

NOVA CLITE, PG

SENIOR HYDROGEOLOGIST - PROFESSIONAL EXPERIENCE 1991 - 2019

■ EDUCATION

MS, Geosciences and Hydrogeologist,
University of Wisconsin-Milwaukee,
Milwaukee, WI, 1992

BS, Geosciences, University of Wisconsin-
Milwaukee, Milwaukee, WI, 1988

■ REGISTRATIONS/CERTIFICATIONS

Professional Geologist:
WI (#108), 1995 -2020 (retired)
SC (#2359), 2003 – 2019 (retired)
CA (#8482), 2008 - current

■ SPECIALIZED TRAINING

40-Hour HAZWOPER

8-Hour HAZWOPER Refresher

8-Hour HAZWOPER Supervisor

10-Hour OSHA Construction Safety

First Aid and CPR

OSHA Hazards Communications

California Title 22 66265.16 Hazardous
Waste Generator

US EPA Training in Triad Approach to
Site Characterization and Cleanups,
Conceptual Site Models

■ PROFESSIONAL AFFILIATIONS

National Ground Water Association

Groundwater Resources Association of
California

Wisconsin Ground Water Association
(1990 – 2004, President 2003)

■ PRESENTATIONS

Battelle Chlorinated Conference, April
2018, Palm Springs, CA.

*San Fernando Valley Superfund Site
– Case Study of A Regional Plume in
Los Angeles County, CA
(presentation)*

*Adaptive Response to Vapor
Intrusion during Thermal
Remediation (presentation)*

SERDP-ESTCP, Washington DC;
December 2017. Automated
Continuous VOC Monitoring and
Adaptive Response during Thermal
Remediation (Poster).

Ms. Clite has 27 years of experience providing technical expertise in all phases of environmental service for commercial and government clients. She manages large, complex projects, with responsibility for quality control, field programs execution, data analysis and modeling, cost and schedule performance, and interface with federal, state, and local regulatory agencies, responsible parties, and community stakeholders.

Nova has expertise in CERCLA from initial site assessment through ROD, plus O&M and optimization of in-place remedies. She has performed time critical and non-time critical removal actions; remedial investigations, feasibility studies; and remedial design and implementation. Nova has worked with a wide range of government clients including the US EPA, USACE, Navy, Air Force, Army Reserve, USDA-Forest Service, and municipalities. She has used a broad array of investigative tools including MIP, XRF, field test kits, CPT, and mobile laboratories to cost effectively drive investigations and cleanups. She has implemented projects using the EPA's Triad Approach for both site characterization and remediation projects at DOD and EPA fund-led sites and designed and implemented the first multiple-increment sampling of a small arms range in California (DoD site).

Nova has strong oral and written communication skills, and her broad professional experience includes regulatory analysis, systematic planning, and community involvement support.



September 1998 – June 2019 (retired)

Oversight and Technical Support Services, San Fernando Valley Superfund Site, US EPA Region 9, Contract EP-S9-13-01, Los Angeles County, CA – Project Manager/Senior Hydrogeologist. Serves as technical coordinator and Senior Hydrogeologist for seven task orders (\$12M) supporting EPA's oversight, remedial investigation/feasibility study (RI/FS) and enforcement activities at the San Fernando Valley (SFV) Superfund Site, one of the largest and most complex Superfund sites in the nation. The San Fernando Valley basin serves as a drinking water aquifer for the cities of Los Angeles, Burbank, and Glendale. Historical industrial activities and poor waste management practices resulted in large commingled organic and inorganic contaminant plumes impacting most of the eastern half of the SFV. Several remedies in place were installed in early 1990s and are in process of re-evaluation, focused feasibility study, and upgrades. Provides technical leadership for remedial investigations for EPA in two operable units, including soil vapor intrusion (indoor air) investigations, groundwater plume delineation, and ongoing monitoring.

Project Manager for the North Hollywood Operable Unit (OU) task order, supporting EPA in SFV stakeholder negotiations, preparing draft CERCLA documents, issue research and analysis, hydrogeological and engineering reviews of potentially responsible parties (PRPs) pre-design and design documents, and review of groundwater flow models including verification

Remediation of Chlorinated Recalcitrant Compounds (Battelle), May 2008, Monterey, CA:

The Elephant in the Room – Industry-wide Blind-Spot to Non-Representative Environmental Samples

Deep Application of Electrical Resistance Heating at the EPA's Pemaco Superfund Site, Maywood, CA

Groundwater Resources Association of California, Site Closure Strategies Symposium, February 2008:

Pemaco Superfund Site: A Case Example of Expediting a Complex Project through the Superfund Process

Getting a Failed Remedial Action Site Back on Track: Case Example of Triad Approach, Oxnard, CA

Boston Society of American Military Engineers Conference, June 2006: *Triad Approach to Closure of a Radar Tower Site, Seymour Johnson AFB, North Carolina*

PUBLICATION:

Automated Continuous Monitoring and Response to Toxic Subsurface Vapors Entering Overlying Buildings – Selected Observations, Implications and Considerations. Journal of Remediation, June 2019

of PRP models. Additional work under this contract includes development and management of EPA's SFV database, which is available to all stakeholders; coordination of a basinwide Groundwater Modeling Technical Committee, and development of basinwide groundwater monitoring guidance and plans.

Remedial Investigation, Remedial Action Design and Implementation, System O&M, and Optimization; Marine Corps Logistics Base Barstow, CA – Project Manager/Senior Hydrogeologist.

Ms. Clite served as project manager and Sr. Hydrogeologist from 2005 – 2019 for over \$10M in contract task orders providing remedial design, system installation, operation, and maintenance (O&M), long-term monitoring (LTM), and optimization of multiple groundwater and soil remedial actions in progress at the MCLB Barstow. The MCLB Barstow is a National Priorities List site under a Federal Facilities Agreement (FFA) among the State of California and U.S. Department of the Navy. Environmental cleanup proceeds under five Records of Decision (RODs). Accomplishments of project team under Ms. Clite's technical and managerial leadership are summarized below:

- Managed O&M of four active groundwater and soil vapor treatments systems; responsible for maintaining hydraulic capture of VOC plumes and meeting permit requirements for VOCs at two on Base potable water wells and maintenance of treatment on two off-site private residential drinking water wells. Developed unique integrated maintenance plan with Navy RPM to manage on-going repairs and upgrades of aging remedial equipment.
- Assisted Navy with long-term strategic planning and remedy optimization to reduce costs. Supported Navy with FFA regulatory relations including bi-monthly meetings (preparing meeting agendas, minutes, and presentations) and FFA document submittals and schedule management.
- Repaired, upgraded, and significantly improved operational uptimes of 15-year-old pump and treat and AS/SVE systems. In 2011-2012, designed and installed two strategically located 250-ft deep extraction wells to achieve plume capture for the first time since 1996 (system designed/installed by others). Added remote telemetry to groundwater/soil vapor treatment system to facilitate operational efficiency. Optimized numerous functional aspects of remedial systems to achieve significant energy cost savings while improving remedy performance (e.g., VOC plume reduction of 75% in 3 years at Nebo South).
- Completed the Third Five-Year Review (2012) of six operable units (OUs), including first time evaluation of soil vapor intrusion using State of CA and updated EPA toxicity and exposure assumptions. Completed the Fourth Five-Year Review (2017) of seven OUs, including first time evaluation of Monitored Natural Attenuation remedies for three groundwater sites.
- Completed comprehensive study of perchlorate contamination in response to contamination of Base water supply by an off-site source (November 2010); wrote contingency plan including engineering-estimate costs for future response actions; developed conceptual site model for shallow groundwater flow from off-site source on to MCLB Barstow with evaluation of potential risks for future impact to drinking water.

- Developed and implemented a dynamic workplan approach for remedial system pre-design investigation to address data gaps at a groundwater VOC plume source area through use of real-time data measurements of soil gas and groundwater concentrations.
- Design, installation, and O&M of a 1,000 SCFM AS/SVE system that completed source area treatment for a chlorinated solvent plume within 3 years; secured regulatory approval of system shutdown once remedial objectives were met. Implementing monitored natural attenuation for remaining plume.
- Designed and implemented characterization of a 950-foot-long fuel release plume from former heating plant ASTs, extending off-site; completed low-threat tank site closure request to Regional Water Board (granted late 2019).
- Designed and implemented supplemental RI of 4 CERCLA areas of concern (CAOCs), including characterization of former small arms shooting range using multi-incremental sampling approach (first time in CA). Completed Baseline Ecological Risk Assessments at 15 sites including tissue collection/analysis to directly evaluate food-chain uptake. Completed Human Health Risk Assessments for 4 sites.
- Wrote Proposed Plan and ROD for OU 7 comprising 18 sites; managed community involvement, regulatory document submittals; organized and facilitated related meetings with Navy, FFA stakeholders, and Base. Prepared ROD following Navy's "iROD" and EPA guidance. Coordinated finalization of ROD, with EPA and two State agencies. ROD was signed December 2014.
- Wrote Remedial Design/Remedial Action plans for Monitored Natural Attenuation remedies at three sites and Land Use Control remedies at 17 sites.
- Received "Outstanding" review. "Primary contractor manager has excellent experience at Barstow and utilizes this very effectively with timely recommendations and reminders of site history. Entire contractor team is well managed and appropriate technical expertise routinely brought forward as required. Communication style and overall competency regularly demonstrated by primary contractor." — Ralph Pearce, RPM for MCLB Barstow (2014).

Site Characterization, Remediation, and Monitoring, Various Sites, Naval Base Ventura County, NAVFAC SW, Point Mugu and Port Hueneme, CA – Project Manager/Senior Hydrogeologist. Managed over \$3.5M in task orders providing investigations, cleanup and operations and maintenance services at multiple IRP and tank sites.

- Managed science and engineering technical team to achieve all project objectives for site characterization, remedial system operation and optimization, in-situ bioremediation, and long-term monitoring at 10 different Installation Restoration Program (IRP) and tank sites. Facilitated client/regulatory communication through timely reports, calls, and meetings. Managed task orders within budget and schedule while ensuring conformance with Navy's remedial action objectives.
- Technical lead for characterization of fuel and chlorinated solvent contaminated sites. Used Membrane-Interface Probe (MIP) with real-time data reporting/visualization, and follow-up direct-push

technology (DPT) sampling, to expedite site characterization at former Hobby Shop.

- Performed tidal marsh restoration at two sites at Point Mugu, including characterization and removal of 24,000 tons of sediments and debris to precise grading requirements of Navy ecologist; implemented follow-on biological monitoring for restored areas.
- Developed streamlined site characterization approach for fuel and VOC-contaminated soil and groundwater at former UST site; delineated contamination extent, produced volume estimates of clean overburden and impacted soil.
- Sampled groundwater for VOCs, dissolved gases, inorganic ions, and volatile fatty acids during Enhanced In Situ Bioremediation (EISB) pilot studies at IRP Sites 6 and 24. Performed natural attenuation monitoring at several USTs sites at NBVC and demonstrated MNA achieved groundwater cleanup goals at one UST site, obtaining site closure.
- Developed and implemented a month-long tidal influence study at closed landfill site adjacent to marine harbor to establish groundwater gradients and flow patterns. Developed recommendations for improved groundwater monitoring program including re-designation of monitoring wells for down-gradient data and timing of sampling to coincide with low-tide events.

Engineering Evaluation/Cost Analysis, Former Uranium Mining Site, US EPA Region 9, Church Rock, NM – Project Manager. Managed EE/CA for non-time critical removal action (NTCRA) to address residual tailings at a legacy uranium mine site located on Navajo Nation tribal trust land in New Mexico. Led science/engineering team to develop and evaluate 5 removal action alternatives. Worked closely with US EPA team (RPM, engineer, risk assessor, and legal) to produce EE/CA report for stakeholder review; participated in meetings with tribal representatives, State of New Mexico, and Department of Energy, former mining company and their technical consultant. The draft EE/CA report went through several iterations in response to early feedback from the Navajo Nation on acceptable alternatives, as well as input from the PRP and other stakeholders.

Removal action alternatives evaluated included on-site consolidation and capping, on-site repository construction, off-site transport and disposal, and off-site repository construction (on adjacent related CERCLA site) as well as a hybrid of on-site/off-site approaches. The engineering evaluation considered the three non-time critical removal action criteria (effectiveness, implementability, and cost) and detailed costs analyses were prepared for each alternative. Draft preliminary applicable or relevant and appropriate regulations (ARARs) were also prepared with consideration of Uranium Mill Tailing Radiation Control Act (UMTRCA) and International Atomic Energy Agency (IAEA) policies and guidance relevant for the different alternatives.

UST Site Cleanup and Closure, Oxnard Airport Hangar III, County of Ventura, Public Works Agency, Oxnard, CA – Project Manager. Managed a corrective action at two former UST sites at a Ventura County municipal airport.

- Completed a thorough engineering evaluation of the existing soil vapor and groundwater extraction system designed by others.
- Identified and addressed significant data gaps through cost-effective Membrane-Interface Probe (MIP) investigation (including real-time data reporting and communication with client and regulator during the investigation). Performed follow-up drilling to collect verification samples and install wells.
- Updated Conceptual Site Model (CSM) that identified the limits of the affected area, verified groundwater flow gradients and directions, and that served as framework for client/stakeholder decision-making.
- Facilitated systematic planning with all stakeholders: Public Works Agency, Department of Airports, regulator, and technical team. Performed feasibility study of various cleanup alternatives, including short-term and long-term costs, likelihood of obtaining site closure decision, and potential impacts to airport operations. Wrote work plans and secured permits for selected cleanup action (dewatering with limited source removal and follow-up monitoring).
- Secured regulatory approval for interim free-phase product recovery and reduced (optimized) groundwater monitoring program during planning phase.
- Performed source removal oversight, confirmation sampling, and documentation; facilitated stakeholder communication during dig & haul phase to ensure project stayed within budget.
- Achieved regulatory site closure within 1 year of source removal; abandoned all wells as final project activity.

Remedial Action Implementation, Pemaco Superfund Site, US EPA Region 9/USACE Omaha District, Los Angeles, CA – Team Member. Supported multi-disciplinary, ongoing remedial effort and groundwater monitoring for VOC contaminated groundwater and soil at the Pemaco Superfund Site. Remedial action including electrical resistive heating of 60+ foot thickness of low permeability aquifer matrix and high-vacuum dual-phase extraction with flameless thermal oxidation treatment of off-gas and GAC treatment of water. Wrote plan documents for installation of remedy infrastructure (extraction wells and piping) including health and safety plan, environmental protection plan, air quality monitoring, sampling, and analysis plan. Developed data quality objectives for sampling and analysis during implementation of the remedial action consistent with Record of Decision. Responsible for development and implementation of interactive project team website with real-time GIS/database reporting of all site management, systems process, and monitoring data. Continued role as reviewer and technical consultant for this EPA fund-lead project.

Site Characterization, EE/CA, and Removal Action Design, Ore Hill Mine Site, USDA-Forest Service, NH – Project Manager. Managed a site assessment through removal action design for acid mine drainage (AMD) generated by tailings at the historical Ore Hill Mine. Tailings and waste rock covered approximately 5 acres, and AMD released from the site had impacted up to 2 miles of stream. Conducted a site inspection and ecological assessment that showed on-site and off-site impacts due to low pH and high dissolved metals. Completed characterizing site hydrology, hydrogeology, geochemistry, and physical characteristics. Wrote site

assessment reports and an engineering evaluation/cost analysis (EE/CA) for non-time critical removal action. Designed bench scale study of AMD tailing stabilization techniques. Responsible for human health risk assessment, identification of contaminants of concern, and recommendations for risk management guidelines for protection of the public. The EE/CA was completed and accepted by local community. Oversaw design for selected remedy of on-site repository for stabilized mine wastes.

Triad Approach Site Cleanup, USACE Omaha District/Air Combat Command, Seymour Johnson Air Force Base, NC – Senior Hydrogeologist.

Assisted with development and implementation of long-term groundwater monitoring and groundwater remediation activities. Responsible for writing or review of technical plans and reports; reviewed data and site progress towards remedial goals and developed optimization measures.

Supervised development of 3-D groundwater flow model of the entire base that was used to evaluate groundwater flow and contaminant migration characteristics and optimize remedial systems at several locations on the base. A transient-flow model of the Bulk Fuel Storage Area groundwater/product recovery system was developed, and predictive modeling performed to select optimized recovery well network for free-product recovery and dissolved-phase plume hydraulic control.

Performed expedited site characterization and cleanup of Site OT-29, a former radar station at SJAFB. Soil and groundwater were impacted with dissolved phase fuel and solvent contamination; several wells had NAPL layers. A pump & treat system (installed by others) was not meeting remedial objectives. The Air Force determined land reuse for the site and required a two-year cleanup.

Served as technical lead in project planning and implementation process using EPA's "Triad Approach" to expedite cleanup. Participated in systematic planning effort with regulators, Base personnel, DoD customer, and technical team to: 1) define cleanup objectives and end points, 2) identify and prioritize data gaps, and 3) evaluate appropriate site characterization and remedial technologies. Oversaw rapid site characterization using direct-push technology (DPT) with membrane-interface probe (MIP) to produce real-time data during delineation of zones for the selected remediation techniques. ROD signed and remedial actions initiated within 13 months after first systematic planning meeting. Soil removal, aggressive fluid and vapor recovery (AFVR), and in situ chemical oxidation methods were completed at the site on schedule. Delineation savings totaled an estimated at \$60,000 and 6 months; clean-up savings totaled an estimated \$1.8M and 12 years over the existing P&T System. The result was unencumbered mission critical real estate available for timely MILCON reuse.

Time-Critical Removal Action, Former Atlas Missile Sites S-6/S-7, USACE Kansas City District, Northeastern KS – Project/Field Manager.

Managed the removal of contaminated sludge and sediments from below-ground structures including sumps, sediment traps, and flame tunnel pits at two former Atlas E Missile sites. Developed scope of work and wrote work plans including health and safety plan. Removed solid and liquid wastes and cleaned deep subsurface vaults following confine space entry

protocols. Obtained confirmation samples from concrete surfaces for laboratory analysis. Identified hazardous waste disposal requirements and secured necessary permits. Characterized, managed, and disposed of hazardous and non-hazardous wastes. Wrote report documenting methods and results. Work completed August 2004.

Remedial Investigation, Former Atlas Missile Site S-7, USACE Kansas City District, Wamego, KS – Project Manager/Field Manager/Lead Scientist.

Managed Phase II remedial investigation of subsurface soil and groundwater contamination at former Atlas E Missile site in northeastern Kansas. Work performed included subsurface soil and groundwater characterization using direct-push techniques and on-site mobile laboratory for VOCs. The Atlas E Missile Site was active during the early 1960s and has been used for non-military purposes since. TCE-contaminated groundwater originating at the site has impacted over 30 households in the adjoining residential area. The Phase II remedial investigation goal was to delineate on-site source areas and contaminant distributions to 115 feet below ground surface. On-site laboratory data was used to drive the investigation following dynamic work strategies. Performed quality control reviews of geologic logs and well installations. Used geologic logs from 37 borings and chemical data from over 200 samples to develop a detailed conceptual site model suitable for development of remedial alternatives. Work completed during May – July 2004.

Fuel Recovery and Groundwater Remediation, Shaw AFB, USACE Omaha District, SC – Project Manager/Senior Hydrogeologist.

Managed long-term operations/ long-term monitoring (LTO/LTM) of remediation of jet fuel product (JP4) release and related dissolved-phase contamination at Operable Unit 1 (OU 1). Oversaw management of LNAPL and groundwater recovery and treatment system that annually recovered and treated over 12,000 gallons of LNAPL and nearly 11 million gallons of contaminated groundwater. Treated water was re-injected on-site under state permit. Optimized remedial system performance and reduced downtime through physical plant upgrades and extensive extraction/injection well rehabilitation. Designed and executed a subsurface investigation using direct-push techniques (DPT) to redefine horizontal and vertical extent of LNAPL migrating in response to drought-related decline in groundwater levels. Performed groundwater modeling using MODFLOW to assess groundwater capture; assessed product recovery potential using LNAST software. Designed and installed new deeper two extraction wells and expanded product recovery system to arrest plume migration and increase mass removal. Performed monthly mobile-unit vacuum extraction to recover isolated free-product residual at plume margins. Assisted Base with effort to permanently shut-down the injection well system and discharge treated effluent to the Base wastewater treatment plant as optimization measure. Wrote and maintained all required plans for health & safety, O&M, quality assurance/quality control, and sampling and analysis. Participated in partnering meetings with USACE, Air Force, and South Carolina regulators. Based on successful performance at OU 1, the USACE added three additional LTO/LTM sites at Shaw AFB to our contract.

CERCLA Expanded Site Assessment Tremont City Landfill, Site Investigation and Community Relations, US EPA Region 5, Springfield, OH – Senior Hydrogeologist/Task Manager.

Managed a complex site investigation. Also managed Public Involvement task. The 80-acre site is comprised of a closed sanitary landfill, waste storage and transfer facility, and 47,000-drum barrel fill. Worked with US EPA, USGS, and Ohio EPA to conduct cost-effective investigations within the CERCLA framework. Developed scope of work, sampling plans, standard operating procedures, and wrote reports for this project. Implemented field sampling events under US EPA protocols using Contract Laboratory Program laboratories. Performed detailed geologic interpretations using geophysical, geological, and hydrogeological data to interpret glacial strata below barrel fill and assess contaminant migration potential. Managed streamlined risk assessment addressing both human health and ecological risks associated with landfill gas hazards, contaminated groundwater, and leachate discharge to surface water. Gave technical presentations to US EPA and State of Ohio regulators. Supported the US EPA community involvement activities related to this site. Assisted with community interviews, developed project Community Involvement Plan, prepared presentations for public meetings, and wrote fact sheets and announcements. Maintained and updated the US EPA's mailing list and two information repositories in Ohio related to the site.

Brownfields Technical Support, US EPA Region 5, Chicago, IL – Technical Support.

Provided technical support to US EPA Region 5 Brownfields Program for community outreach monitoring, compiling activity reports, facilitating regional funding panel reviews, developing/conducting Brownfield training programs, updating mailing lists, providing job training assistance and conducting targeted Brownfields assessments.

Superfund Technical Assessment Team (STAT), US EPA Region 4 – Team Member.

Performed US EPA hazardous waste assessments using the US EPA Hazardous Ranking System (HRS) for various sites in Region 4 states. Developed and implemented work plans, sampling plans, and safety plans to conduct HRS field sampling events under US EPA protocols using Contract Laboratory Program laboratories and Forms II Lite software.

Site Characterization and EE/CA, AFCEE, Site 49, Pease AFB, NH – Project Manager/Lead Scientist.

Managed hydrogeologic investigation and EE/CA for non-time critical removal action at Site 49 under AFCEE contract. A chlorinated solvent groundwater plume was discovered during redevelopment of the site. Designed and implemented a subsurface investigation included identification of source areas, delineation of the groundwater plume extent, assessment of aquifer characteristics, and soil gas monitoring to assess potential vapor exposure issues. Oversaw drilling and performed geologic logging. Collected groundwater samples. Video-logged large diameter boreholes in bedrock to assess presence of fractures that could influence contaminant migration. Data evaluations included development of a conceptual site model, an assessment of the natural attenuation potential of dissolved phase contaminants, and an evaluation of human health risks. Developed and wrote EE/CA with environmental engineering staff. Upon US EPA approval of the EE/CA, wrote draft Action Memorandum, which was accepted and signed by EPA. Supported Air Force community involvement activities included establishment of an

administrative record and regulatory agency interactions. Project completed on budget and schedule, with Action Memorandum signed within 15 months of project initiation.

PA/SI of Multiple Watersheds Affected by Coal Mining Activities, USDA-Forest Service, IL and OH – Senior Hydrogeologist. Conducted preliminary assessment/site inspections of former mining sites in Shawnee and Wayne National Forests, including identification of potential chemicals of concern, pathways for releases from the sites, and imminent hazard analyses. Nine watershed areas ranging in size from 120 to 1,800 acres were evaluated for sources of acid mine drainage and chemical loading rates to surface water at the watershed boundaries. All sampling points were surveyed using GPS; resulting data were managed, analyzed, and displayed using GIS. The preliminary assessment/site investigation also included a preliminary survey of ecology of the sites, including site reconnaissance to document threatened and endangered and forest regional sensitive species. Resulting reports will help facilitate Forest Service decision-making with regards to selection of targeted remedial efforts in each watershed.

Potentially Responsible Parties (PRP) Search, USDA-Forest Service, White Mountain National Forest, NH; Wayne National Forest, OH; and Monongahela National Forest, WV – Project Manager. Managed over 20 PRP search projects addressing historical mining sites in Ohio, New Hampshire, and West Virginia. Identified past owners/operators and parties responsible for the generation, transportation, or disposal of hazardous substances at the sites, including dates and nature of operations conducted at the sites. Conducted title searches and obtained title documents from the Registry of Deeds, analyzed title documents, and developed detailed ownership histories, title trees, and operational histories for each site. Identified PRPs according to the CERCLA owner/operator liability standards and the generator and transporter liability standards. Generated reports in accordance with US Environmental Protection Agency and Forest Service PRP search standards.

Environmental Assessments, USDA-Forest Service, Former Joliet Army Ammunition Plant, IL – Project Manager. Managed various environmental projects to support the Forest Service in the conversion of the former Joliet Army Ammunition Plant to the Midewin National Tallgrass Prairie. Project manager and lead scientist for several projects, including property transfer, environmental site assessments, and investigation of contaminated soils and sediments associated with past site activities. Developed statistically based sampling programs for fence lines, former railroad beds, streams, wetland, and lakes across the 15,000-acre facility. Evaluated data with respect to proposed future recreational land use and potential ecological and human health impacts due to identified contaminants. Assessed potential beneficial reuse of railroad ballast material. Performed two time-critical removal actions to remove arsenic-contaminated soil for construction of the Forest Service administrative center at Midewin NTP.

Investigation/Cleanup at Former Nike Missile Launch Site, USACE Omaha District, Waukesha, WI – Project Manager. Managed a limited soil cleanup for removal of approximately 150 tons of soil contaminated with semi-volatile organics, metals, and PCBs from two areas of the site. Developed Work Plan, Sampling and Analysis Plan, and Quality Assurance Project Plan. Interacted with regulatory agency. Performed additional subsurface

investigations using direct-push technologies to delineate extent of PCB impacts to soil. Performed quality control reviews of geologic logs, sampling logs, and well installations. Developed and implemented removal action to cap PCB impacted soils with clean soil to reduce the direct-contact human health risks. No further action was recommended for soil based on depth to water table, low migration potential for the detected PCBs, and land use zoned as non-residential. Implemented a groundwater quality investigation included installation and quarterly sampling of monitoring wells. No groundwater contamination above Wisconsin Preventative Action Limits was identified. Developed long-term soil cap maintenance plan. Obtained site closure with land-use restrictions from the Wisconsin Department of Natural Resources. Provided technical assistance to USACE and General Services Administration for preparation of sale of the property.

BRAC Community Involvement Support, Former Air Force Bases in New York and South Carolina – Project Manager. Managed AFCEE community relations and administrative record support at the former Plattsburgh Air Force Base (AFB) in New York and former Myrtle Beach AFB in South Carolina. Both were BRAC bases in the final stages of conversion to non-military use. Managed part-time staff who were posted at each base to provide support for BRAC Cleanup Team (BCT) and Restoration Advisory Board (RAB) meetings, public meetings, and all related documentation. At Myrtle Beach, organized community meetings and provided community involvement support as the Bases approached final closure.

Remedial Investigation, USACE Kansas City District, Former Herrington Army Airfield, KS – Project Hydrogeologist. Performed remedial investigation of petroleum hydrocarbon plume in fractured bedrock aquifer at former Herrington Army Airfield. Developed work plan, field sampling plan, and standard operating procedures for rotosonic drilling, well installation, low-flow sampling of groundwater, and soil gas surveying. Oversaw field investigation to define groundwater plume boundaries and source areas.

Groundwater Investigation, Five-Year Review, AFCEE, FE Warren AFB, WY – Project Manager/Hydrogeologist. Managed groundwater investigation and monitoring at three sites. Recommended closure of two sites and additional investigation at the third due to solvent contamination. Prepared CERCLA-compliant Type IA Five-Year Review report for 10 operable units at the base to ensure that remedial actions selected in the Records of Decision for each site remained protective of public health and the environment and were functioning as designed. Five-Year Review report passed US Air Force legal department with no comments.

Site Investigation Strategy Development, Solvent Site, USACE Omaha District, Kings Mills Army Reserve Center, OH – Project Manager. Performed review of historical document, identified data gaps in investigation, and developed strategy for additional investigations needed to complete a feasibility study for solvent impacted area. Developed dynamic work plan incorporating Triad Approach principals for submittal by US Army Reserve to US EPA and the State of Ohio.

May 1991 - July 1998, Hydrogeologist, DAMES & MOORE, LLC (bought by URS, Inc. in 1999)

Example Jobs:

Hydrogeologist & Project Manager for Hazardous Waste cleanup of 25-acre former industrial site, Cudahy, WI.

- Interacted with supervising regulatory agency, Wisconsin Dept of Natural Resources, site owner, owner's attorney, and on-site tenants.
- Developed all necessary plans for investigation, controls of hazardous materials and wastes, health and safety, and community relations.
- Investigated on-site tenant chemical drum cleaning operation, including extensive unpermitted waste disposal and hazardous material storage.
- Investigated, conducted removal action, monitoring, and eventual closure of a hazardous-waste impacted storm water lagoon that received liquid wastes from drum cleaning and other on-site operations.
- Investigated extent of hazardous waste overflows that impacted downstream wetland. Conducted ecological risk assessment, cleanup, and wetland restoration.
- Conducted groundwater investigation, contaminant migration study, and long-term groundwater quality monitoring.
- Removed multiple underground and above-ground storage tanks containing fuel residuals
- Prepared the 100K sq ft industrial building for demolition (cleaned floor, asbestos removal, hazardous waste disposal, PCB-containing light fixtures removed)
- Supported community involvement including public meetings, submittals to the State's administrative record, writing of press releases, etc.)
- Budget: Approximately \$3 mill over 4 yrs

Hydrogeologist & Project Manager for cleanup of trichloroethene (TCE) groundwater plume at active manufacturing facility, Detroit, Michigan

- TCE groundwater plume characterization, oversight of groundwater modeling, developed and implemented long-term groundwater monitoring program
- Conducted human-health risk assessment and characterized potential for off-site contact with contaminated groundwater
- Assessed remedial alternatives, including pump and treat, air-sparge, and plume interception at property boundary using natural pumping action of trees (phytoremediation)
- At customer direction, planted approximately 40 poplar trees to intercept TCE plume
- Coordination with plant managers, Owner, and regulatory agency (Michigan Department of Natural Resources)
- Budget: approximately \$2 million over 5 years

Hydrogeologist & Project Manager for investigation of fuel contamination of groundwater at Active Natural Gas Facility and Former Oil Extraction Site, Michigan

- Designed and conducted subsurface investigation of fuel component (BETX) contamination of deep sand aquifer in rural area. Characterized groundwater plume (lateral and vertical extent)
- Performed groundwater flow modeling to estimated flow velocities, contaminant migration patterns
- Installed monitoring wells and designed/implemented a long-term monitoring program
- Assessed remedial alternatives, designed, and installed air sparging system to treat BETX at 90 ft below surface grade.
- Coordinated with plant managers, site owner, and state regulators.
- Budget: Approximately \$2.5 million over 4 years.