedings.)

Langseth, DE; Perkins, FE. 1983. "Influence of dam failure probabilities on spillway analysis." In *Proc. of the ASCE Hydraulics Division Conference, Frontiers of Hydraulic Engineering, Cambridge, MA*, August 9-12. (Published proceedings.)

Langseth, DE; Perkins, FE. 1983. "Influence of Parameter Uncertainty on Dam Safety Assessment." Presented at the Third MIT-Stanford workshop on New Perspectives in Dam Safety, Cambridge, MA, July.