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Engineering & Scientific Consulting

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Professional Profile

Mr. Pitts is an environmental engineer with over 24 years' experience. He specializes in cost allocation and recovery; historical waste management standard of care; assessment and valuation of environmental risks and liabilities; contaminant fate and transport; remedial investigation, design, construction oversight, and management; and environmental engineering analysis. He manages large, multi-disciplinary projects and provides technical expertise on a wide variety of environmental and related economic matters.

Mr. Pitts has extensive experience with many contaminant types (e.g., metals, NAPL, PAHs, perchlorate, pesticides, PCBs, PFAS, and VOCs) and industry sectors (e.g., chemical manufacturing, diecasting, electrical equipment manufacturing, flare making, mining and mineral processing, pesticide formulation, utilities, and waste disposal). He studied, participated in remedy designs, and/or provided construction oversight at several former manufactured gas plants (MGPs), including a multi-year assignment as the resident engineer for remediation of a Cambridge, Massachusetts MGP, one of the largest Brownfields in the state. He has also consulted in insurance cost recovery, cost allocation, or toxic tort matters at over 50 other MGPs and numerous other hazardous waste sites. These matters often involved reconstructing historical manufacturing operations and waste management as well as evaluating environmental conditions, responses, and costs to address issues such as standard of care; expected/intended; contaminant source identification, causation, and timing; defense versus indemnity; regulatory (e.g., NCP) compliance; and remedy/cost reasonableness. He has worked in either a strategic advising or litigation support role on many of the nation's largest and most contentious MGP, PCB, sediment, wood treating, RCRA, and CERCLA sites.

Academic Credentials & Professional Honors

M.Eng., Civil and Environmental Engineering, Cornell University, 1997

B.S., Civil and Environmental Engineering, Cornell University, 1996

Licenses and Certifications

Licensed Professional Civil Engineer, State of Massachusetts, #41847

Hazardous Waste Operations and Emergency Response - 40-Hour Certification, 8-Hour Supervisor Training

Department of Transportation Basic Training

Prior Experience

Senior Managing Consultant/Senior Environmental Engineer, Clarity Environment, Inc., 2015-2018

Senior Managing Consultant, Berkeley Research Group, LLC, 2012-2015

Senior Scientist, Gnarus Environmental Services Corp., d/b/a Gnarus Advisors LLC, 2010-2012

Senior Environmental Engineer, Gradient Corporation, 2005-2010

Senior Engineer, Project Control Companies, Inc., 2003-2005

Environmental Engineer, The Retec Group, Inc., 1997-2003

Professional Affiliations

Member, American Society of Civil Engineers

Member, American Bar Association – Section of Environment, Energy, and Resources (SEER)

Publications

Shifrin, N.S., B.S. Pitts, and A.C. Chow. 2015. Estimating Environmental Costs. *Environmental Claims Journal*, 27(1):9-18.

Chang, H., R.T. Fox, R. Mehra, B.S. Pitts, P.M. Rodriguez, K.D. Saunders, and A.C. Stagg. 1997. Preliminary Design of the Devens Regional Wastewater Treatment Facility, Ayer, Massachusetts. Master of Engineering (Civil) Design Project/Thesis, Cornell University.

Presentations and Webinars

Berger, L., G. Caviness, L. Dorrance, F. Habib, B.S. Pitts, and S.S. Shock. Identifying and Managing Reopener Risks and Liabilities. Webinar presented to Alameda County Bar Association, June 25, 2020.

Shock, S.S., B.S. Pitts, and J.R. Rosengard. A Paradigm Shift for Valuation of Environmental Liabilities in Bankruptcy and Transactions. Webinar, May 8, 2019.

Project Experience

The projects described below involve allocation of contamination and liability, insurance remedial cost recovery claims, estimation and evaluation of environmental response costs, hazardous waste site remedial oversight and investigation, assessment and valuation of environmental liabilities, toxic torts, and consulting/advocacy on various environmental matters.

Cost Allocation and Recovery - Assessment of Historical Manufacturing and Waste Management, Environmental Conditions, Responses, and Costs

Major Utility, Eastern United States: Strategic consulting in preparation for future cost allocation of a major river cleanup, including the evaluation of historical operations, environmental conditions and responses, and linkage to river contamination at dozens of properties. Identified significant contaminant sources; evaluated river sediment environmental/forensic data; researched and prepared primers on PCBs, dioxins, and PAHs; and assisted with developing potential allocation approaches, allocation questionnaire responses, and various reports summarizing client and other PRP sites.

Former Aerospace Facility, Central United States: Assessed historical operations, environmental conditions, and the likelihood for DNAPL presence in defense of a cost recovery claim by a municipality related to contamination in downgradient, municipal water supply wells. Assisted with preparing an expert report, including rebuttals of opposing experts.

Former MGPs, Long Island: Evaluated historical operations, environmental conditions, and remedies at seven former Long Island MGPs in support of insurance cost recovery. Addressed expected/intended, release timing, and regulatory compliance issues. Assisted with rebutting opposing experts and preparing for deposition/trial (demonstratives, exhibits, and testimony).

Former MGPs, New York City: Assessed historical operations, environmental conditions, and remedies at 3 former NYC MGPs and their potential impacts on an adjacent water body in support of insurance cost recovery. Addressed expected/intended, release timing, and regulatory compliance issues, as well as historical perspectives on pollution, waste management, environmental damage, and early laws. Assisted with writing expert reports, rebutting opposing experts, and deposition/trial preparation.

Mine Spill Site, Western United States: Evaluated historical mining operations, waste management, and reclamation to identify and analyze sources of permitted and unpermitted releases and disposals of CERCLA hazardous substances (metals) to a watershed in support of litigation with individual and sovereign plaintiffs as well as a former mine owner/operator over a large acid mine drainage spill. Assessed regulatory compliance and impacts of reclamation activities on river water quality, as well as the downstream transport and fate of metals from the release event. Assisted with litigation strategy development, preparing expert and rebuttal reports, and managing this large, multi-disciplinary project.

Active Railyard, New York City: Analyzed historical operations, environmental conditions, and remedies to determine sources and timing of PCB contamination to support insurance cost recovery. Assisted with expert report, deposition, and trial preparation.

Former Electrical Equipment Manufacturer, Massachusetts: Evaluated historical operations and environmental/forensic data at an electrical equipment manufacturing facility, metal diecasting facility, and abutting brook to determine PCB sources to soil and sediments. Developed an equitable allocation of remedial costs among several PRPs, and assisted with deposition/trial preparation.

Hazardous Waste Landfill, Western United States: Conducted various strategic consulting efforts for one PRP, including a) assisting in developing an interim allocation model for offsite groundwater response costs for a large PRP group; b) developing and critiquing others' proposals for a single (onsite, offsite) allocation; c) evaluating remedy cost estimates and settlement scenarios (e.g., landfill versus groundwater, timing, impact on client); d) preparing a landfill mass balance for a chlorinated solvent; e) assessing the accuracy of information coded in a comprehensive waste manifest database; f) evaluating the waste characteristics of several PRPs to better understand each party's relative waste contributions to the landfill; and g) identifying and critiquing potential allocation factors. Overall, these various efforts are aimed at better informing and positioning client for negotiating an equitable final allocation of environmental response costs.

Major Electrical Equipment Manufacturer, Northeast United States: Managed large, multi-disciplinary project involving review of PCB waste management practices, environmental conditions, and remedial responses to evaluate standard of care as compared to typical industrial practices, changing regulatory protocols, and evolving scientific knowledge over time, in the context of expected/intended issues for insurance cost recovery. Evaluated responses to the PCB environmental issue and damage causation and timing (trigger). Reviewed and categorized over \$1 billion of response costs to determine qualification for recovery (i.e., necessity, technical appropriateness, and cost-effectiveness).

Metals Recycler, United States: On behalf of one PRP, critiqued the methodology proposed by a neutral allocator to allocate future sediment remediation costs and proposed an alternative allocation approach. Evaluated past response costs to determine qualification (necessity, reasonableness) for cost

contribution, and assisted with mediation efforts for reimbursement of past costs.

Beverage Distributor, New York City: Analyzed the NCP consistency of responses taken by the distributor related to petroleum contamination (and associated vapors) migrating onto its site from an abutting former waste oil recycling facility. Critiqued the insufficiency of environmental responses conducted and planned by the PRP group that succeeded the bankrupt waste oil recycler.

Former MGPs, Upstate New York: Evaluated historical operations, environmental investigations, remedies, and costs at 18 former MGPs in upstate New York for NCP compliance in support of cost allocation between former owners/operators. Assisted in developing an allocation approach and trial exhibits. Researched and chronicled the history of federal/state MGP regulations/policies and available MGP remedial technologies.

Utility Company, Guam: Assessed the reasonableness, timeliness, regulatory compliance, and cost-effectiveness of remedial responses to a pipeline spill of No. 6 fuel oil in a wetland in support of insurance cost recovery. Researched regulatory requirements and remedial technology availability in Guam.

Former MGP, South Carolina: Evaluated historical operations, environmental conditions, and remedies to determine contaminant causation and links to a former plant owner/operator (utility holding company) for cost allocation purposes.

Former MGPs, Connecticut: Analyzed historical operations, environmental conditions, and remedies at several former MGPs to determine contaminant causation and timing and to establish links to a former plant owner/operator (utility holding company) for cost allocation purposes. Examined the level of holding company control of plant operations. Designed and oversaw an additional field investigation at one site to develop an allocation between plant owner/operators. Assisted in preparing affirmative and rebuttal testimony.

Former MGP, New York City: Evaluated historical operations, environmental conditions, and remedies at a former NYC MGP to estimate contaminant causation, timing, and volume in support of insurance cost recovery.

Former MGP, Keene, New Hampshire: Assessed environmental conditions and remedies at a former MGP for insurance cost recovery.

Former MGPs, Southern New York: Evaluated historical operations, environmental conditions, and remedies at several former MGPs to estimate contaminant causation, timing, and volume in support of insurance cost recovery.

Historical Waste Management Standard of Care Evaluations

Flare Manufacturing Site, Western United States: Opined on perchlorate practices in the context of insurance cost recovery litigation. Prepared an expert report that addressed the following topics: historical reconstruction of plant operations; perchlorate waste management standard of care; identification of perchlorate sources; evolution of knowledge of perchlorate, industrial waste management practices, and relevant laws and regulations; and expected/intended and release timing issues.

Major Electrical Equipment Manufacturer, Northeast United States: Examined standard of care and environmental responses at two large capacitor plants and an abutting river in the context of a claim made by downstream water suppliers.

Major U.S. Manufacturer: Consulting expert to outside counsel for an insurance cost recovery case involving over 100 sites. Reviewed historical operations, environmental conditions, and contaminant causation/timing at 10 bellwether sites to evaluate standard of care and response cost recoverability.

U.S. Mining Company and Former Pesticide Manufacturer: Evaluated historical waste management practices and environmental conditions at two former arsenical pesticide manufacturing plants and an operating mine to determine standard of care related to arsenic use in the context of insurance cost recovery. Researched and summarized background on arsenic, pesticides, and mine tailing ponds (uses, progression of scientific understanding, regulations).

Gun Manufacturer, Connecticut: Evaluated historical ash/waste landfilling by a former arms manufacturer and other private/public entities in a former wetland area, now residentially developed, to evaluate standard of care. Chronicled the history of wetlands eradication in the early 20th century for public health protection, sanitary waste disposal, and land creation.

PCB Facility, Alabama: Reviewed historical waste management practices and environmental conditions to evaluate standard of care, especially response to the PCB environmental issue, in view of contemporaneous industrial practices and regulations for a toxic tort litigation.

Lead Smelter, Missouri: Researched the evolution of industrial air pollution control technologies in comparison with historical operations at a large, primary lead smelter-refinery to evaluate standard of care for a toxic tort litigation.

Assessment and Valuation of Environmental Liabilities

Confidential United States Client: Estimated future environmental response costs using probabilistic (decision tree) cost analysis based on ASTM standard E2137 at a portfolio of hundreds of sites, including former wood treating facilities, chemical plants, refineries, mines, and nuclear processing sites, for a Chapter 11 bankruptcy litigation. Developed an internal database of unit environmental response costs, which was utilized when no site-specific cost information was available. Performed and managed technical audits of all site cost analyses for feasibility, ability to achieve remedial goals, completeness, consistency, and accuracy. Evaluated NCP consistency of a \$338 million EPA response at a New Jersey wood treating site. Assisted in preparing affirmative testimony and in rebutting opposing expert.

Utility Company, Western United States: Identified sources of legal obligations (regulatory, contractual, and promissory estoppel) and developed an independent estimate for asset retirement obligations for a large portfolio of natural gas assets consistent with current accounting standards (e.g., FASB ASC 410-20 and ASC 820) and industry best practice standards (e.g., ASTM E3123, E2137).

Pharmaceutical Company, United States: Evaluated risks and liabilities associated with a portfolio of sites subject to cost-sharing under a past transactional agreement. Reviewed and evaluated past spending of environmental reserve funds and opposing expert's forecast of environmental liabilities (ongoing spending on environmental obligations and contingent liabilities totaling over \$1 Billion). Developed an independent fair value measurement estimate of liabilities based on ASTM standards E3123, E2137, and E2173 for use in negotiations between parties.

Utility Company, New York State: Evaluated future environmental response costs using probabilistic (decision tree) cost analysis for a former MGP portfolio to support an environmental reserve update.

Remedial Action, Construction Oversight, and Brownfields

Former MGP, Cambridge, Massachusetts: Resident engineer/project manager for a multi-phased, multi-year remediation of a former MGP in preparation for Brownfield redevelopment. Responsibilities included sampling, characterization, and disposal documentation of over 500,000 tons of soil/debris/tar; oversight of excavations, air monitoring, soil management, and the installation/operation of groundwater treatment vapor barrier, and vapor collection systems in compliance with the Massachusetts Contingency Plan (MCP); and coordination with the licensed site professional (LSP), owner, and contractors. This site won the 2006 EPA Region I and National Grand Prize Phoenix Award for excellence in Brownfield redevelopment.

Former MGP, LaPorte, Indiana: Planning/field oversight for two source removal actions (wooden tar holder and contaminated soils, contents of a former gas holder beneath the foundation of an operating manufacturer) under Indiana's Voluntary Remediation Program. Other responsibilities included subcontractor procurement; construction and operation of a vapor-phase granular activated carbon treatment system; health, safety, and air monitoring; and preparation of remediation work plan and completion reports.

Confidential Client, Brazil: Assisted with the remedial investigation, design, and construction logistics at a former pesticide formulation facility in an urban setting, including demolition of several large buildings and soil excavation. Assisted with developing site disclosure and public relations strategies, prepared regulatory submittals (e.g., risk assessment, remedial action plan, and remediation completion report). Inspected and directed remediation, and managed ongoing site activities and costs for the owner.

Municipal Landfill Closure, Nashua, New Hampshire: Provided construction oversight during closure of a 12-acre municipal landfill in compliance with design specifications; directed and inspected contractors' work; estimated material quantities and costs; prepared field construction reports; coordinated materials delivery; and assisted with scheduling and cost estimates.

Former Creosote and Asphalt Sealer Facility, Toledo, Ohio: Coordinated and supervised the excavation and offsite disposal of sludge, decommissioning of site wells, and ongoing site maintenance. Prepared a feasibility study report.

Field Investigations, Preparation of Environmental Reports, Remedy Design and Cost Estimation, and Environmental Engineering Analysis

Contaminated Drinking Water Wells, Western United States. On behalf of a responsible party, conducted an NCP compliance evaluation of a water agency's environmental responses to perchlorate and VOC contamination in several of its drinking water wells. Assisted with writing expert and rebuttal reports and deposition/trial preparation.

Former Mine, Southwestern United States: Assisted with developing a cost model (and associated quantities, durations, timing, discount rates) that compared alternative remedial scenarios for mine waste rock piles to the EPA-approved CERCLA remedy, including evaluation of uncertainties, in support of cost allocation. Completed technical review of calculations and methodology.

Utility, Eastern United States: Researched and summarized closure regulatory requirements and remedial alternatives for numerous coal ash and analogous, non-coal-ash sites across the United States.

Chemical Manufacturer, United States: Evaluated historical conditions, progression of knowledge of one contaminant, and non-chemical-specific ecological stressors in support of damages litigation by several public entities. Assisted with expert report preparation, technical review, and critique of opposing experts.

PCB-Contaminated River, Great Lakes Region: Administered a large insurance policy for a PRP responsible for sediment PCB contamination (including review, approval, and tracking of subcontractor invoices; budget development and tracking; financial report preparation; environmental reserve estimation). Prepared third-party review of environmental reports, conceptual remedial designs, cost estimates, cash flow projections, and schedules in support of settlement/litigation, where remediation cost will exceed \$1 billion.

Former Mine, Southwestern United States: Assisted with developing a cost model (and associated quantities, durations, timing, discount rates) that compared alternative remedial scenarios for mine waste rock piles to the EPA-approved CERCLA remedy, including evaluation of uncertainties, in support of cost allocation.

Former MGP, Washington D.C.: Evaluated historical operations, environmental conditions, and potential human exposure scenarios to MGP contamination in a toxic tort litigation.

Former Warehouse, Cambridge, Massachusetts: Analyzed environmental data and remedy costs to differentiate petroleum-related from other anthropogenic contaminant sources and to assist the owner in negotiating a settlement with a developer for sharing environmental response costs.

Former MGPs, Rochester, New York: Critiqued remedial cost estimates for two MGPs prepared by the opposing party's consultant in support of cost allocation.

Former MGP, Greenfield, Massachusetts: Prepared design calculations, drawings, cost estimates, and technical specifications for a containment system and slope restoration along a steep riverbank downgradient of a former MGP site to eliminate tar migration to river sediments; assisted in preparing the Phase IV Remedy Implementation Plan.

Former MGP, Hammond, Indiana: Planned, performed, and managed a study to obtain hydraulic information for design of a sediment removal/capping remedy. Prepared design calculations, cost estimates, Phase II investigation and engineering evaluation of alternatives reports, and part of the basis of design report.

Former MGP, Cambridge, Massachusetts: Prepared environmental reports in support of site remediation including Phase II and III reports, release abatement measure (RAM) plan, soil management plan, environmental specifications, transportation and dust mitigation plan, RAM completion report, and health and safety plan. Conducted NPDES sampling and reporting.

Former MGP, LaPorte, Indiana: Prepared a feasibility study report, including development and comparison of remedial alternatives in accordance with CERCLA requirements, conceptual design calculations, and cost estimates.

Former MGP, York, Pennsylvania: Assisted with the field investigation and design of a containment remedy to mitigate tar seepage into a river. Provided oversight of an interim remedial measure to eliminate direct contact risk.

Former MGP, Everett, Massachusetts: Prepared and managed a Phase III feasibility study report, including preparation of conceptual remedial designs and cost estimates.

Former MGP, Rochester, New Hampshire: Assisted with evaluation of remedial alternatives and cost estimates and preparation of a remedial action plan.

Superfund Site, Massachusetts: Performed a third-party evaluation of EPA's proposed remedial action plan for a major Superfund site for technical merit and accuracy in cost estimation. Identified numerous flaws in EPA's analysis and assisted in preparing draft response to EPA.

Former Electroplating Facility, Pennsylvania: Planned and conducted a chromium seep investigation and assisted with seep remedial design at a residence.

Active Industrial Facility, Lawrence, Massachusetts: Prepared an ASTM-compliant Phase I environmental site assessment for a major industrial facility, including researching historical land use and ownership, industrial operations, and contamination from local and state files and interviewing local public officials.

Active Manufacturing Facility, Massachusetts: Assisted in preparing an MCP-compliant five-year periodic evaluation opinion report for a Class C Response Action Outcome site; prepared utility-related abatement measure (URAM) notification and completion reports; assisted in preparing activity and use limitations and deed restrictions in support of property transfer; and MCP regulatory support.

Residence, Sudbury, Massachusetts: Conducted a surface soil investigation of a residential property contaminated with lead from a former historical rifle range. Coordinated with the Massachusetts Department of Environmental Protection (MassDEP), EPA, and the client to determine remedial options and government financial assistance.

Former Chemical Manufacturing Facilities, Waltham, Massachusetts: Planned and conducted investigations of chlorinated solvent contamination in bedrock at two facilities.

Former Wood Treating Site, Nashua, New Hampshire: Planned, performed, and managed tri-annual groundwater and surface water sampling and reporting.

Active Railyard, Pennsylvania: Conducted investigations of a former sludge lagoon and a portion of the property where drums were possibly buried.

Former Solvent Site, Chicago, Illinois: Prepared an engineering evaluation for excavating solvent-impacted soils near a building; prepared cost estimates and planned a study to collect design data.

Former Manufacturing Facility, Indiana: Performed a third-party review of environmental investigations and a proposed remedy. Summarized work completed and recommended a strategy to achieve closure.

Major University, Boston, Massachusetts: Assisted with an audit of the financial and project management of an \$85 million capital construction project.