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EDUCATION

Post Doctorate, Yale University,
School of Forestry and
Environmental Studies, 2012-
2013

PhD, Civil Engineering, University
of Colorado Boulder, 2011

MS, Civil Engineering, University
of Colorado Boulder, 2008

BS, Civil & Environmental
Engineering, Clarkson
University, 2005

PROFESSIONAL LICENSES

Licensed Professional Engineer
Commonwealth of
Massachusetts (57603)

PROFESSIONAL PROFILE

Chase A. Gerbig, PhD, PE

National Director of Environmental Litigation Services Principal Engineer

EXPERIENCE SUMMARY

Over twenty years of experience in environmental chemistry, environmental remediation, regulatory compliance, cost evaluation, and fate & transport of organic and inorganic compounds.

- Roux, 2013–2021, 2023–Present.
- Wood Environment & Infrastructure/WSP USA, 2021–2023.
- Post-doctoral Research Associate, Yale University School of Forestry and Environmental Studies, 2011–2013.
- Graduate Student Researcher/Lead Teaching Assistant, University of Colorado Boulder and US Geological Survey, 2005–2011.

TECHNICAL SPECIALTIES

Dr. Gerbig's practice includes environmental engineering; environmental chemistry; chemical bioavailability, fate, and transport; litigation support; regulatory compliance, and site investigation and remediation. Dr. Gerbig has provided technical analyses and designs for complex environmental matters involving chlorinated solvents, metals, petroleum, coal tar, PFAS, VOCs, SVOCs, PAHs, PCBs, and indoor air contamination at CERCLA sites and in various state-level regulatory programs, and managed regulatory compliance under the CWA, RCRA, and related state programs. Dr. Gerbig's technical expertise includes:

- Geochemistry of organic and inorganic contaminants;
- Bioavailability of heavy metals;
- Design and evaluation of engineering remedies to remediate and/or mitigation environmental contamination in soil, sediments, and groundwater;
- Allocation of responsibility and cleanup costs among potentially responsible parties;
- Evaluation of environmental compliance with the National Contingency Plan, CERCLA, RCRA, CWA, and State Programs;
- Historical standard of care analysis for compliance with environmental regulations;
- Assessment of the necessity and reasonableness of past remediation costs;
- Estimation of future remediation costs; and
- Environmental forensics and data analysis.

REPRESENTATIVE PROJECTS

Litigation Support & Dispute Resolution

- **South Dayton Dump and Landfill Superfund Site, Ohio.** Testifying expert regarding potential liability associated with ownership and operation of an asphalt plant located on a former landfill site undergoing CERCLA cleanup. Performed extensive environmental data analysis and evaluation of historical site operations to assess the extent to which asphalt plant operations and other post-landfill activities contributed to soil, groundwater, and soil vapor contamination at the site. Evaluated the potential for chemicals released from reclaimed asphalt and associated operations to contribute to vapor intrusion impacts at adjacent buildings and supported allocation of associated response costs. Assessed historical site operations, including recycled asphalt storage activities and a former testing laboratory that utilized chlorinated solvents, that allegedly contributed contaminants to the site. Integrated operational histories, historical aeriels, environmental data, contaminant distributions, and forensic considerations to assess operational impacts and potential bases for cleanup liability. Evaluated historical standards of care related to environmental due diligence, site investigations, and property ownership and operations.

Testified at multiple depositions and in federal court trial regarding contaminant sources, vapor intrusion allocation, due diligence practices, and liability assessment.

- Former Hazardous and Radiological Waste Disposal Area, RCRA Corrective Action, Confidential Location.** Testifying expert regarding historical waste management practices, contaminant fate and transport, remedy selection, and regulatory compliance at a former waste disposal area containing a mix of hazardous and non-hazardous wastes, including solvents and radiological wastes. Evaluated site hydrogeology, vadose zone transport mechanisms, groundwater protection, and the significance of historical contaminant releases to support assessment of remedial alternatives. Assessed the technical and regulatory basis for engineered cover systems, waste excavation, long-term monitoring, institutional controls, and vapor-phase remediation technologies. Evaluated the historical standard of care applicable to landfill and waste containment facilities, including the widespread use of engineered caps, long-term stewardship, and monitoring as remedial approaches under RCRA corrective action and hazardous waste landfill programs. Prepared expert opinions regarding remedy effectiveness, protectiveness, implementability, cost-effectiveness, and consistency with historical regulatory requirements and accepted industry practice for management and closure of waste disposal facilities.
- River Sediment Mercury and Methylmercury Contamination, Confidential Location.** Evaluated a paper manufacturing operation's potential responsibility for mercury and methylmercury contamination within a large river sediment site in the context of RCRA-related liabilities and remediation obligations. Assessed historical manufacturing operations, waste management practices, and discharge pathways to evaluate potential mercury contribution relative to other major industrial contributors. Evaluated potential sediment and contaminant transport associated with the facility, including mercury fate and transport, methylmercury formation, and the influence of upstream and downstream sources on contaminant distribution. Assessed the technical basis, effectiveness, and cost implications of remedial alternatives including dredging, engineered capping, and monitored natural attenuation within the context of the overall river remediation program. Evaluation included consideration of sediment transport dynamics, contaminant mass flux, and the extent to which remediation costs and environmental impacts were reasonably attributable to the facility as compared to other primary contributors to the river system.
- UST Releases, New Jersey.** Retained as a testifying expert to assesses the source and timing of petroleum released from multiple USTs over several decades from the 1970s to the 1990s. Analysis included types of fuels and additives (e.g., lead, MTBE), forensic chemistry, analysis of standard(s) of care, and on-site practices. Evaluated contaminant fate and transport through upper and lower aquifer separated by an aquitard, and the role the prior inadequate remediation and site development factors played in transport of contaminated groundwater from the upper aquifer and lower aquifer. Assessed reasonableness of remediation cost estimates for groundwater contamination.
- Landfill, Metals and Other Landfill Leachate Contaminants, New Jersey.** Testifying expert regarding landfill remediation cost allocation, sources of hazardous substances, and appropriateness of remedy. Evaluated landfill leachate and environmental data to determine if there was a unique industrial source of contamination that was distinguishable from municipal solid waste leachate. Estimated a municipality's contribution of waste to the landfill, the amount of the landfill covered by that waste, the economic benefit derived by the municipality from disposing of their waste for free at the landfill, and the hazardous substances likely present in the municipality's waste. Identified the allocation factors pertinent to an allocation of remediation costs of the site to the municipality, including the municipality's ownership of the site, generation of waste, transport of waste, arrangement for others to dispose of waste, economic benefit derived from the disposal of the waste, and participation in past remediation. Testified at trial.
- Sediment Remediation Allocation, Kalamazoo River Superfund Site.** Testifying expert regarding the impact of an unexpected upstream sediment release on the downstream remediation of a Superfund site with PCB-impacted sediment. Evaluated the known and expected extent of sediment remediation before and after sediment release, quantified additional sediment volume that required remediation, assessed various models' quantification of sediment released by the unexpected discharge, and allocated past and future costs that were/will be incurred due to the accumulation of newly deposited sediment. Assessment also considered PCB forensic signatures of upstream and downstream sediment; fish uptake data to assess potential for extended recovery times; and mobilization of different sediment size fractions and potential PCB loading. Testified at deposition.
- PFAS Source Identification, Fire Fighting Foam Use Location, Massachusetts.** Assessed the extent of per- and polyfluoroalkyl substance (PFAS) contamination in soil and groundwater allegedly arising from the application of aqueous film forming foam (AFFF). Utilized contaminant fate & transport and forensic tools to identify and quantify the significance of multiple sources contributing to the PFAS contamination, including identification of previously-unidentified major PFAS contributor. Constructed a technical assessment to show that the AFFF source impacts were confined to a small portion of the site and the assignment of all PFAS liability in soil and

groundwater to the AFFF application was unsupported by the technical data. Mediation.

- PFAS Fate & Transport and Class Certification, Composting Facility, Massachusetts.** Retained as a testifying expert regarding PFAS contamination in groundwater and drinking water allegedly associated with historical composting operations regulated under the Massachusetts Contingency Plan (MCP). Evaluated hydrogeologic conditions within a fractured bedrock aquifer system, groundwater flow pathways, contaminant fate and transport mechanisms, and the technical basis for defining a class-wide area of alleged PFAS impacts. Assessed PFAS occurrence and distribution in groundwater and private drinking water wells, including compound-specific PFAS signatures, spatial variability, and the potential influence of multiple PFAS sources. Utilized PFAS forensic analysis, environmental chemistry, hydrogeologic evaluation, and statistical interpretation of environmental data to evaluate whether groundwater impacts represented common exposures and common sources across the proposed class area. Evaluated alternative PFAS source contributions, including historical land application activities, waste management practices, septic systems, and regional background conditions. Prepared expert report addressing PFAS fate and transport, source identification, MCP investigation activities, and the application of hydrogeologic and environmental data to issues of class certification.
- Former Dry Cleaner, Chlorinated Solvents, Oklahoma.** Testifying expert regarding the necessity and reasonableness of past and future costs, and compliance of the response action with the National Contingency Plan. Evaluated the necessity and reasonableness of excavation and in-situ. Demonstrated that response actions were inconsistent with the NCP due to various factors, including, but not limited to failure to provide appropriate opportunities for community involvement, violation of Applicable or Relevant and Appropriate Requirements (ARARs), and the incorrect selection of the type of removal action. Cost analysis was utilized to prepare an allocation of response action costs among responsible parties.
- Wildfire Impacts, California.** Assessed distribution of metals, PAHs, and other chemicals at a site located in the vicinity of a past wildfire to determine whether the wildfire resulted in the need for remediation of the property. Assessed geochemical transformations of metals, role of background geology on observed metal conditions, and standard of care for post-wildfire response actions. Evaluated estimates of costs for property cleanup primarily associated with excavation and off-site disposal of allegedly impacted soil. Testified at deposition.
- Uranium Mine Tailings Pond, Australia.** Modelled the complex geochemistry of a uranium mine tailings pond water treatment system to determine causes of failure during operation, including excessive scale formation during water pre-heating. Considerations included the effects of water chemistry variations, pH, and temperature on the system's thermodynamic equilibrium and the effects of system operations on the kinetics of scale formation.
- Former Naval Facility, Various Contaminants, California.** Evaluated metals, total petroleum hydrocarbon (TPH), volatile organic compound (VOC), semi-volatile organic compounds (SVOC), and chlorinated solvent contamination in soil and groundwater to determine when contamination was known or reasonably knowable, necessity and reasonableness of remediation costs/insurance claims, and nature of the interaction with regulators. Conducted analysis for three sites at the facility: a sanitary sewer pump station with deep contamination, an industrial building with petroleum pipelines below the building structure, and a paved area with near-surface contamination. Prepared evaluations and sections of the expert report in support of an expert witness and assisted with strategy.
- Former Mining and Fertilizer Manufacturing Facility, Superfund Site, Arsenic and Radionuclides, Florida.** Determined necessity and reasonableness of past site investigation and remediation costs, remediation compliance with the National Contingency Plan, and appropriateness of selected remedy for an approximately 1,000-acre facility with surface water, groundwater, soil, and sediment contamination. Evaluation included an analysis of a cap for contamination in a former holding pond and surface water management system. Prepared sections of expert report and supported expert witness in depositions.
- Sediment Remediation Cost Allocation, New York.** Advised large industrial client regarding extent of potential liability and development of sampling plans associated with a large sediment Superfund site. Developed an allocation model for dozens of parties along the creek to identify technical and historical data gaps, assist client with an estimate of their potential liability for the remediation of the site, and develop a strategy for regulator negotiations regarding the ultimate remedy selection. Allocation model considered the various remedial technologies to be implemented, including extensive dredging, capping, and in-situ sediment stabilization, and each party's nexus to the various contaminants of concern in the creek, including PCBs and contaminants from petroleum and coal tar sources. Allocation involved evaluations of historical operations along the creek, determination of drivers of engineering design and remedy implementation, hydrodynamics of sediment and contaminant flux, and forensic consideration to determine potential sources.

- **Former Petroleum Terminal, Petroleum and SVOCs, California.** Evaluated the contribution to contamination and cleanup liability associated with groundwater plumes from two sources: a former petroleum terminal and a historical wood treating operations. The plumes were comingled. Utilized forensic chemistry, contaminant fate & transport, and analysis of historical operations to assign shares of the comingled plume to each source.
- **Magnesium Mining and Manufacturing Facility, Utah.** Prepared cost estimates for the complete remediation and closure of a large salt mining and manufacturing facility under CERCLA, RCRA, and state-level programs in support of bankruptcy litigation. Contaminants include dioxins, furans, PCBs, and hexachlorobenzene in waste pond sediments, a sanitary lagoon, a solid waste landfill, and several industrial waste streams stored on the property. Evaluated the viability of a novel, green remedial capping technology utilizing accumulated salt from the Great Salt Lake to prevent exposure to contaminants, as well as more traditional capping and excavation remedies.
- **Multiple Dry Cleaners, Indiana, and Kentucky.** Retained as the testifying expert to evaluate environmental data and operational histories of multiple dry cleaners to determine the source and nature of releases of CVOCs to the environment. Focused, particularly, on whether contamination at each site was the result of a sudden discrete release or from small ongoing and regular operational releases. Matter settled after submission of expert report.
- **Former Equipment Testing Laboratory, Chlorinated Solvents, Alabama.** Evaluated the necessity and reasonableness of past site investigation and remediation costs associated with historic TCE releases at an engineering and parts testing facility. TCE and associated degradation products impacted overburden and bedrock, shallow soil, and indoor air. Evaluation of costs on behalf of insurance carriers involved in the litigation.
- **Former Landfill, Chlorinated Solvents, Metals, and 1,4-dioxane, Massachusetts.** Retained by a community group to evaluate potential groundwater (including drinking water) and surface water contamination originating from a closed and capped municipal landfill. Evaluated the historic closure of the landfill and modern groundwater chemistry and hydrology to determine the nature, extent, and source of chlorinated solvents, metals, and 1,4-dioxane impacts. Prepared two technical memoranda for the community group and represented the community group at town meetings.
- **Former Chemical Distribution Facility, Chlorinated Solvents, Florida.** Evaluated the efficacy, costs, and regulatory compliance of a bioaugmentation remedy to treat chlorinated solvents (PCE, TCE, DCE, and Vinyl Chloride). Prepared less expensive and more effective alternative air sparge-soil vapor extraction (AS/SVE) system design. Evaluated chlorinated solvent fate and transport model and developed alternative model.
- **Former Manufactured Gas Plant Superfund Site, PAHs and Tar, Wisconsin.** Evaluated necessity and reasonableness of past site investigation and remediation costs (~\$25M), and site investigation and remediation compliance with the National Contingency Plan (NCP) at a site with sediment impacts as well as upland groundwater and soil impacts. Supported allocation of responsibility among PRPs based on calculations of Manufactured Gas Plant (MGP) tar in the environment and historical analysis of MGP operations from ~1880-1940s. Project manager, prepared sections of expert report, prepared expert witness for depositions and trial, evaluated expert reports and deposition testimony of seven opposing experts, and prepared trial testimony.
- **Former Landfill and Current Middle/High Schools, PCBs, Massachusetts.** Determined compliance of remedy with Massachusetts Contingency Plan (MCP) regulations (including public involvement requirements), and Toxic Substance Control Act (TSCA). Evaluated necessity and reasonableness of ~\$20M of remediation costs that included soil removal, wetland sediment removal, building materials surveys, installation of a soil cap, and installation of a liner for a building constructed on the remediated site.
- **Mixed Chemical and Manufacturing Site, PFAS, New Jersey.** Evaluated the costs for remediation of a high-PFAS-concentration groundwater at a site with a mixed history of petroleum refining, manufacturing of chemicals for water resistance, and other industrial activities. Isolated groundwater chemical signatures consistent with different historical uses and allocated responsibility for groundwater remediation costs among historical users of the property.
- **Chemical Manufacturing Facility, Chlorinated Solvents, New Jersey.** Evaluated the historical standard of care and state of knowledge of trichloroethylene (TCE) handling and toxicity at a chemical manufacturing facility. TCE disposal allegedly contaminated groundwater and impacted residential neighborhood. Prepared sections of expert report.
- **Gowanus Canal Superfund Site, Coal Tar, PAHs, and metals, New York.** Developed an allocation model to assign costs for the remedial design of the site remedy to multiple potentially responsible parties, including parties responsible for Manufactured Gas Plant (MGP) tar and PAHs, and combined sewer overflows (CSO). Remediation will include dredging, in-situ solidification, installation of a sub-aqueous cap, and various other upgrades. The model coupled the costs of the

design components, the portion of the site to be remediated by those design components, and forensic analyses to determine responsibility of each portion of the site to be remediated.

- **Mining Waste Storage Facility Closure and Cost Evaluation, Jamaica.** Evaluated engineering, environmental, and cost considerations associated with closure of a large bauxite residue disposal facility. Assessed the adequacy of proposed closure measures against recognized landfill and impoundment closure standards, including requirements related to geotechnical stability, settlement and consolidation, seepage control, groundwater protection, leachate management, stormwater conveyance, and long-term containment performance. Evaluated engineering challenges associated with closure of an alkaline mining waste stream and development of long-term containment systems for residue management. Prepared independent closure cost estimates and assessed the reasonableness of projected closure liabilities, including costs associated with residue stabilization, composite liner systems, leachate collection and treatment, stormwater infrastructure, and construction quality assurance. Provided technical evaluations regarding closure design adequacy, regulatory compliance, long-term environmental protection, and anticipated closure obligations.
- **Dry Cleaner Release, Massachusetts and New Hampshire.** Evaluated the time of travel of releases from a dry cleaner operation that began in the 1970s to demonstrate that two PCE plumes actually exist at the Site and that PFAS impacts were divisible. Corroborated the differentiation of the two plumes with soil gas data, information about historic dry cleaner operations and release mechanisms, and transport of contaminants at other, nearby sites. Evaluated the stability of the chlorinated solvent plume and the viability of monitored natural attenuation as a remedy. Estimated future costs for the remediation. Allocated responsibility for the remediation based on duration of operation and release timing.
- **Petroleum Filling Station, New York.** Evaluated the source of petroleum contamination at an abandoned filling station and demonstrated that a portion of the on-site impacts were originating from an up gradient source. Surficial soil on the site showed evidence of release, but forensic information associated with groundwater plume, coupled with the site hydrogeology, indicated that an adjacent site, not the former filling station, was the source of groundwater contamination.

Engineering, Site Investigation, & Remediation

- **Kalamazoo River Superfund Site, Operable Unit 5, Area 1, Michigan.** Project manager and engineer responsible for the remediation of Area 1 of Operable Unit 5 of the Kalamazoo River Superfund Site, including the design of a dredging remedy for sediment hot spots impacted with PCBs in the upper 3 miles of

the site originating primarily from historical paper recycling processes, restoration of river banks in areas of past time critical removal actions, design of floodplain soil remedies, implementation of institutional controls, and completion of a feasibility study to support a Record of Decision amendment to allow capping in select portion of the river. Manage a team of engineers, geologists, hydrologists, ecologists, risk assessors, and construction managers. Responsible for guiding the design, developing the technical and regulatory strategy, preparing design deliverables, estimating remediation costs, ensuring regulatory compliance, presenting the project in public meetings, managing the bidding process, selecting the remedial contractor, coordinating the remedial action, evaluating changed conditions and associated design/cost revisions, and managing the construction. Directly responsible for negotiations with USEPA, EGLE, and other stakeholders throughout the design and remediation process. Also responsible for assessing remedial action alternatives in a portion of the river where complete removal of impacted sediments is impractical, including development of alternative remedial technologies, cost estimating, and regulatory negotiations to arrive at a remedy that is effective and agreeable to responsible parties and regulatory agencies.

- **Sediment Superfund Site, Chlor Alkali Facility, Alabama.** Project manager and engineer supporting the pre-design investigation and remedial design of a contaminated sediment capping remedy to address mercury and chlorinated organic contaminants. The client is one of two parties participating in the cleanup and the two parties jointly hired a consultant for the investigation and design. On behalf of client, oversee and guide joint-consultant, manage client's liability during design process including negotiations with the other party, develop regulatory strategy on behalf of client and the group, and advocate with EPA in pursuit of a technically effective and financially reasonable remedy design. Technical responsibilities include preparation of work plans with joint consultant, evaluate contaminant distribution data to refine conceptual site model, direct preparation of hydraulic model, interpret seepage data, and design treatability study to select appropriate cap amendments to control contaminant flux (including mercury and methylmercury) through the engineered cap.
- **Illinois River Watershed, Arkansas and Oklahoma.** Evaluated sediment transport, nutrient loading, and watershed processes to assess the extent of impacts associated with agricultural nutrient inputs within a large interstate watershed. Assessed alternative nutrient and sediment sources and their relative contributions, including the effects of changing agricultural practices on nutrient loading over time. Evaluated the technical feasibility and costs of watershed-scale response actions to

reduce nutrient loading and improve water quality. Conducted analyses of potential loss-of-use damages associated with impaired aquatic resources and recreational uses, including evaluations analogous to natural resource damage assessments.

- PFAS Due Diligence, Massachusetts.** Evaluated PFAS contamination at multiple sites to support transactional due diligence and Phase II investigations. Evaluated historical operations and likelihood of PFAS releases from those operations, identified potential for upgradient PFAS contributions versus potential for on-site PFAS generation, evaluated soil and groundwater data with forensic tools to determine potential for liability assignment, estimated costs for potential PFAS-related response actions, and developed strategies to manage PFAS liabilities as regulations evolve.
- Lower Neponset River Superfund Site, Massachusetts.** Supported counsel in the development of public comments regarding a proposed EPA-led sediment remediation of a PCB-impacted river system on behalf of historical operators adjacent to the river. Evaluated historical industrial operations, contaminant fate and transport, PCB source identification, recontamination potential, and risks associated with both PCB and non-PCB contaminants of concern. Assessed the technical basis for sediment removal, engineered capping, dam removal, and related response actions against CERCLA risk management and remedy-selection principles. Reviewed environmental data, exposure assessments, source control evaluations, and risk characterization methods to evaluate whether the proposed remedy appropriately balanced risk reduction, environmental impacts, implementability, and long-term effectiveness. In conjunction with legal counsel, prepared technical comments concluding that the proposed Removal Action was not adequately supported by the available data, exceeded the scope typically associated with a Removal Action, was inefficiently designed and overly broad, and warranted evaluation through a more comprehensive Remedial Investigation and Feasibility Study process so that a more targeted and effective remedy could be developed.
- MGP Impacted Sediment Site, Massachusetts.** Sediment remediation lead and construction management for the removal of ~4,000 tons of MGP-tar impacted sediment from the Connecticut River under a Release Abatement Measure. Contaminated sediment was removed by a third party and client had responsibility to manage the contaminated sediment once removed from the river. Reviewed third party's removal plan on behalf of client, provided revisions to the plan to manage client's liability, and developed plan in coordination with contractor to stabilize sediment and ship offsite for disposal. Documented sediment removal and management in a Release Abatement Measure Plan and a Release Abatement Measure Completion Report.
- Superfund Site Sediment Remediation, New York.** Evaluated innovative sediment processing approaches to assess whether soil washing and size separation technologies could be technically and economically viable for contaminated dredged sediment with unusually high fines content at a large sediment Superfund site. Developed the technical evaluation framework and testing program to assess feasibility under sediment conditions traditionally considered unfavorable for size separation approaches. Directed development of order-of-magnitude cost estimates and sensitivity analyses comparing sediment processing technologies to conventional stabilization and disposal approaches. Designed targeted sediment sampling and bench-scale testing programs to evaluate sediment characteristics, contaminant partitioning behavior, and practical implementation considerations. Integrated remedial investigation data and sediment characterization information to support remedial decision making.
- Chlorinated Solvent Superfund Site, Ohio.** Performed monitored natural attenuation analysis at a chlorinated solvent Superfund site to reduce the number of analyses and the number of monitoring wells included in the site's long-term monitoring plan. Utilized multiple models and multiple statistical tests to demonstrate to EPA that the conclusions were robust under a wide range of conditions.
- Coal Fired Power Plant Redevelopment, Massachusetts.** On behalf of a municipality, evaluated the plans for the redevelopment of a former coal fired power plant as an on-shoring location of off-shore wind energy. Evaluation involved an assessment of contaminated material that would be excavated as the result of intrusive activities during redevelopment, identification of appropriate mitigation measures during construction to control community exposures, identifying regulatory requirements associated with management of a portion of the site regulated under the Massachusetts Contingency Plan, and peer-review of stormwater management plans and Wetlands Protection Act compliance. Assisted the municipality with the preparation of detailed conditions for the property owner's redevelopment, including conditions related to off-site migration of potentially impacted media, on-site stormwater management during and after construction under the Clean Water Act and Wetlands Protection Act, construction best management practices, and monitoring programs for air and surface water to verify compliance. Acted as the municipalities oversight during redevelopment activities.
- Brownfields Cleanup Program Site, New York.** Conducted investigation and pre-characterization of petroleum and lead

contaminated soil; planned and executed interim removal action to facilitate immediate site redevelopment; designed sub-slab depressurization system for new and existing buildings to mitigate indoor air impacts; prepared engineering specifications for excavation, transportation, and disposal of approximately 20,000 tons of contaminated soil and approximately 10,000 tons of soil for reuse on site; oversaw field efforts; prepared New York State Department of Environmental Conservation Brownfields Cleanup Program submissions, including Remedial Investigation/Alternatives Analysis Report, Interim Remedial Action, and Remedial Action Work Plan. Following completion of remediation designed stormwater management system and managed the installation of the stormwater management system design.

- Real Estate Redevelopment Site, Brookline, Massachusetts.** Conducted and prepared ASTM Phase I investigation, designed and implemented Phase II investigation of soil and groundwater, oversaw building materials survey and remediation of lead, asbestos, and PCBs, pre-characterized on-site soil for reuse or for off-site disposal, managed soil removal activities, and prepared Massachusetts Contingency Plan submissions (RAM Plan, Completion Report).
- Petroleum Terminal, Massachusetts.** Planned technical excavations of petroleum and metals-impacted soil adjacent to sensitive infrastructure, include bulk petroleum storage tanks and historic buildings. Projects included design of remedial approach, preparation of technical specifications, structural and vibration monitoring of sensitive infrastructure, soil pre-characterization, abandoned pipeline removal, and reporting under the Massachusetts Contingency Plan.
- Wetland Remediation, Connecticut.** Prepared remedial investigation work plan and conceptual remedial design alternatives analysis for in-situ remediation of metal- and solvent-contaminated wetland sediment. Prepared novel wetland remedial design which includes stabilizing metals in place with additions of compost and gypsum, in lieu of substantially more expensive excavation and reconstruction alternatives.
- Industrial Facility Stormwater Management and Wetland Restoration, Massachusetts.** Engineer of record for the redesign and implementation of a site-wide stormwater management system and wetland replication program at an active industrial facility. Responsible for regulatory compliance under the Clean Water Act, including National Pollutant Discharge Elimination System (NPDES) stormwater permitting requirements, as well as permitting and approvals under the Massachusetts Wetlands Protection Act and local conservation and planning regulations. Designed an integrated stormwater conveyance, treatment, and drainage system for a spatially constrained industrial site, including development of a constructed treatment wetland to improve stormwater quality, manage runoff, and support long-term permit compliance. Performed groundwater investigations and hydrogeologic evaluations to support drainage design, assess groundwater-surface water interactions, and optimize site hydrology. Managed permitting strategy and regulatory agency coordination, and oversaw wetland replication and restoration activities.
- River Sediment Dredging, New York.** Prepared investigation plan, remedy alternatives evaluation, and remedial design for dredging of sediments contaminated by weathered petroleum in a large river in New York. Responsible for project management, budget estimates and tracking, remediation schedule, client engagement, and regulator negotiations. The impacted sediments contained large numbers of State and Federally threatened and endangered species of mussels. Designed, planned, and permitted the sediment remedy, including relocation of threatened and endangered species present in the river, construction of site access infrastructure over flood control structures via a haul road, wet dredging of impacted sediment via a causeway constructed into the river, and sediment stabilization/disposal. Obtained permits from US Fish and Wildlife Service, U.S. Army Corps of Engineers, and New York State DEC to perform the scope of work. Maximized beneficial reuse of haul road and causeway construction materials as backfill at a nearby remedial excavation and stabilized dredge spoils as daily cover at a commercial landfill, resulting in significant cost savings for the client.
- Superfund Site, New Hampshire.** Evaluated the effectiveness of remedial actions following the first five-year review of a Superfund Site on behalf of one PRP at a multiple-PRP site, including consideration of newly identified PFAS impacts. Considerations included the effectiveness of hydraulic containment of groundwater treatment system; presence, distribution, and treatment system effectiveness addressing perfluorinated compounds and 1,4-dioxane in the groundwater; soil remediation and separate phase product recovery with thermal remediation methods; and exposure to adjacent residential receptors.
- Petroleum Pipeline, Massachusetts.** Designed and oversaw installation of an engineering solution to an exposed petroleum pipeline crossing of an ephemeral stream. The active petroleum pipeline was exposed and suspended above the stream channel. Remedy included installation of culverts below the pipeline to provide structural support, reconstruction and armoring of stream channel, and burial of the pipeline above culverts.
- Lead Mining and Smelting Operation, Missouri.** Evaluated natural resource damages (NRD) claim related to impacts from

lead smelting operations and transport of lead-laden ore in support of an insurance analysis. Impacted natural resources included forest lands, stream ecosystems, surface and groundwater impacts, and several endangered/threatened species.

- **Former Dry Cleaner and Current Shopping Mall, Enfield, Connecticut.** Remediated a former dry cleaner location with solvent contamination below the slab of an occupied commercial building. Designed a combined in-situ chemical oxidation, air sparge/soil vapor extraction, and sub-slab depressurization system remedy to address dry cleaning solvent (PCE) contamination below an operating commercial building and protect human health. The remediation system was designed to allow for all future chemical injections over an approximately two-year period to take place without disturbing building operations.
- **Industrial Chlorinated Solvent Site, Massachusetts.** Prepared a Massachusetts Contingency Plan Phase III (Feasibility Study) to evaluate potential response actions to address chlorinated solvents in soil and groundwater. Downgradient receptors included residential properties and wetlands. Evaluated appropriate technologies, prepared cost estimates for viable technologies, and recommended comprehensive remedial alternatives that would achieve a permanent solution. Prepared detailed evaluations and cost estimates for various technologies, including indoor air mitigation measures, barrier walls, and soil excavation.
- **Former Dry Cleaner and Current Restaurant, Burlington, Massachusetts.** Investigated PCE releases below and adjacent to a historical dry cleaner to develop a conceptual site model, prepare an evaluation of remedial alternatives, and design an in-situ chemical reduction remedy to address soil and groundwater contamination (ongoing). The Site is within a drinking water source area. Vapor intrusion mitigation measures are required to address the restaurant that currently occupies the Site. Remedial alternative evaluations included preparing cost estimates for a range of alternatives that included site excavation, air sparging, and a reactive barrier wall.
- **Industrial Compliance.** Assist industrial clients with compliance services, including evaluations of stormwater systems, preparation of stormwater pollution protection plans (SWPPPs) and coverage under EPA's National Pollution Discharge Elimination System (NPDES) Remediation General

Permit (RGP). Recent RGP works involves obtaining RGP coverage for a groundwater pump and treatment system with discharges to an Outstanding Resource Water.

PROFESSIONAL TRAININGS

OSHA 29 CFR 1910.120 40-hour Safety Trained

OSHA 29 CFR 1910.120(e)(8) 8-hour Refresher

Trained Smith System® Driving Certified

CPR/First Aid Certified

Loss Prevention System™ (LPS) Trained

PUBLICATIONS

- Wespestad, B.; Adams, J.B.; Gerbig, C.; Love, A.H. (2020). Dry Cleaner Releases and Forensic Considerations. *Environmental Claims Journal*. doi: 10.1080/10406026.2020.1773078.
- Ram, N.M.; Gerbig, C.A.; Nevins, N. (2020). Bankruptcy Actions Involving Environmental Legacy Portfolios. *Environmental Law Reporter*, 50(4).
- Ram, N.R.; Schneider, M.W.; Gerbig, C.G.; Nevins, N.N.; Love, A.H. (2019) Allocating Cleanup Costs Among Potentially Responsible Parties. *Remediation*, 30(1): 33-45. doi: 10.1002/rem.21632.
- Poulin, B.A.; Gerbig, C.A.; Kim, C.S.; Stegemeier, J.P.; Ryan, J.N.; Aiken, G.R. (2017) Effects of Sulfide Concentration and Dissolved Organic Matter Characteristics on the Structure of Nanocolloidal Metacinnabar. *Environmental Science & Technology*, 51(22): 13133-13142. doi: 10.1021/acs.est/7b02687.
- Sullivan, D.; Kwan, W.; Gerbig, C.A.; Moore, C. (2015) Proactive Evaluation of PRP Status at Hazardous Waste Disposal Sites. *Environmental Claims Journal*, 27(2): 140-148. doi: 10.1080/10406026.2015.1035570.
- Ram, N.M.; Kwan, W.; Gerbig, C.A.; Moore, C. (2014) Extricating Membership as a PRP at Hazardous Waste Disposal Sites. *Remediation*, 24(2): 91-106. doi: 10.1002/rem.21386.
- Gerbig, C.A.; Ryan, J.N.; Aiken, G.R. (2011) The Effects of Dissolved Organic Matter on Mercury Biogeochemistry in Environmental Chemistry and Toxicology of Mercury (eds. G. Liu, Y. Cai, and N. O'Driscoll, eds.), John Wiley & Sons, Hoboken, NJ, USA. doi: 10.1002/9781118146644.ch8.
- Gerbig, C.A.; Kim, C.S.; Stegemeier, J.P.; Ryan, J.N.; Aiken, G.R. (2011) Formation of Nanocolloidal Metacinnabar in Mercury-DOM-Sulfide Systems. *Environmental Science & Technology*, 45(21): 9180-9187. doi: 10.1021/es201837h.