PROFESSIONAL PROFILE

CONTACT INFORMATION

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200 Summit Drive, Suite 500
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EDUCATION

AB, Geology, Lafayette College, 1987
MS, Marine Environmental Sciences, State University of New York at Stony Brook, 1989

PROFESSIONAL LICENSES

Professional Geologist, Pennsylvania
Licensed Site Professional, Massachusetts

Lawrence McTiernan, PG, LSP

Principal Hydrogeologist

EXPERIENCE SUMMARY

Over thirty years of experience: Principal, Senior, Project, and Staff Hydrogeologist with Roux.

TECHNICAL SPECIALTIES

Management and direction of environmental investigations and remedial actions at hazardous waste sites, including CERCLA, RCRA, and MCP sites; technical support and project management for environmental litigation projects; data quality evaluation; support for property acquisitions/divestitures; sedimentary geology.

REPRESENTATIVE PROJECTS

Massachusetts Contingency Plan/LSP Experience

- LSP-of-Record and Principal-in-Charge for MCP Response Actions at a Tier 1 former dry cleaner site in northeastern Massachusetts. Site soil and groundwater contain PCE and degradation products, which have also been detected in indoor air of the existing site building. Project has included MCP Phase I and Tier Classification/Tier I Permit; Phase II Comprehensive Site Assessment and Method 3 Risk Characterization; Immediate Response Action for Condition of Substantial Release Migration (impact to surface water), including detailed assessment of local storm sewer network; Phase III evaluation of remedial alternatives; Phase IV remedy design and implementation (in situ chemical reduction and sub-slab depressurization); and Phase V O&M. Also reviewed and prepared rebuttal of downgradient property owners' claims for cost recovery and coordinated with adjacent property owners during redevelopment of those properties.

- LSP-of-Record and Principal-In-Charge for MCP Response Actions at a former asphalt-shingle manufacturing facility in central Massachusetts. Site soil and shallow groundwater are impacted with petroleum hydrocarbons and PFAS, and deeper site groundwater is impacted with chlorinated volatile organic compounds (CVOCs). Project included a supplemental Phase II investigation to re-evaluate the extent of petroleum impacts and the source of CVOCs in deeper groundwater, excavation and management of almost 20,000 tons of LNAPL- and asphalt-impacted soil during a series of Release Abatement Measures, an Immediate Response Action (IRA) for the assessment and removal of asbestos-impacted soil, and a Phase III evaluation of remedial action alternatives, which has included an evaluation of natural source zone depletion (NSZD). Also performed preliminary evaluation of extent and source of PFAS in site groundwater as a second IRA.

- LSP-of-Record and Principal-in-Charge for MCP Response Actions performed in response to a release of acetone to groundwater at a manufacturing facility in northeastern Massachusetts. Evaluated historical and recent groundwater sampling data developed by others for other (ongoing) MCP response actions at site (for historical CVOC releases), inspected site and reviewed facility information to identify potential sources of acetone (including possible link to ongoing in-situ bioremediation being conducted at site by others), collected soil gas and groundwater samples, and prepared Permanent Solution Statement.

- LSP-of-Record and Principal-in-Charge for an Immediate Response Action (IRA) performed in response to a spill of diesel fuel from a tractor-trailer involved in an accident on an interstate highway in northeastern Massachusetts. The truck crashed into wooded median strip and spilled contents of one saddle tank as well as engine oil and other fluids. Oversaw preliminary site investigation, coordinated partial road closure for excavation of impacted soil, planned and oversaw excavation (including pre-excavation waste characterization/offsite transport of excavated soil), and prepared IRA Completion Report.

- LSP-of-Record for MCP Response Actions at multiple sites in South Boston included within large-scale redevelopment block. Sites included a former metal heat-treating facility, former junk yard, and several vacant commercial properties. Conducted Phase I/Tier Classification, Phase II Comprehensive Site Assessments, Release Abatement Measures, an Immediate Response Action (for an LNAPL release), Periodic Review of Temporary Solution for one site, and preparation of a Temporary Solution Statement for another site. Also coordinated with client's civil engineer and architect to facilitate redevelopment-related soil excavation and management, including preparation of multiple LSP Opinions (soil profiles) and Bills of Lading.
- LSP-of-Record and Principal-in-Charge for MCP Response Actions at a quarry and asphalt batching facility in northeastern Massachusetts. A Temporary Solution had been filed in the 1990s (by others) for releases of petroleum hydrocarbons and trichloroethene at the site. Review of the Temporary Solution identified several deficiencies in the Temporary Solution, and additional sampling of soil and groundwater was performed to confirm the protectiveness of the Temporary Solution. Prepared and submitted two Periodic Reviews of the Temporary Solution to date. Conducted Release Abatement Measure to expedite achieving Permanent Solution. Currently performing limited groundwater sampling for remaining contamination above GW-1 standards.
- LSP-of-Record and Principal-in-Charge for a release from an oil-water separator at a package sorting and distribution warehouse in northeastern Massachusetts. Response actions included Phase I and Phase II investigations, a Phase III evaluation of remedial action alternatives, Phase IV remedy implementation (monitored natural attenuation [MNA]) and Phase V monitoring of MNA. Injections of sodium persulfate and hydrogen peroxide were performed as a Release Abatement Measure to expedite MNA. Filed a Temporary Solution Statement and, later, a Permanent Solution Statement.
- LSP-of-Record and Principal-in-Charge for post-Class C RAO groundwater monitoring at a former R&D/light industrial facility in northeastern Massachusetts. A release of heating oil occurred at the site in the past, and several remedial actions were implemented (by others), including excavation and in situ chemical oxidation (ISCO) using hydrogen peroxide and, later, activated persulfate. Elevated concentrations of sulfate were detected in groundwater outside of the treatment area, so ISCO was terminated in favor of Monitored Natural Attenuation (MNA) and a Class-C RAO was filed. The post-Class C RAO groundwater monitoring is focused on evaluating the progress of MNA at the site, as well as the presence of sulfate and arsenic in site groundwater (the latter mobilized from natural arsenic deposits by reducing conditions associated with the fuel oil release). Have prepared two Periodic Reviews of the Temporary Solution to date. Currently performing limited groundwater sampling to document continued reductions in groundwater concentrations.
- Consulting LSP for out-of-state consultant/contractor performing due diligence and remediation for U.S. Coast Guard's divestiture of multiple lighthouse properties in Massachusetts. Performed ASTM-type Phase I site assessments, assisted in preparation of and co-signed consultant/contractor's work plans for Phase II site assessment, reviewed assessment results relative to MCP reporting obligations/risk limits and advised thereon (confirming conditions exempt from reporting), assisted in preparation of and co-signed assessment reports, assisted in preparation of and co-signed work plans for remediation (excavation of soil impacted by lead paint), assisted in soil waste characterization/profiling, oversaw excavations, and assisted in preparation of/co-signed remediation completion reports.
- Consulting LSP for owner/operator of manufacturing facility in northeastern Massachusetts where thermal remediation is being proposed by LSP for former owner (and Responsible Party) to address legacy CVOC impacts in till and deeper overburden groundwater. Preliminarily advised client regarding adverse impacts on client's facilities, operations, and personnel that potentially could result from thermal remediation. Currently awaiting more detailed design documents, safety plans, and contingency plans from LSP for former owner.
- Project Manager for a RCRA corrective action investigation and subsequent MCP Response Actions at a former manufacturing site in southeastern Massachusetts. This Tier 1 Site contains chlorinated solvents, metals, cyanide, and petroleum hydrocarbons in soil, groundwater, surface water, and/or sediment. Project has involved deep bedrock coring (including angled drilling); evaluation for DNAPL; extensive sampling of soil, groundwater, surface water, sewers, soil gas, and indoor air; geophysical surveys, several imminent hazard evaluations; a limited feasibility study for stabilization measures to address a soil VOC hot spot; soil-vapor intrusion modeling; preparation and recording of multiple Notices of Activity and Use Limitation (AULs); Method 3 Human Health and Environmental Risk Characterizations; preparation of Phase II/III Report; and preparation/submittal of a Partial Permanent Solution for most of the site and Temporary Solution Statement for the remainder. Also assisted client in marketing and sale of property, negotiation of a Brownfields Covenant Not to Sue, and rebuttal of multiple Downgradient Property Status (DPS) submittals incorrectly implicating site as source for groundwater contamination found at those properties during due diligence assessments.

- Project Manager for MCP Response Actions at a large active industrial facility in northeastern Massachusetts with multiple releases/RTNs and impacted mainly by chlorinated VOCs (but also by cyanide, ammonia, and metals). Completed supplemental Phase II Comprehensive Site Assessment activities for an older release, including additional evaluation of subsurface stratigraphy, additional contaminant delineation, evaluation of potential contributions from an upgradient property, and evaluation of the efficiency of existing site remediation systems. Performed Phase I Initial Site Investigation activities and prepared Tier Classification Submittal for a newer release. Conducted preliminary assessment of third release discovered during due diligence activities, including SRM evaluation due to proximity of surface water. Also assisted client with property transactional issues, including due diligence and negotiations with prospective purchasers. The latter role included performing Method 3 Risk Characterization to evaluate potential future indoor air risks, and preparation of a deed restriction to limit potential future liabilities under the MCP.
- Project Manager for MCP Response Actions at an active petroleum bulk storage terminal in western Massachusetts. Project included Phase V operation & maintenance of an air-sparge/SVE system, post-remediation assessment of soil and groundwater quality, and a Method 3 Human Health Risk Characterization. Also evaluated data for neighboring site and prepared a Downgradient Property Status submittal. Prepared a Response Action Outcome Statement with Activity and Use Limitation to achieve closure of site.
- Project Manager for MCP response actions for a release of petroleum hydrocarbons adjacent to a subsurface petroleum transmission pipeline. Project included Phase I Initial Site Investigation activities, Tier Classification, and Phase II Comprehensive Site Assessment (including soil and groundwater sampling and a Method 3 Human Health Risk Characterization). Prepared a Response Action Outcome Statement with Activity and Use Limitation to achieve closure of site.
- Project Manager for supplemental Phase II Comprehensive Site Assessment activities at a retail service station in northeastern Massachusetts. Successfully used Method 2 approach to demonstrate that Method 1 GW-2 and GW-3 Standards for VPH fractions did not apply at site based on evidence for limited vapor-phase migration and absence of VPH at sentinel well, combined with declining post-soil remedy source-area concentrations. Prepared Method 2 Human Health Risk Characterization and Response Action Outcome Statement to achieve closure of site.
- Reviewed redevelopment plans and available environmental data/MCP submittals for portion of a large MCP site in Cambridge, MA, undergoing redevelopment. Developed estimate of "environmental premium costs" associated with planned redevelopment. Also facilitated dialogue between client and LSP-of-Record, critiqued current closure strategy for site, and provided independent opinions w/r/t MCP compliance for client use in negotiations with property owner.

Superfund Experience

- High-level technical consultant for major performing party for Operable Unit 2 of the Peterson/Puritan Superfund Site in Cumberland, Rhode Island. Currently representing client as a member of Technical Committee for RD/RA performing parties, overseeing the preparation of, and reviewing/critiquing various RD-related plans prepared by RD engineer-of-record, including RD Work Plan, pre-design investigation work plan and report, Landfill Cover System Design Report, and preliminary (30%), pre-final (95%), and final (100%) RD submittals. Other work has included assisting performing parties in negotiations with City of Cumberland regarding possible reuse of part of site as park; participating in negotiations with EPA and RIDEM during remedial design; assisting client and fellow generator PRPs with development of allocation agreements amongst themselves and with transporter PRPs; supporting client during RI/FS performing parties' preparation of FS, including participation in key meeting with EPA; assisting RI/FS performing parties after EPA takeover of FS, including critique of additional data collection efforts and evaluation of ARARs, particularly those pertaining to landfill capping requirements; critiquing EPA's Proposed Plan on behalf of client and preparing white paper proposing new remedial alternative not included in final FS (evapotranspiration [ET] cap); and presenting new capping alternative at EPA public meeting.
- Principal-in-Charge for long-term surface water monitoring project at the Industri-Plex Superfund Site in Woburn, Massachusetts. Project involved deployment and maintenance of automated surface water monitoring and sampling equipment at ten locations along a 6-mile reach of river at and downstream of the site, hydraulic characterization of stations, continuous monitoring of stream flow and water quality, and periodic sampling under both baseflow and storm conditions. Prepared EPA-approved work plan and Project Operations Plans (SMP, QAPP, FSP, and HASP) in accordance with EPA Region 1 requirements. Worked with Project Coordinator and remedial design contractor to integrate monitoring program with pre-design studies for surface water element of remedy.
- Project Manager and later Principal-in-Charge for implementation of groundwater remedy at the Fulton Terminals Superfund Site in Fulton, New York. Successfully negotiated and implemented an Expedited Pumping Program

(EPP) as an alternative to ROD-specified pump-and-treat remedy for chlorinated VOCs in groundwater. EPP involved short-term (12 weeks) pump-and-treat using mobile treatment system, periodic sampling of groundwater, and modeling of post-pumping natural attenuation of residual groundwater impacts. Project also included geophysical survey to determine extent and decay rate of remnants of freeze wall used during soil remedy. Successfully argued, based on success of EPP, that additional active remediation of site groundwater was not necessary, and prepared Construction Completion Report. Performed long-term groundwater monitoring to monitor residual VOC concentrations at downgradient wells, eventually achieving standards and delisting of site from the NPL.

- Project Manager and later Principal-in-Charge for supplemental remedial investigation activities for Operable Unit 2 at the Industri-Plex Superfund Site in Woburn, Massachusetts. Project included the following: technical impracticability (TI) demonstration involving evaluation of historical site groundwater data, modeling groundwater and contaminant flow systems and various pump-and-treat scenarios, and demonstrating the TI of achieving ROD IRM cleanup objectives for groundwater via pump and treat; preliminary intrinsic remediation demonstration involving collection of data to demonstrate that groundwater plumes are being attenuated through intrinsic processes within the aquifer and within wetland sediments; source-area investigations that included geophysical surveys and Geoprobe sampling of soil gas, soil, and groundwater; a pond/wetland sediment transport/remobilization study involving automated sampling of surface-water inflows and discharges during baseflow and storm conditions; vertical profiling of groundwater quality along 16 multi-point sampling transects; Geoprobe sampling of a buried former lakebed; negotiation and preparation of work plans and Project Operations Plans (FSP, QAPP, HASP); and general agency negotiations. Also prepared draft Institutional Controls Plan including multiple Notices of Activity and Use Limitations under the MCP.
- Project Manager for a supplemental remedial investigation at the Pollution Abatement Service (PAS) Superfund Site in Oswego, New York. Project involved delineating a plume of VOCs in bedrock groundwater, evaluating effectiveness of pumping to restore bedrock groundwater quality, evaluating potential impacts of bedrock pumping on effectiveness of existing overburden groundwater containment system, delineating the extent of pesticides and PCBs in adjacent creeks and wetlands, identifying potential upstream sources of pesticides and PCBs, and evaluating potential engineering improvements to existing cap/containment system. Successfully demonstrated technical impracticability of bedrock pump-and-treat remedy selected in ROD, resulting in EPA's issuance of an ESD; successfully linked surface water and sediment contamination at site to upstream sources; and successfully demonstrated that site is not the source of PCBs in nearby wetland. Latter two demonstrations led to No Further Action ROD for wetland sediments.
- Principal-in-Charge for interim groundwater monitoring program at Stamina Mills Superfund Site in North Smithfield, Rhode Island. Project included low-flow sampling of multi-zonal bedrock wells and sampling of several residential wells, and was performed in conjunction with dual-phase SVE remediation of source zone and shallow overburden being performed by others.

Litigation Support Experience

- Expert witness for litigation involving the Centredale Manor Restoration Project Superfund Site in North Providence, Rhode Island. Work performed has included analysis of client's historical manufacturing processes and potential contributions to site contamination, review of site reports prepared for the Superfund cleanup of the site, review of various depositions and expert reports, assisting client counsel in deposition of opposing experts, and preparing Expert Report. Deposition pending.
- Provided technical support and/or project management for multiple projects involving the allocation of response action costs among various PRPs for the Lower Passaic River (LPR) operable unit of the Diamond Alkali Superfund Site in New Jersey. Projects involved review of manufacturing operations at multiple sites, review of site assessment and remedial action reports for the sites, review of local and regional sewer maps and records, and development of expert opinions regarding the nature, timing, magnitude, and pathways for releases of hazardous substances from each PRP's facility. Co-authored two expert reports and a rebuttal report and later co-authored report commenting on report prepared by EPA-assigned allocator for client's site. Our opinions regarding sewer system and limited potential for discharges of hazardous substance to the LPR by client were accepted by the allocator and used by him to evaluate others' discharges.
- Provided technical support and project management for a litigation-related project involving a failed groundwater remediation system at a Superfund site in New Hampshire. Project included the review of site documents to establish roles and responsibilities of various parties involved and to support expert opinions regarding the overall conceptual remedial design (standard of care), selection of chemical sequestration for iron control, and construction of groundwater extraction and injection wells. Developed timeline of key decisions in remedial design process and co-authored portions of expert

report relating to roles and responsibilities and construction of groundwater extraction and injection wells.

- Provided technical support and project management for a litigation-related project involving the divestiture by a major conglomerate of hundreds of facilities and contaminated legacy sites and subsequent bankruptcy of spun-off company (our client) that owned sites or was otherwise responsible for their cleanup. Sites included thorium processing and other nuclear facilities; chemical plants; wood treatment plants; mining sites; natural gas processing facilities; petroleum refineries, terminals, and service stations; and landfills. Project included the review of available information and additional research to (1) establish the nature and extent of contamination and (2) estimate the cost for remediation at each site as of the time of the divestiture. Substantial contributor to expert report and assisted counsel in preparing expert for deposition and trial. The judge ruled in favor of the client, resulting in $5 billion payment by former owner for cleanup of sites.
- Provided technical support and project management for a litigation-related project performed as follow-up to preceding project. Former owner of sites claimed tax deduction for $5 billion payment agreed upon as resolution of previous litigation. IRS denied deduction, so former owner retained Roux to update previous expert report for use in litigation against IRS. Substantial contributor to expert report, assisted counsel in preparing expert for deposition and trial, and participated in trial as in-courtroom consultant to counsel.
- Provided technical support and project management for a litigation-related project involving evaluation of known and potential sources of dioxin and other hazardous substances to the Lower Passaic River in New Jersey. Project involved the review of assessment and remedial action reports and other documentation for two sites located along the river, identification and review of relevant sewer maps and records, evaluation of manufacturing histories for both sites, and the development of opinions regarding the nature and timing of releases of dioxin and other hazardous substances to the river.
- Provided technical support and project management for defense of claim for contribution from Performing Party responsible for implementing RI/FS at landfill Superfund site in Rhode Island. Inspected and evaluated client's manufacturing processes, quantified chemical nature of client's waste, and evaluated contributions to volume and toxicity of client's waste relative to Performing Parties' waste.
- Provided technical support and project management for a project performed in anticipation of litigation involving the proposed remedial action for a site on Long Island (New York) with groundwater contaminated by chlorinated VOCs. Project included review of the Remedial Investigation and Feasibility Study reports for the site, review and critique of the Proposed Remedial Action Plan (PRAP) for the site, and preparation of written comments regarding the PRAP.
- Provided technical support and project management for a litigation-related project involving review and evaluation of the actions undertaken by a municipal water district in New York State to meet the regulatory requirements and compliance deadlines of the Long Term 2 Enhanced Surface Water Treatment Rule (the "LT2 Rule"). Project included review and evaluation of the actions undertaken by the water district to achieve compliance with the LT2 Rule, evaluation of the various engineering alternatives considered by the water district to achieve compliance with the LT2 Rule, and identification of interim measures that could be undertaken by the water district to achieve partial compliance with the LT2 Rule pending construction of the selected alternative.
- Provided technical support and project management for a litigation-related project involving a solvent blending and distribution facility in New Jersey. Project included reviewing available data and deposition testimony to determine causes and timing of historical releases of PCE at the site. Also evaluated available information to evaluate the necessity and appropriateness of remedial response actions conducted to date and assisted site cleanup consultant in performance of ongoing remedial action.
- Provided technical support and project management for a litigation-related project involving a release of fuel oil from an underground storage tank at a commercial building in Brookline, Massachusetts. Project included reviewing emergency response records and subsequent site investigation data to determine the causes and timing of the release, as well as the subsequent migration of the fuel oil and the ultimate extent of impact.
- Provided technical support and project management for a litigation-related project involving a site in New York City with groundwater impacted by PCE. Project included reviewing and evaluating data developed by opposing side's consultant, performing a limited field investigation including well installation and groundwater sampling, and producing a report demonstrating the likelihood of an off-site source of the PCE in groundwater beneath the site. Entered into "investigation-only" voluntary cleanup program agreement with NYSDEC, through which a No Further Action certification was achieved, resulting in favorable settlement of litigation. NYSDEC later identified and confirmed nearby off-site source of PCE.
- Provided technical support for multi-party litigation-related project involving Los Angeles-area aluminum manufacturing plant that was acquired and divested by client and redeveloped by third party, which sought cost recovery from client under

CERCLA for claimed remediation costs. Responsibilities included reviewing and critiquing feasibility study and remedial action plan submittals by third party, assisting client counsel in evaluating third party's compliance with NCP and viability of a NCP non-compliance case, identifying, and developing cost estimates for alternative remedial approaches, and preparing client counsel for depositions.

- Provided technical support for a litigation-related project involving a pesticide manufacturing facility in India. Project included reviewing available information to determine the nature and extent of residual site contamination remaining after forced closure of the facility by the Indian government and the most appropriate approach and likely cost for remediation of residual site contamination.

Other Project Experience

- Principal-in-Charge for a remedial program for a site in northern Ohio with groundwater impacted by chlorinated VOCs. Project involved review of existing site data, additional soil and groundwater sampling, a focused feasibility evaluation of the applicability of phytotechnologies at the site, and the design and implementation of a remedial program involving re-routing of a drainage ditch and the planting and maintenance of a half-acre phytoremediation plot including roughly 400 trees.
- Principal-in-Charge for groundwater monitoring program being performed for a local municipality to monitor known chlorinated volatile organic compound (CVOCs) and 1,2-dioxane impacts to water supply aquifer. Selected monitoring wells in the vicinity of public water supply wells are sampled quarterly for CVOCs and 1,4-dioxane, with the results used to regulate pumping rates at the water-supply wells to maintain compliance with drinking water regulations.
- Principal-in-Charge for more than 20 retail service station investigation and remediation projects in New England for international petroleum distributor/retailer. Projects included assessment and remediation at active and former retail service stations under various state programs (primarily the MCP and CT RSRs), construction oversight for UST closures and service station renovations, and due diligence assessments for property acquisitions and divestitures.
- Principal-in-Charge or project manager for dozens of ASTM/AAI Phase I Environmental Site Assessments. Clients have included major corporations, law firms, and lending institutions, and sites evaluated have included manufacturing facilities, commercial establishments, gas stations, and vacant properties.
- Project Manager for development of a remedial investigation work plan at an industrial site in a karstified area of Tennessee. Site contained VOCs and SVOCs, metals, and pesticides in soil, groundwater, surface water, and sediment. As part of work plan development, reviewed existing hydrogeologic data and conducted preliminary karst evaluation. Also coordinated implementation of cap-repair IRM.
- Project Manager for a remedial investigation at a manufacturing facility in Pennsylvania that contained chlorinated VOCs in soil and groundwater. Project involved source-area identification; delineation of impacted media through soil gas, soil, and groundwater sampling; and evaluation of contaminant fate and transport, including slug testing and analysis.
- Project Manager for a pre-design investigation conducted in support of a constructed wetland remedy at a manufacturing plant in tidewater Virginia. Project involved evaluating existing data, scoping, and implementing a limited investigation designed to improve the understanding of site hydrogeology, and calculating flux of metals of concern to groundwater discharge areas.
- Project Manager during decommissioning of a manufacturing facility in Rhode Island. Project included due diligence site assessment, UST closure, decontamination of indoor areas containing metals-laden dust, and abandonment of former production well.
- Project Manager for Phase 2 remedial investigations at five manufacturing facilities in Pennsylvania and North Carolina. Sites contained VOCs and PCBs in soil, groundwater, and sediment. Projects involved completing delineation of the extent of impacted media to support an FS and risk assessment at each site.
- Project Manager for a hydrogeologic investigation at a landfill site in West Virginia, in connection with landfill expansion permitting. Responsibilities also included assistance in preparation of state Part I and Part II permit applications.

Data Quality/Other Technical Support

- Featured speaker for LSPA Continuing Education presentation on MassDEP audits (Downgradient Property Status, Historic Fill) and moderator for other LSPA presentations.
- Co-author of white paper for the Navajo Nation that included overviews of the history of uranium mining in the Navajo Nation, risks associated with abandoned uranium mines (AUMs), assessment techniques, cultural perspectives toward AUMs, and the scope, success, and cost of remediation conducted to date. Provided mini-feasibility study of remedial options for AUM waste piles and developed decision matrices for Navajo Uranium Commission consideration in selecting remedial options for Navajo AUMs.

- Performed MCP Representativeness Evaluation and Data Usability Assessment, reviewed Method 3 Risk Characterization, and prepared Response Action Outcome Reports to support the LSP-of-Record for those sites. Evaluated sampling strategies and techniques to determine representativeness and adequacy of site data set and reviewed both pre- and post-CAM data packages to determine accuracy and precision of site data. Also reviewed data and prepared text to demonstrate source control and infeasibility of achieving or approaching background.
- Provided in-house training of field staff on geologic logging, including use of Unified Soil Classification System and Burmister System.
- Provided in-house training on various aspects of technical writing.

PROFESSIONAL AFFILIATIONS

National Ground Water Association

Licensed Site Professional Association – Chairman of Loss Prevention Committee