APPENDIX J – RESUMES

GREGORY S. DALOISIO, PMP

Qualifications Summary

- More than 24 years of experience in hazardous, radioactive, and mixed waste management including SIs, RI/FSs, RAs, RDs, PPs, and RODs.
- Program Manager for $25-million indefinite delivery-type, firm fixed price, and cost reimbursement contract to perform HTRW studies, investigations, and designs for the USACE, Baltimore District.
- Project Manager for $22 million award-winning program at LEAD, recipient of the Army's 2002 National Award for Environmental Restoration.
- Deputy Program Manager for $30 million environmental services support contract to the Army, including project management responsibilities for projects exceeding $20 million for RI, remediation, and Base Realignment and Closure (BRAC) support at Letterkenny Army Depot.
- Management of cost plus fixed fee, cost plus award fee, and firm fixed-price contracts for federal clients, including the U.S. Army Corps of Engineers (USACE), U.S. Army Environmental Center (USAEC), Atlantic Division (LANTDIV) Naval Facilities Engineering Command, U.S. Department of Energy (DOE), and U.S. Nuclear Regulatory Commission (NRC).
- Development and implementation of pollution prevention programs as well as assessment of waste management programs relative to regulatory requirements and industry experience.

Registration

Project Management Professional, Project Management Institute (2009)

Fields of Competence

Project management of Superfund site remedial investigations (RIs), site investigations (SIs), RI/feasibility studies (RI/FSs), risk assessments (RAs), design, and construction; hazardous, radioactive, and mixed waste management; design and implementation of pollution prevention programs; underground storage tank (UST) site characterizations/assessments; regulatory compliance; and radioactive waste program evaluations and performance assessments.

Education

B.S., Mechanical Engineering—The Pennsylvania State University (1982)

Credentials

40-Hour Hazardous Waste Site Training Course, OSHA 29 CFR 1910.120(e)(3), (1991)
8-Hour Hazardous Waste Refresher Course, OSHA 29 CFR 1910.120(e)(8), (2006)
Bloodborne Pathogens Refresher Training, OSHA 29 CFR 1910.1030, (2006)
Munitions Response Site Prioritization Protocol Training Modules and Reference Material
American Society of Mechanical Engineers (ASME)
Lecturer: ASME Radioactive Waste Management Course; "Waste Sources and Characteristics" (1988); "Computer Applications in Radwaste Management" (1990)

Employment History

1990-Present	WESTON
1985-1990	Analytical Resources, Inc.
1982-1985	Gilbert Associates, Inc.

Key Projects

Hazardous, Toxic, and Radioactive Waste (HTRW) Contracts, Various Locations, U.S. Army Corps of Engineers (USACE), Baltimore District, Program Manager. Program Manager for $25-million and $15-million indefinite delivery-type, firm fixed price (FFP) and cost reimbursement contracts to perform HTRW studies, investigations, and designs for the USACE, Baltimore District.

Remediation of Groundwater, Soils, and Sediments, Letterkenny Army Depot (LEAD), Chambersburg, PA, USACE, Baltimore District, Project Manager. Since 1997, has been responsible for managing numerous cleanup actions at LEAD including:

- Full-scale in situ treatment (enhanced bioremediation using sodium lactate amendments) of Southeastern (SE) Area Operable Unit (OU) 10 groundwater for past 7 years, including post-injection monitoring.
- Vacuum dredging and disposal of sediments contaminated with volatile organic compounds (VOCs), metals, and petroleum hydrocarbons from approximately 4,000 ft of stormwater drainageways (Rowe Run and SE drainageways).
- Delineation, removal, and off-site disposal of approximately 6,500 cubic yards (yd^3) of VOC-contaminated soils (including listed hazardous waste) from three separate source areas associated with leaking industrial wastewater sewer (IWWS) lines.
- In situ treatment (chemical oxidation using hydrogen peroxide [H_2O_2]) of 2,200 yd^3 of F-listed vadose zone soils contaminated with VOCs at the Property Disposal Office (PDO) Area Oil Burn Pit (OBP).
- Closure of 15,000-gal. septic tank contaminated with polychlorinated biphenyls (PCBs) and metals, including absorption of excess fluids with corncob product and off-site disposal of septage.
- Characterized and shredded 43,000 yd^3 of wood pallets at the transfer burning revetments and transported wood off-site to a local farmer for composting in lieu of land disposal (per agreement negotiated with Pennsylvania Department of Environmental Protection [PADEP]).
- Conducted two focused soil removals at Pad 5 landfill for a localized 1,1,1-TCA source area as well as a localized trichloroethylene (TCE) source area.
- Closure of three sinkholes contributing to groundwater contamination.

RI/RAs of 60+ Base Realignment and Closure (BRAC) Parcels, LEAD, Chambersburg, PA, USACE, Baltimore District, Project Manager. Responsible for managing simultaneous investigations at up to 20 parcels to determine if the property is suitable for industrial reuse by the Local Redevelopment Authority (LRA). Accomplishments include successful development, negotiation (with U.S. Environmental Protection Agency [EPA] Region 3 and PADEP), and implementation of a screening-level risk assessment process to "clear" non-impacted parcels; demonstrated ability to adjust schedules and reprioritize RIs and reporting based on Army and LRA needs; extensive use of geophysics and field screening techniques to limit sampling requirements; preparation of baseline human health and ecological risk assessments for sites that

Key Projects (Continued)

do not pass the screening-level process; and closure of radiological buildings in accordance with both Nuclear Regulatory Commission (NRC) and BRAC requirements for unrestricted reuse.

Pilot Studies for Evaluating Innovative In Situ Groundwater and Surface-Water Remediation Techniques, LEAD, Chambersburg, PA, USACE, Baltimore District, Project Manager. Responsible for managing preparation of plans and specifications, field testing, and evaluation of the following innovative in situ remediation technologies relative to site-specific conditions at LEAD:

- In situ chemical oxidation (ISCO) (using hydrogen peroxide [H_2O_2]) of dense nonaqueous phase liquid (DNAPL) in the shale bedrock aquifer.
- In situ chemical oxidation (using H_2O_2) of DNAPL in the limestone (karst) bedrock aquifer.
- Treatment of VOCs in surface water via a patented microporous ozone sparging technology.
- Removal of PCB-contaminated suspended sediment from surface waters via sedimentation and filtration with coagulant/polymer additives.

FFS, Proposed Plan, and ROD for Two Groundwater OUs with DNAPL Sources in Karst, LEAD, Chambersburg, PA, USACE, Baltimore District, Project Manager. Responsible for managing preparation of Focused Feasibility Study (FFS), Proposed Plan (PP), and Record of Decision (ROD) for two groundwater OUs at LEAD. Evaluation of alternatives included innovative solutions to source removal of DNAPL in a limestone (karst) bedrock aquifer, including several in situ chemical oxidation (ISCO) approaches to destroy DNAPLs mixed with petroleum, oil, and lubricants (POLs).

Emergency Removal of Soils and Sediments, LEAD, Chambersburg, PA, USACE, Baltimore District, Project Manager. Responsible for managing a 5- to 12-person crew to conduct emergency removal (vacuum dredging) and disposal of sediments contaminated with VOCs, metals, and total petroleum hydrocarbons (TPH) from approximately 4,000 ft of stormwater drainageways; emergency delineation, removal, and disposal of approximately 6,500 cubic yards (yd^3) of VOC-contaminated (i.e., 1,1,1-trichloroethane [TCA], TCE, and by-products) soils from three separate source areas; and closure of two sinkholes contributing to groundwater contamination at this Superfund site. Effort for this $4.2-million remediation effort included preparation of project plans; design and installation of sheeting and shoring systems; construction of waste staging, dewatering, and handling area; emergency removal of soils and sediments; waste characterization (including Form U testing parameters); and transport and disposal of both residual and hazardous wastestreams.

BRAC Program, LEAD, Chambersburg, PA, USACE, Baltimore District, Project Manager. Responsible for managing detailed background investigation, assessment of site conditions, and review of ongoing operations at LEAD and preparation of Environmental Baseline Survey (EBS), BRAC Cleanup Plan (BCP), Community Environmental Response Facilitation Act (CERFA) Report, and Finding of Suitability to Lease (FOSL), and Finding of

Key Projects (Continued)

Suitability to Transfer (FOST) to facilitate property transfer of the LEAD BRAC 95 parcel. The program was conducted in accordance with the U.S. Department of Defense's (DOD) Fast Track Cleanup Program for Closing Installations.

RI/FS for PCBs in the Rocky Spring System, LEAD, Chambersburg, PA, USACE, Baltimore District, Project Manager. Responsible for managing RI/FS to investigate the extent of PCB contamination at several potential source areas, determine specific migration pathways and mechanisms of transport of PCBs to the Rocky Spring system, and assess the potential human health and ecological risks associated with the PCB contamination. Effort includes coordination of a comprehensive field program over a 2.5-year period involving the installation of monitor wells, soil borings, test pits, and sediment collection systems; flow studies; coordination with regulatory agencies and Restoration Advisory Board (RAB), as well as the collection and analysis of water, soil, sediment, fish, and milk samples for PCBs.

Site Characterization, Alternatives Evaluation and Design for Removal Action, Harvey Point Defense Testing Activity (HPDTA), Hertford, NC, Atlantic Division (LANTDIV), Project Manager. Responsible for managing delineation of PCB contamination at three active range areas (Ranges A, B, and D); preparation of an engineering evaluation/cost analysis (EE/CA) to evaluate remedial alternatives; and preparation of design plans, specifications, and cost estimate for removal actions. Delineation activities included both field screening and laboratory confirmation for PCBs and required extensive coordination with LANTDIV and HPDTA to prevent shutdown of active range areas. Plans and specifications were written for fast-track cleanup (excavation, sampling, backfill, and restoration activities had to be completed within a 3-week period) to accommodate range schedules.

Waste Minimization/Pollution Prevention (Wmin/P2) Support to the Office of Energy Research (ER-8), Germantown, MD, U.S. Department of Energy (DOE), Technical Consultant. Provided technical support to DOE Headquarters to develop and implement ER Program strategies to reduce waste generation (hazardous, radioactive, mixed, and sanitary wastes) and minimize emissions. Support included review of regulations, DOE and current DOE programs; evaluation of incorporating Wmin/P2 requirements into the National Environmental Policy Act (NEPA) process; and developing plans, guidance, and performance measures for incorporating Wmin/P2 into existing environmental, safety, and health (ES&H) programs.

SI at Naval Supply Center, Cheatham Annex, Williamsburg, VA, LANTDIV, Project Manager. Responsible for managing a comprehensive SI to determine the presence and extent of contamination at three sites: a landfill adjacent to a former incinerator (site 1); a decontamination agent disposal area (site 10); and an abandoned scrap storage yard (site 11). Contaminants of concern included VOCs, base/neutral/acids (BNAs), PCBs, metals, dioxin/furans, and total petroleum hydrocarbons (TPH). Investigations included installation and sampling of soil borings and monitor wells as well as surface soil, surface-water, sediment, and marsh sediment sampling.

Remedial Design (RD) and Title II Support for the Austin Avenue Radiation Site, Lansdowne, PA, USACE, Baltimore District, Project Manager. Responsible for the

Key Projects (Continued)

development of plans and specifications for the delineation, dismantlement, decontamination, and renovation/reconstruction of 21 properties contaminated with radium-226 at this Superfund site. The project involved extensive coordination with property owners, USACE, EPA, and PADEP. The design considers handling of radioactive, hazardous, and mixed waste as well as asbestos-containing material (ACM). Responsible for construction oversight activities for 12 homes being rebuilt as part of the program. Prepared more than 290 drawings and unique architectural plans for restoring existing homes. Provided public affairs support to optimize positive public opinion. Held more than 100 individual homeowner meetings to address house design issues and keep owners informed of project status.

Confirmation Sampling and Sitewide Soil Surveillance Program, Morgantown Energy Technology Center, Morgantown, WV, USACE, Baltimore District, Project Manager. Responsible for confirmation sampling following removal of concrete pads (Gasifier Pad and Stretford Pad) used for coal gasification and gas cleanup research. Confirmation sampling was conducted for VOCs, BNAs, coal tar pitch volatiles, metals, and cyanide. Managed sitewide soil sampling program to determine and confirm the nature, areal extent, and vertical extent of contamination at nine source areas identified on-site. The sampling program involved the installation of 33 soil borings and collection and analysis of 66 subsurface soil samples and 83 surface soil samples for benzene, toluene, ethylbenzene, and xylene (BTEX), BNAs, metals, and cyanide.

Mixed Waste Management Plan and Miscellaneous Sampling, Watertown, MA, U.S. Army Toxic and Hazardous Materials Agency (USATHAMA) Installation Restoration Program (IRP), U.S. Army Materials Technology Laboratory (AMTL), Project Manager. Responsible for managing various tasks conducted in support of site remediation and base closure activities at AMTL. Activities include health and safety plan (HASP) development for conducting field sampling of hazardous and radioactive materials; preparation of a management plan for handling, treating, and disposing of mixed waste (both radioactive and hazardous) in accordance with requirements of NRC and EPA; sample collection, analysis, and characterization of potential mixed wastestreams; review of Resource Conservation and Recovery Act (RCRA) storage and compliance issues; radiation surveys; preparation of a radiation monitoring procedures manual; and review/evaluation of the facilities decommissioning schedule.

Enhanced Preliminary Assessment (PA), Fort Devens, MA, USATHAMA, Project Manager. Managed an extensive background investigation and assessment of site conditions, history, and operations of an operating Army base. Project activities included interviews with site and agency personnel, regulations reviews, data compilation, assessment of solid and hazardous waste management areas and practices, records searches and reviews, and preparation of a report that included recommendations for characterization and sampling.

Site Characterization, Various Locations, LANTDIV, U.S. Navy Comprehensive Long-Term Environmental Actions Navy (CLEAN) Program, Project Manager. Managed 14 UST site characterization/site assessment projects in Virginia and North Carolina to define the horizontal and vertical extent of contamination (typically petroleum-related compounds) as a

Key Projects (Continued)

result of a known or suspected release from a UST or underground pipeline. Recommend remedial alternatives (if applicable) that will meet state and federal cleanup standards. Each of these assignments involves UST field investigations, work plan and HASP development, installation of soil borings and monitor wells for sample collection, chemical analyses, risk assessment, and evaluation/recommendation of remedial alternatives. For each of the task orders managed under the CLEAN Program, responsible for cost and schedule control, client interface, technical coordination, resource planning, subcontractor procurement and management, and product deliverables.

Integrated Mixed Waste Management Program, Palo Alto, CA, Electric Power Research Institute (EPRI), Project Manager. Worked with a committee of utility experts from the nuclear power industry to develop several comprehensive guidance documents on mixed waste management and mixed waste characterization. Responsible for collecting and assembling data pertaining to mixed waste characterization programs at nuclear power stations throughout the country and assessing mixed waste management practices. The management guidelines developed as part of this program considered cradle-to-grave management of mixed waste, including requirements for obtaining a RCRA Part B permit.

Environmental Impact Statement/Environmental Impact Report (EIS/EIR), Lawrence Livermore National Laboratory (LLNL), Livermore, CA, DOE, Project Engineer. Provided technical support in preparing the hazardous/radioactive waste management sections of the first sitewide EIS/EIR for DOE. The report satisfied the requirements of National Environmental Policy Act (NEPA) as well as the California Environmental Quality Act (CEQA). Evaluated waste management practices at LLNL, Sandia National Laboratory (SNL), and Site 300 as part of these investigations. Conducted on-site investigations of laboratory operations and evaluated practices (including waste handling, packaging, storage, transport, and effluent releases to the environment) for compliance with applicable laws, regulations, DOE orders, and various state and local requirements.

Permitting of Waste Generators, Carriers, and Brokers, Harrisburg, PA, PADEP, Project Manager. Responsible for developing permitting regulations for access (by generators, carriers, and brokers) to the Pennsylvania Low-Level Radioactive Waste Disposal Facility being sited for the Appalachian Compact Region.

Office of Civilian Radioactive Waste Management (OCRWM), Washington, DC, DOE, Systems Engineer. Provided systems integration support in developing the technical requirements of the waste management system for DOE's high-level waste program. The waste management system consists of the high-level waste repository (Yucca Mountain), the monitored retrievable storage (MRS) facility, and the waste transport system. Provided technical review (i.e., requirements research) of numerous laws, regulations, DOE orders, and program guidance documents to identify requirements for the waste management system as they related to individual functional requirements within the program. Supported the physical system functional analysis effort through application of a Computer-Aided Systems Engineering (CASE tool) program.

Key Projects (Continued)

Student Training Manuals, Chattanooga, TN, NRC Technical Training Center, Project Engineer. Authored sections of NRC student training manuals on radioactive waste management and the nuclear fuel cycle. Responsibilities included the development of training modules on solid waste management processing and practices as well as nuclear fuel fabrication and enriched scrap recovery operations.

Nuclear Utility Low-Level Waste Database, Palo Alto, CA, Electric Power Research Institute (EPRI), Project Manager/Project Engineer. Developed and managed the most comprehensive database available of utility low-level radioactive waste information, including wastestream volumes, physical and radiological characteristics, packaging methods and performance, successful source minimization techniques, and waste generation trends from 1978 through 1989.

Industry Impacts of NRC/U.S. Department of Transportation (DOT) Adoption of International Atomic Energy Agency (IAEA) Regulations, Washington, DC, Nuclear Management and Resource Council (NUMARC), Project Engineer. Evaluated the impact to the nuclear power industry of NRC/DOT adoption (with proposed changes) of IAEA regulations for the safe transport of radioactive material, per Safety Series No. 6, 1985 edition. Assessed the use of an A1 multiple (2 x A1) as the upper limit for low specific activity (LSA) and the impacts relative to the total number of Type A versus Type B shipments, as well as the overall economic impact to the industry.

Waste Management Decision Analysis Program, Palo Alto, CA, EPRI, Project Manager/Project Engineer. Designed and developed a decision analysis methodology using a programmable relational database application to evaluate potential impacts of future regulatory and operational events as they relate to radioactive waste operations and processing/disposal costs.

Replacement Plastic Program, Palo Alto, CA, EPRI, Project Engineer. Evaluated potential applications for the use of dissolvable plastics as a replacement for products used for radiological control in contaminated environments, including the analysis of physical and chemical properties of various plastic materials found in contaminated wastestreams, as well as the evaluation of processing and disposal options for replacement plastics.

Radwaste Minimization Program, Juno Beach, FL, Florida Power & Light Company, Project Manager/Project Engineer. Assisted in the development and implementation of a comprehensive radwaste minimization and control program at the St. Lucie and Turkey Point stations. Identified site-specific source terms using root cause analysis for solid radwaste generation and developed a program aimed at minimizing waste generation at the source. Evaluated the economic and operational impacts of volume minimization and volume reduction techniques to develop a plan based on both short-term and long-term waste generation goals. Developed computer applications for tracking and managing radwaste generation at the sites.

Radiation Exposure Characterization, Palo Alto, CA, EPRI, Project Manager/Project Engineer. Conducted a detailed site-specific assessment of radiation exposure received by operations and maintenance (O&M) personnel at Public Service Electric and Gas's (PSE&G's)

Key Projects (Continued)

Salem and Hope Creek plants, including review of radiological conditions relative to specific worker and job functions and evaluation of radiation work permits and associated radiological surveys.

Radwaste Disposal Drum Centrifuge, Waltham, MA, Foster-Miller, Inc., Project Engineer. Provided technical support and radioactive waste management expertise for the design, licensing, and commercialization of a novel centrifuge design to dewater spent ion exchange resins to levels below newly purchased media, while substantially reducing the total disposal volume by dewatering the material inside the disposal container. **Radwaste Minimization Program, Pilgrim, MA, Boston Electric Company, Radwaste Engineer.** Assisted in the development of a comprehensive radwaste minimization and control program at the Pilgrim station. Identified site-specific source terms using root cause analysis for solid radwaste generation and assisted in the development of a program aimed at minimizing waste generation at the source. Evaluated the economic and operational impacts of volume minimization and volume reduction techniques to develop a plan based on both short- and long-term waste generation goals.

Below Regulatory Concern (BRC) Candidate Wastestream Evaluation, Palo Alto, CA, EPRI, Project Engineer. Conducted an evaluation of low-level radioactive wastestreams for inclusion in a program to develop generic exemption criteria for wastes with radiological characteristics BRC. Waste characteristics evaluated included typical activity, isotopic content, volume generated, potential for recycle, and physical and chemical characteristics.

Perry Nuclear Project, Perry, OH, Cleveland Electric Illuminating Company, Mechanical Engineer. Provided mechanical systems design support for sizing tanks, pumps, heat exchangers, and piping systems for various balance of plant systems. Coordinated effort for development of system operating modes for more than 20 mechanical systems.

Identification of Radwaste Sources and Reduction Techniques, Palo Alto, CA, EPRI, Radwaste Engineer. Served as principal investigator for a comprehensive evaluation of reactor plant radwaste sources and successful minimization techniques. Conducted detailed evaluations to correlate waste generation rates with nuclear plant operational parameters. Developed a unique waste comparative methodology using operational parameters for plant radwaste management evaluations.

High-Integrity Container (HIC) Assessment, Middlesex, England, Wimpey-Gilbert, Radwaste Engineer. Conducted a detailed assessment of designs, materials of construction, licensing criteria, and limitations of radwaste disposal HICs as part of technology transfer from the United States to international radwaste generators.

Decommissioning of a Three-Loop Power Water Reactor (PWR), Japan, Mitsubishi Heavy Industries, Engineer Trainee. Performed economic evaluations of equipment and piping decontamination prior to dismantlement to reduce personnel exposure. Developed preliminary work packages for sequential equipment dismantling to ensure efficient packaging procedures during decommissioning.

Publications and Presentations

Daloisio, G.S., R.E. Hahn, and P.J. Robinson. 1989. "The Industrywide Effects of New Transportation Regulations on the Shipment of LSA Material from Nuclear Utilities." PATRAM '89, Arlington, VA.

Daloisio, G.S. and P.J. Robinson. 1988. "Atypical Radwaste Generation from Nuclear Power Reactors." ASME/EPRI Radwaste Workshop, Hartford, CT.

Daloisio, G.S. 1988. "Waste Sources and Characteristics." ASME Short Course Program Radioactive Waste Management for Nuclear Power Reactors and Other Facilities, Alexandria, VA.

Daloisio, G.S., C.P. Deltete, and P.J. Robinson. 1988. "Evaluation of Candidate Wastestreams for Inclusion in the EPRI BRC Program." Waste Management '88, Tucson, AZ.

Daloisio, G.S. and C.P. Deltete. 1988. "Dry Waste Minimization Programs and Techniques." ASME Short Course Program Radioactive Waste Management for Nuclear Power Reactors and Other Facilities, Alexandria, VA.

Daloisio, G.S. and P.J. Stoner. 1987. "Development and Implementation of a Radwaste Minimization Program at FPL." ASME/EPRI Radwaste Management Seminar, Boulder, CO.

Daloisio, G.S. and C.P. Deltete. 1984. "Dry Active Waste Composition: The Potential for Volume Reduction." ANS Summer Meeting, New Orleans, LA.

Daloisio, G.S. and C.P. Deltete. 1983. "Trends in BWR Condensate Polisher Operation." Waste Management '83, Tucson, AZ.

JOHN P. GERHARD

Qualifications Summary

- More than 11 years of professional experience.
- Five years of project management, including the supervision, coordination, and motivation of multidisciplinary teams consisting of scientists, engineers, construction personnel, cost estimators, and financial analysts. Responsibilities include resource management and forecasting, project budget control, team safety, regulatory compliance, and client satisfaction.
- Point of contact and facilitator for communications with clients, project team, and regulators.
- Experience with the planning, design, installation, and operation and maintenance (O&M) of soil and groundwater remediation systems, including sampling and analysis of various media.
- Experience with project scheduling, and preparing documents and cost estimates for remediation projects under RCRA, CERCLA, and SARA regulations.
- Experience with NPDES permitting, sampling, and reporting.
- Experience with flow monitoring equipment, automated sampling equipment, and in-line TOC meters.
- Experience managing HTRW field efforts including WESTON and subcontractor personnel.
- Experience managing MEC investigations and clearance/removal projects.

Registration

Construction Quality Management for Contractors Certification, USACE (2003)

Fields of Competence

Project management of munitions and explosives of concern (MEC) investigations and removals; project scheduling; cost estimating; progress reporting; data management; historical record searches; report and plan preparation; engineering evaluation/cost analysis; action memorandums; remedial investigations (RIs); decision documents; bioremediation/ biodegradation studies; soil vapor extraction (SVE) systems, installation, operation and maintenance (O&M); in situ respiration tests; groundwater and soils remediation; air, soils, and groundwater sampling; flow and automated sampling equipment.

Education

B.S., Environmental Resource Management—The Pennsylvania State University (1997)

Credentials

UXO Project Manager/Engineer Training, WESTON (2006)
Munitions Response Site Prioritization Protocol Training Modules and Reference Material, USACE (2007)
40-Hour Hazardous Waste Site Training Course, OSHA 29 CFR 1910.120(e)(3), ERM (1997)
8-Hour Hazardous Waste Refresher Course, OSHA 29 CFR 1910.120(e)(8), WESTON (2006)
Confined Space Training for Non-Entry Rescuers, OSHA 29 CFR 1910.146, WESTON (1998)
Dangerous Goods Shipping Course, DOT and ICAO Regulations, WESTON (1998)
CPR/First Aid Training, Medic First Aid (2006)
8-Hour Site Health and Safety Coordinators (SHSC) Course, OSHA 29 CFR 1910.120(e)(4), WESTON (1999)

Credentials (Continued)

10-Hour Construction Safety Training, OSHA Construction Outreach Training Program, OSHA 29 CFR 1926, WESTON (2004)
Attended "A Client Workshop" for Pennsylvania's Act 2 Regulations and Land Recycling Program's Technical Manual, PA Dept. of Environmental Protection (1998)
Introduction to ArcView GIS Course, ESRI (1999)
Training Course for Site Managers on the Management of Ordnance and Explosives at Closed, Transferred, and Transferring (CTT) Ranges and Other Sites, EPA (2003)
Project Management Training, WESTON (2002)
Site Investigation and Remediation for Munitions Response Projects, ITRC (2005)

Employment History

1997-Present WESTON

Key Projects

Munitions and Explosives of Concern (MEC) Non-Time-Critical-Removal Action (NTCRA), Surf City and Ship Bottom, Long Beach Island, NJ, U.S. Army Corps of Engineers (USACE), New England District (CENAE) Remedial Action Contract (RAC) -9, Philadelphia District, Project Manager. WESTON worked as an integrator with USACE (Philadelphia District and Baltimore District Military Munitions Design Center) personnel to develop a plan of attack to conduct a rapid removal action to not delay the opening of the beach for the summer season (2009). This was a fast-track project in a 4-month window to excavate and mechanically screen approximately 390,000 cubic yards of hydraulically placed beachfill to remove discarded military munitions (DMM) from a 1.5-mile section of beach in Surf City and Ship Bottom, NJ. Project required mobilization of several subcontractors and over 40 pieces of heavy equipment modified with protective armorment to ensure safety of operators and site personnel, over 60 personnel including unexploded ordnance (UXO) technicians, construction supervisors, equipment operators, laborers, and surveyors. Maintained four separate munitions sifting operations to facilitate schedule and ensure project was completed ahead of schedule. Project included the restoration of beach, pedestrian crossovers (21), vehicular crossovers (3), handicap crossovers, and private crossovers (57). WESTON utilized UXOFast^{SM} technology to help manage the field data. Near-real-time data documentation and mapping was provided to the project delivery team through TeamLink® so that decisionmakers could adjust approaches and manage change appropriately. Participated in public and community outreach effort through attendance at public meetings and installation of land-use control (LUC) signage at beach access points. This allowed USACE to maintain the overall project schedule to release the beaches for public use.

35% Design for Landfill Constructability/Landfill Closure Design, 250,000-Gallon Aboveground Water Storage Tank, Industrial Wastewater Treatment Plant and Water Supply for U.S. Military Academy Preparatory School (USMAPS) and Directorate of Logistics (DOL) Relocation to U.S. Military Academy (USMA), West Point, NY, Ewing

Key Projects (Continued)

Cole, Project Manager. Was responsible for execution of landfill constructability study and landfill closure design, 250,000-gallon aboveground water storage tank, Industrial Wastewater Treatment Plant (IWTP), and water supply for future USMAPS and DOL facilities at West Point, NY. Work entailed evaluation of existing data, and design requests. Landfill investigation included time-sensitive historical information review, rapid mobilization and planning for expedited field characterization (soil and waste, landfill gas, and leachate), and reporting to maintain overall project schedule. Constructability study evaluated building location for USMAPS project and buildings relative to existing municipal solid waste (MSW) landfills. Worked closely with Ewing Cole and subcontracted design team (USACE- New York District, USMA – Department of Public Works [DPW] and Environmental staff, New York State Department of Environmental Conservation [NYSDEC]) to ensure project timeline for landfill closure and other designs were not going to prevent delays in overall MILCON building.

Munitions and Explosives of Concern (MEC) Construction Support, Fort Dix/McGuire Air Force Base (AFB), NJ, United Communities (RCI Contractor), Project Manager. Responsible for assisting RCI contractor with MEC construction support during construction activities associated with the McGuire AFB and Fort Dix Housing Privatization Project Parcel G in Burlington County, NJ. MEC construction support sweeps were necessary in certain locations (Holly Crest and Grove Park Housing Areas) due to historical ordnance range and training operations. Locations in these areas designated for subsurface excavation, digging, trenching, drilling, or any type of earth disturbance were inspected and investigated by qualified UXO personnel prior to intrusive activities. Over 20 items were safely identified and removed during construction activities.

MEC Construction Support for Drainage Repair Project, Bolling AFB/Naval Station Anacostia, Washington, DC, John C. Grimberg Company, Project Manager. Responsible for assisting prime contractor and subcontractors (earthwork and sheeting and shoring) with MEC construction support during construction activities associated with the drainage repair project, Washington, DC. Included Work Plan and geophysical prove-out (GPO) of appropriate instrumentation. MEC construction support sweeps were necessary due to historical cannon ball activities. Locations in these areas designated for subsurface excavation, digging, trenching, drilling, or any type of earth disturbance were inspected and investigated by qualified UXO personnel prior to intrusive activities. Items were safely identified and removed during construction activities.

Munitions and Explosives of Concern (MEC) Time-Critical-Removal Action (TCRA), Surf City and Ship Bottom, Long Beach Island, NJ, CENAE Remedial Action Contract (RAC) - 9, Philadelphia District and Schnabel Engineering, Project Manager. In early March 2007, after a beach nourishment project (800,000 cubic yards of sand placed on beach) was completed, potentially explosive munitions were discovered on the beach in Surf City and Ship Bottom, NJ. WESTON worked as an integrator with USACE (Philadelphia District and Baltimore District Military Munitions Design Center) personnel to develop a plan of attack to rapidly characterize the beach (approximately 70 acres) to not delay the opening of the beach for the summer season (2007). Managed generation of expedited USACE-approved Work Plans and Safety Plans prior

Key Projects (Continued)

to conducting field work. Executed a GPO to differentiate which digital geophysical mapping (DGM) equipment was appropriate based on beach conditions and expected munitions. Supervised a team of geophysicists collecting DGM data with a towed array configuration of accessible areas of the beach (berm and dune top). Supervised a team of up to 15 UXO specialists with heavy equipment operators reacquiring anomalies. Dig teams utilized WESTON's UXOFast^{SM} technology to help manage the field data. Additionally, the surf zone from water's edge to a distance of 150 ft and dune slopes were investigated with a mag and dig approach. UXO construction support and avoidance was provided for the dredging contractor as they completed necessary pedestrian, vehicular, and handicap crossovers. WESTON was able to rapidly characterize the beach with the towed array configuration and reacquire over 1,000 MEC items, which were recovered and disposed of accordingly. Near-real-time data documentation and mapping was provided to the project delivery team through TeamLink® so decisionmakers could adjust approaches and manage change appropriately. Participated in public and community outreach effort through attendance at public meetings and installation of LUC signage at beach access points. This allowed USACE to maintain the overall project schedule to release the beaches for public use. WESTON was able to conduct all phases (self-performance and subcontractors) of this work, allowing the client to have "one stop shopping," allowing for cost savings.

Munitions Response Action at Fort Miles Military Reservation Formerly Used Defense Site (FUDS), Lewes, DE, USACE, Baltimore District, Project Manager. Responsible for the execution of this MEC fixed price remediation with insurance (FPRI) project at Fort Miles from remedial investigation (RI) addendum through implementation of a long-term management plan after Response Complete. Successfully completed expedited RI addendum, feasibility study, proposed plan, implementation of removal action, and establishment of Administrative Record and public involvement plan. Project ahead of schedule to complete work prior to required milestones. Successfully negotiated with regulators to implement No DOD Action Indicated (NDAI) on several munitions response sites. Removal work consisted of supervision of multidiscipline geophysical and UXO technician team removing munitions remaining at the three munitions response sites to instrument detection depth. This work was conducted in sensitive ecological habitat areas (dune and beach systems). Coordination with regulators for accelerated reviews of key Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) documents helped to accelerate project schedule for completion 12 months ahead of requirements.

Redevelopment Support Services/MEC Education and Awareness Video for Fort Ritchie, Corporate Office Properties Trust (COPT), Cascade, MD, Project Manager. Reviewed existing redevelopment plans prepared by COPT and other site documentation prepared by the U.S. Army for Fort Ritchie. Developed and assembled an education and safety awareness video to be used to inform construction personnel of potential hazards associated with MEC. Supervised the production of professionally produced and narrated DVD in both English and Spanish versions. Attended kickoff meeting and status update meeting to successfully keep project on schedule and under budget.

Key Projects (Continued)

Southeastern Area (SE) Operable Unit (OU) 3A, Additional Characterization and Cleanup Alternative Analysis, Letterkenny Army Depot (LEAD), U.S. Army Corps of Engineers (USACE) Baltimore District (CENAB), Hazardous, Toxic, Radioactive Waste (HTRW) 2000/2005 Contracts, Task Manager/Project Engineer. WESTON was contracted to assess existing data for SE OU 3A and to develop exit strategies and cleanup alternatives for this dense nonaqueous phase liquid (DNAPL)-impacted groundwater plume. Evaluated existing studies and conceptual site models for potential data gaps to further refine flow patterns and contamination. Managed field work to fill in these data gaps. This work consisted of installation of multiple well groupings at various groundwater depths. Additional groundwater sampling rounds were conducted to capture an accurate picture of the current groundwater plumes. Once these data were assembled cleanup alternatives were evaluated to rapidly clean up the site. Alternatives then were evaluated based on regulator approval.

SE OU 11, Additional Characterization and Cleanup Alternative Analysis, LEAD, USACE, Baltimore District, CENAB HTRW 2000, Task Manager/Project Engineer. WESTON was contracted to assess existing data for SE OU 11 and to develop exit strategies and cleanup alternatives for this DNAPL-impacted groundwater plume. Evaluated existing studies, treatment system, and conceptual site models for potential data gaps to further refine flow patterns and contamination. Worked with WESTON technical staff on further defining the conceptual model by filling in these data gaps. This work consisted of installation of multiple well groupings at various groundwater depths. Additional groundwater sampling rounds were conducted to capture an accurate picture of the current groundwater plumes. Once these data were assembled, cleanup alternatives were evaluated to rapidly clean up the site. Assembled all of the data into an evaluation report with recommendations. Alternatives then were evaluated based on regulator approval.

Community Outreach Support for the Spring Valley FUDS, Washington, DC, USACE, Baltimore District HTRW 2005 Contract, Project Manager. Directing this high-profile FUDS project for the USACE Baltimore District. Project requires dedicated on-site community outreach Project Manager and support staff integrated within USACE project delivery team. Services include Restoration Advisory Board (RAB) support (planning, execution of meetings, and documentation of meetings), partnering meeting support, generation of monthly update letters and documentation for Administrative Record and information repository, coordination with residential and commercial property owners during negotiations for Rights-of-Entry (ROEs) with contractors conducting military munitions response program (MMRP) and HTRW removal activities. In addition, is generating public outreach documentation in support of these high profile removal activities.

Earthwork and Impacted Soil Removal at Fort McNair – National Defense University Marshall Hall Expansion, Turner Construction Company (TCCO) Working for USACE, Baltimore District (CENAB), Project Manager. Developed work plans, performed site characterization, and removed approximately 27,000 tons of impacted soil in support of the renovation of Marshall Hall at the National Defense University in Washington, DC. This soil consisted of material generated during the removal of the existing parking lot and mass

Key Projects (Continued)

excavation cut to subgrade. Managed field crew consisting of up to seven construction personnel. Removed approximately 2,200 tons of concrete encountered during the mass excavation cut to subgrade and grout generated during caisson installation with no demobilization or downtime. This material was stockpiled, broken up, consolidated, and shipped to a local concrete recycling firm. Provided discharge support for TCCO so that they could discharge treated surface water and groundwater encountered during the excavation activities into the sanitary sewer system to meet the client demands for flow requirements and minimize cost impacts to the project. Consulted directly with the District of Columbia (DC) Water and Sewer Authority (WASA) for TCCO. Also provided sampling of other suspect environmental contaminants encountered at the site including asbestos-containing material (ACM). Performed all this work with an integrated team of WESTON transportation and disposal (T&D) subcontractor and on-site construction personnel.

Earthwork at Worldgate Monument III Project, Herndon, VA, James G. Davis Construction Corporation, Project Manager. Excavated and removed over 17,000 cubic yards of soil and rock in support of the mass and structural excavation activities at the site for a 191,000-square-foot, 7-story building expected to be completed by the end of 2006. Provided excavation and backfill (interior and exterior) services as well as related items such as erosion and sediment control, stormwater management, transportation and disposal of soil and rock, sub-grade preparation, and rough and finish grading. Subcontracted drilling and blasting services for approximately 3,500 cubic yards of shale rock within the building footprint. Provided one-stop shopping for earthwork excavation activities including rock blasting. Other contractors did not want this project due to the presence of rock and difficult foundation design. WESTON stepped in and provided value-added service in rock excavation through the use of both Hoe Ram, and drilling and blasting methods. WESTON kept the project on schedule by shifting focus to help the client meet needs through change order work. Provided a fully trained earthwork team to complete the specified scope of work and other assigned tasks. No lost time accidents occurred on this project.

Remedial Investigation (RI), Pad 5 Area, LEAD, USACE, Baltimore District, HTRW 2005 Contract, Project Manager. WESTON was contracted to conduct an RI to assess the nature and extent of contamination in the groundwater, surface soils, and subsurface soils. Pad 5 is a former construction debris landfill located within the Base Realignment and Closure (BRAC) parcel at LEAD.

The project consisted of conducting an RI of the Pad 5 site. A technical work plan and a site safety plan were developed for this project in accordance with USACE requirements. This field work consisted of installation of Geoprobe® soil borings, surface soil sampling locations, groundwater sampling, delineation sampling, and disposal of identified impacted material encountered during investigative activities. Approximately 400 tons of residual material was removed during the first phase of investigation. Managed the technical execution of the project, which included manpower, equipment, excavation, and subcontracted the appropriate transportation and disposal of this material. The material was sent to a residual waste facility in accordance with all federal and state requirements. Additional areas of delineation have

Key Projects (Continued)

been conducted to fully delineate the extent of this historical landfill. An additional 1,235 tons of hazardous waste material was removed and sent to the appropriately permitted facility in accordance with all federal and state requirements. Restoration activities at these areas included post-excavation sampling and backfilling and site grading work. An RI report and associated baseline human health risk assessment (BHHRA) were developed based on the site information. Proactively managed reporting phase to the advantage of the client.

Underground Storage Tank (UST) and Aboveground Storage Tank (AST) Compliance for LEAD, Chambersburg, PA, USACE, Baltimore District, HTRW 2000/2005 Contracts, Project Manager. Managed the inspection, reporting, and repair of tanks for LEAD. The compliance tasks involved inspection and reporting of over 40 Veeder Root monitoring systems on a quarterly basis. Managed subcontracted personnel for the inspection and reporting pieces. Performed closure sampling and prepared documentation of existing UST and AST in accordance with PADEP regulations. Conducted geotechnical evaluations regarding stability of surrounding soil and foundations for UST removal or in-place closure, and any necessary engineering controls. Installed new ASTs in compliance with all applicable fuel oil regulations.

EP 1110-1-18 Guidance Document Rewrite, Zapata Engineering and U.S. Army Engineering Center Huntsville Center, Project Manager. WESTON, under contract to Zapata Engineering to the U.S. Army Engineering Huntsville Center, has provided consulting services to revise EP 1110-1-18 formerly titled “Ordnance and Explosives Response.” The revised guidance document will be titled "Military Munitions Response Process.” Managed the technical execution of integrating the CERCLA process into the document in accordance with the FUDS program and the new military munitions response program (MMRP). This document provides the context, scope, goals, objectives, governing policies, procedures, and processes for the USACE MMRP, along with recommended formats for CERCLA guidance (preliminary assessment [PA], site investigation [SI], RI/FS, decision documents, etc.). Response actions at USACE military munitions projects can include all forms of response, i.e., identification; detection; investigation; and removal actions; remedial actions, or a combination of removal and remedial actions to address munitions and explosives of concern (MEC) or munitions constituents (MC). This document specifically addresses military munitions (MM) response actions conducted under the USACE FUDS program. Key changes include the addition of the CERCLA process and addition of MC sampling. Worked closely with USACE personnel at the MM Center of Expertise (CX) at the Huntsville Center and Zapata Engineering to meet the required accelerated schedule for implementation into this document. Numerous onboard review meetings and real-time response to comments have streamlined the finalization of this document.

Site Inspection Addendum for Geophysical Mapping and Intrusive Investigation at Public Housing Areas, Fort Dix, NJ, USACE, Baltimore District (CENAB), HTRW 2000 Contract, Project Manager. Led this geophysical survey looking for suspected munitions and explosives of concern (MEC) at two housing areas on Fort Dix, NJ. Techniques used were required to be state-of-the art, and included electromagnetic (EM-61, MK2) and magnetometry (G-858 and G-856) surveys. Properties were reported to be locations for potential former firing ranges, and were scheduled for subsequent transfer. Approximately 24 acres were mapped geophysically and

Key Projects (Continued)

investigated intrusively to further refine the site conceptual model. Data and reports were thoroughly reviewed by the USACE Baltimore and Huntsville Districts in addition to Fort Dix. A decision document recommending no further action with awareness training was the end result of this investigation.

Geophysical Mapping for the Spring Valley FUDS, Washington, DC, USACE, Baltimore District, HTRW 2000/2005 Contracts, Project Manager. Directing this high-profile FUDS project for the USACE Baltimore District. Project required state-of-the-art geophysical techniques for mapping anomalies, looking for evidence of MEC and chemical warfare materials (MEC/CWM) at over 70 properties. Responsiveness to USACE's aggressive schedule is critical because the data support subsequent removal actions at these high-profile residential and American University properties. Electromagnetic (EM-61, MK 2) and magnetometry (G-858 and G-856) surveying methods are used. Data and reports are thoroughly reviewed by the USACE Baltimore and USACE Huntsville clients, in addition to the U.S. Environmental Protection Agency (EPA), DC Public Health, and the property owners.

Lead Paint Sampling, Fort Drum, NY, USACE, Baltimore District, HTRW 2000 Contract, Project Manager. Managed the sampling of barracks and buildings slated for demolition and disposal. Project included an innovative lead paint sampling program, which included composite sampling of building materials on a proportional-weight basis. Project team consisted of seven WESTON technical personnel. Sampled over 339 buildings, including occupied structures, and roofs. Managed subcontracted analytical laboratory. Utilized EnviroData for managing analytical data packages. Provided data to client within 2 weeks of field work. This program saved Fort Drum considerable costs in disposal of the building materials after demolition.

Building Deconstruction Waste Management Study, Fort Drum, NY, USACE, Baltimore District, HTRW 2000 Contract, Project Manager. Managed the building deconstruction waste management study to evaluate whether materials of construction from buildings under consideration for demolition can be disposed of in an alternative manner rather than through typical demolition and disposal practices. Data collection phase consisted of contacting local contractors, recyclers, vendors, and disposal facilities. A site visit was conducted with Fort Drum personnel to thoroughly understand current practices and future goals for the installation. Alternatives evaluated were based on cost, local market demand for material, and effectiveness. Study identified an alternative, which would allow Fort Drum to stay in compliance with specified Army directives regarding diversion rates from solid waste disposal facilities. Implemented pilot study to verify desktop study results, which included the selective deconstruction of two buildings, and the phased segregation and appropriate disposal by recycling, reuse, or disposal of building materials.

Needs Assessment, Tobyhanna Army Depot (TYAD), PA, Buchart Horn, Inc. and USACE, Baltimore District, Project Manager. Managed the needs assessment (NA) portion of real property master planning documentation, primarily focusing on environmental issues at Tobyhanna Army Depot. A week of roundtable discussion with stakeholders and management level personnel identified future needs and requirements for the facility. A Needs Assessment report was developed based on current needs and long-term component items identified in

Key Projects (Continued)

planning process. Worked with two other contractors in the development of this document.

Unexploded Ordnance (UXO) Sweep of Proposed Waterline, Aberdeen Proving Ground (APG), MD, USACE, Baltimore District, HTRW 2000 Contract, Project Manager. WESTON was contracted to clear the proposed waterline area to a depth of 2 feet. The history of the facility required that clearance of UXO be undertaken to protect the worker installing the waterline. Prepared work plan (WP), including field sampling/analysis plan (FSAP), and health and safety plan (HASP) in accordance with all regulatory requirements. Responsible for managing work plan production, UXO field effort, reporting, budget, and project schedule. Prepared monthly progress reports. Project was completed on-time.

HAZWOPER Training of USACE Personnel, USACE, Baltimore District, HTRW 2000 Contract, Project Manager. Managed five refresher training classes on Hazardous Waste Operations and Emergency Response (HAZWOPER), per Occupational Safety and Health Administration (OSHA) requirements. Directed two WESTON safety professionals (Certified Industrial Hygienists [CIHs]) in the appropriate agenda, topics, and activities toward training approximately 150 total USACE personnel.

Confined Space Training of USACE Personnel, USACE, Baltimore District, HTRW 2000 Contract, Project Manager. Managed one training class on confined space training, per OSHA requirements and USACE requirements. Directed two WESTON safety professionals (CIHs) in the appropriate agenda, topics, and activities toward training approximately 25 total USACE personnel.

Remedial Investigation, New Jersey, Confidential Client, USACE, HTRW 2000 Contract, Project Engineer. WESTON was contracted to conduct an RI to assess the nature and extent of contamination in the groundwater, surface soils, sediments, and subsurface soils for two different operable units (OUs). This work was performed under the Formerly Utilized Sites Remedial Action Program (FUSRAP). This site was used by the Manhattan Engineering District (MED) program and contracts to develop a process to convert uranium oxide to produce uranium tetrafluoride and small quantities of uranium metal. The site has an extensive history of chemical manufacturing varying from explosives, dye manufacturing, fluorochemicals, motor fuels, petroleum chemicals, polymer products, and aromatics. All of these manufacturing processes have led to contamination of the surrounding media. Prepared work plan (WP), including field sampling and analysis plan (FSAP), and site safety and health plan (SSHP), in accordance with all regulatory requirements. Responsible for presentation material dealing with the project. Responsible for subcontractors and coordinating field efforts. A significant amount of field effort was conducted in Level B personal protective equipment (PPE) requiring extensive health and safety requirements. A project website was developed for the collaboration of the WESTON and USACE technical and management teams. Developed data management tools for the extensive field and laboratory data acquisition and evaluation.

NPDES Stormwater Compliance, City of Philadelphia, Division of Aviation (DOA), Philadelphia International Airport and the Northeast Philadelphia Airport, Project Engineer. WESTON assisted DOA regarding compliance with the National Pollutant Discharge

Key Projects (Continued)

Elimination System (NPDES) requirements. Activities included support during the permit application, negotiation of the NPDES permit, preparing discharge monitoring reports, and developing alternatives and cost estimates for reducing aircraft deicing discharges to the Delaware River. Assisted with the implementation of a Preparedness, Prevention, and Contingency Plan (PPCP); and Contingency Plan for Hazardous Material and Hazardous Waste Management as the primary author. As part of the deicing program, characterized flow (chemical and physical analysis) off the deicing pad facility, and reported discharge concentrations. Study of flow off the deicing pad was used to determine discharge setpoint. Assisted DOA with managing captured stormwater deicing flow runoff for discharge to the sanitary sewer via two 600,000-gallon tanks. Assisted with sampling and reporting of discharges to the Philadelphia Water Department (PWD).

Tobyhanna Army Depot (TYAD) Monitor/Residential Well Sampling Program, Tobyhanna, PA, USACE Baltimore District, HTRW 1996 Contract, Project Engineer. This ongoing Superfund remediation project involves groundwater sampling and analysis for monitor and residential wells in the vicinity of TYAD. Contaminants of concern include tetrachloroethylene (PCE), dichloroethylene (DCE), trichloroethylene (TCE), and vinyl chloride. Responsibilities included project coordination and planning, sampling, data management, and report preparation.

Tobyhanna Army Depot (TYAD) Landfill Well Sampling Program, Tobyhanna, PA, USACE Baltimore District, HTRW 1996 Contract, Project Engineer. This ongoing Superfund remediation project involves groundwater sampling and analysis for monitor and residential wells in the vicinity of TYAD. Contaminants of concern include tetrachloroethylene (PCE), dichloroethylene (DCE), trichloroethylene (TCE), vinyl chloride, and inorganics. Responsibilities included project coordination and planning, sampling, data management, and report preparation.

Havertown PCP Superfund Site Oil/Water Separator Investigation, Haverford Township, PA, USACE, Baltimore District, HTRW 1992 Contract, Project Engineer. Project involved sampling and maintenance of an oil/water separator in a residential setting. Contaminants of concern included pentachlorophenol (PCP), dioxins and furans, tetrachloroethylene (PCE), dichloroethylene (DCE), trichloroethylene (TCE), and vinyl chloride. Responsibilities included coordinating sampling through the U.S. Environmental Protection Agency (EPA) Contract Laboratory Program (CLP), scheduling maintenance visits to clean and remove solid waste and oil from the separator, scheduling periodic waste pick-ups with a hazardous waste hauler, and preparing quarterly reports for EPA.

Soil Vapor Extraction (SVE)/Free Product Recovery (FPR), Soil and Groundwater Remediation, Gibbsboro, NJ, Confidential Client, Project Engineer. System includes two-phase approach to remediation of free product and the vadose zone soils. First phase is free product recovery using controllerless skimmer pumps to recover floating product on the groundwater surface. The second phase uses SVE to remove volatile organic compounds (VOCs) from vadose zone soils and to assist in product recovery. The project involved initial installation

Key Projects (Continued)

of equipment and startup. Responsible for bimonthly O&M of automated free product recovery system, 12 vertical SVE extraction vents, and 4 horizontal SVE extraction vents. Responsible for troubleshooting problems and taking corrective actions. Performed monthly sampling of the air stream associated with the off-gas treatment. Responsible for scheduling a hazardous waste hauler to perform periodic pick-ups of recovered product. Prepared O&M manual for treatment system. Responsible for the monthly modeling of groundwater and product elevation modeling. Prepared progress report for New Jersey Department of Environmental Protection (NJDEP). Responsible for tracking costs incurred through system operation of this ongoing project.

Canal Creek Hazardous Material Facilities Characterization, Aberdeen Proving Ground (Edgewood Area), MD, Directorate of Safety, Health, and Environment (DSHE), Base Environmental Support Team (BEST)-1 Contract, Project Engineer. The project involved tasks required to remove/abandon underground tanks (non-petroleum), also called Hazardous Materials Facilities (HMFs), potentially impacting the groundwater in the Canal Creek aquifer. Prepared an engineering evaluation/cost analysis (EE/CA) in which specific removal action alternatives were evaluated. Performed records search to verify existing information concerning the HMFs. Prepared a field sampling/analysis plan, and a site-specific safety and health plan for sampling the HMFs. Duties also included sampling the HMFs, supervising a two-man sampling team, interpreting results, and making recommendations to minimize future impacts to the Canal Creek aquifer.

Site Characterization/Remediation of an Underground Storage Tank (UST) at Building 509, TYAD, Tobyhanna, PA, USACE Baltimore District, HTRW 1992 Contract, Assistant Engineer. WESTON was contracted to perform a site characterization study to investigate soils surrounding a non-regulated home heating oil UST. Project activities included investigating the site geology and hydrogeology, determining the extent and severity of potential subsurface petroleum migration, recommending abatement and cleanup activities, and executing remedial activities. Specific tasks consisted of installing monitoring wells, quarterly groundwater monitoring, soils sampling, data management, and report preparation.

Remedial Investigation (RI), Former Nansemond Ordnance Depot (FNOD), VA, USACE Baltimore District, HTRW 1996 Contract, Project Engineer. WESTON was contracted to conduct an RI to assess the nature and extent of contamination in the groundwater, surface soils, sediments, and subsurface soils. The RI also assessed the associated health and environmental risks at two sites while conducting background sampling for comparison. This work was performed under the Defense Environmental Restoration Program (DERP) for Formerly Used Defense Sites (FUDS). The history of the facility required that clearance of unexploded ordnance (UXO) be undertaken. Prepared work plan (WP), including field sampling/analysis plan (FSAP), health and safety plan (HASP), and quality assurance project plan (QAPP), in accordance with all regulatory requirements. Responsible for subcontractors and coordinating sampling events in the field. Dealt with data management, and was primary author for the reports.

EE/CA, FNOD, VA, USACE Baltimore District, HTRW 1996 Contract, Project Engineer. WESTON was contracted to conduct an EE/CA to recommend and justify preferred removal

Key Projects (Continued)

alternatives of potential hazardous and toxic wastes, ordnance-related items, and solid waste at the James River beachfront. This project was on the fast-track program. This work was performed under the DERP for FUDS. The history of the facility required that clearance of UXO be undertaken. Prepared WP, including FSAP, HASP, and QAPP, in accordance with all regulatory requirements. Responsible for oversight of subcontractors, coordination of sampling events in the field, and preparation of the EE/CA document recommending preferred removal options. Dealt with data management, and was primary author for the reports.

SVE/Air Sparging (AS), Installation of Vents, and Soil and Groundwater Remediation, Calvert City, KY, The GEON Company, Field Engineer. WESTON was contracted to design, build, and operate an SVE/AS system at an active chemical manufacturing facility. The main contaminants of concern included ethylene dichloride (EDC) and vinyl chloride. Responsible for the installation of deep extraction vent, shallow extraction vent, and AS vent within the same boring to extract VOCs at varying depths, while also treating the groundwater by sparging below the groundwater table. WESTON's patented SVE vent design was used at this facility. More than 50 extraction and sparging points were installed in multiple locations at the facility. Supervised multiple drilling crews at the site during installation of vents, logged lithologic data, performed sampling, and also managed well construction logs and data.

In Situ Groundwater Vacuum Vaporizer Well Remediation Technology (UVB), Fort Drum, NY, USACE Baltimore District, HTRW 1996 Contract, Field Engineer. This project required cleanup of groundwater contaminated with wastes from a former UST and fueling location within an active military facility. The main contaminants of concern were benzene, toluene, ethylbenzene, and xylene (BTEX). The UVB technology uses a system of chemical, physical, and biological processes to treat VOC-contaminated groundwater and subsurface soils. Responsibilities included weekly groundwater sampling of surrounding wells and O&M of UVB system; periodic air sampling of system to check for destruction efficiency; and adjustments of system to maximize capture of contaminated groundwater.

Site Characterization, Pennsylvania, Southeastern Pennsylvania Transit Authority (SEPTA), Assistant Engineer. This project involved the characterization of an active rail yard facility where electric rail cars are serviced. Polychlorinated biphenyl (PCB) contamination was documented at the site during historical investigations. This project was completed in accordance with the Pennsylvania Act 2 provisions for land recycling. Duties consisted of management of field investigations, including coordination with sampling personnel, surveyors, and a drilling subcontractor; in addition, coordinated with the rail yard dispatcher to ensure safety of the sampling personnel. Report preparation consisted of data compilation and management for the final recommendations to the client.

Bioremediation Inoculation, SVE, and AS, Soil and Groundwater Remediation, Hampstead, MD, Confidential Client, Project Engineer. An SVE and AS system was installed to remediate trichloroethene (TCE) and tetrachloroethene (PCE) contamination in the source area. The SVE system was started in October 1997 and has run consistently since that time. Pulse pumping in part of the system, which has both SVE and AS systems, has led to increased

Key Projects (Continued)

contaminant recovery, and a respiration test demonstrated enhanced aerobic biodegradation. Intermixed with the TCE and PCE is petroleum hydrocarbon (PHC) contamination in the soil. WESTON excavated and installed an inoculation trench with three injection points adjacent to the current SVE system and source area. A commercially available adapted microbial culture was added to the vadose zone, along with suitable nutrients to enhance PHC degradation. Supervised two-man crew for installation of system. Coordinated with analytical laboratory for sampling, data interpretation, and management, in addition to compiling periodic progress reports.

Publications and Presentations

Gerhard, J, L. Pastor, and G. Follett. 2009. "Performance Based Munitions Response." *The Military Engineer*. Vol. 101, No. 657. pp. 49-50.

Gerhard, J., G. Follett, and K. Watson. 2007. "MEC Time Critical Removal Action Public Beach Boroughs of Surf City and Ship Bottom, New Jersey." UXO Forum. August 2007.

Gerhard, J., K. Taylor-Haynes, and A. Wood. 2005. "Recycling Deconstruction Material at Fort Drum." *Public Works Digest.* Vol. XVII, No. 3. pp. 14-15.

Qualifications Summary

- More than 33 years of experience in environmental and industrial health, safety, hygiene, hazardous materials response, and occupational health management.
- Technical manager for construction, remediation, and renovation practice; and high-hazard projects involving UXO, CWM, reactives/explosives, and thermal treatment technologies. Direct oversight of projects with unique hazards, e.g., military chemical agents; UXO; explosives residues in soil; dioxin, asbestos, lead, arsenic, PCBs, MOCA, and mercury; and ionizing radiation. Industrial hygiene projects involving incineration, construction, and reconstruction and demobilization.
- WESTON's Corporate Health and Safety Director for 10 years, responsible for developing/managing/updating the corporate health and safety program. Instructor in HTRW safety and health, and emergency response. Presented more than 80 OSHA 40-hour hazardous waste site training courses, and 200 refresher and site supervisor courses.
- Certified CIH of Record on more than 165 USACE/Army, 45 USAF, and 13 DON TOs involving HTRW investigation, study, design, and remedial action activities. Responsible for WESTON's receipt of 8 USACE safety awards and Army safety award. Directly responsible for more than 1,300,000 hours for USACE with no lost time. Prepared SHERPs and PPE plans ranging from routine to innovative.
- Extensive knowledge of USACE, OSHA, DOD, CWM, and UXO safety regulations.
- Developed WESTON's internal Construction Safety Guidance Document and associated employee safety handbook (distributed to all new construction site employees).

GEORGE M. CRAWFORD, JR., CIH

Registration

Certified in the Comprehensive Practice of Industrial Hygiene, American Board of Industrial Hygiene (#4207; 1989); Recertified (1996; 2002)

Fields of Competence

Environmental health and safety (EHS) management; industrial hygiene (IH); occupational disease assessment; hazardous material site and emergency response training; hazardous materials site emergency response and remediation management; spill prevention and emergency response; and environmental risk assessment. Health and safety, emergency response plans review, development, and implementation. Management of high hazard projects involving hazardous, toxic, and radioactive wastes (HTRW); unexploded ordnance (UXO); and chemical warfare materials (CWM). Extensive knowledge/ application of U.S. Army Corps of Engineers (USACE), Occupational Safety and Health Administration (OSHA), and U.S. Department of Defense (DOD) regulations. Development of Site Safety and Health Plans (SSHPs) and oversight of their implementation.

Education

B.S., Biology—Juniata College (1967)

Credentials

40-Hour Hazardous Waste Site Training Course, OSHA 29 CFR 1910.120(e)(3), WESTON (1987)
8-Hour Hazardous Waste Refresher Course, OSHA 29 CFR 1910.120(e)(8), WESTON (1999)
8-Hour Managers and Supervisors Course (SHSC), OSHA 29 CFR 1910.120(e)(4), WESTON (1999)
10-Hour Construction Safety Training, OSHA 29 CFR 1926, WESTON (1997)
Bloodborne Pathogens Training, OSHA 29 CFR 1910.1030, WESTON (1993)
Bloodborne Pathogens Refresher Training, OSHA 29 CFR 1910.1030, WESTON (2002)
Confined Space Entry Rescue Training, OSHA 29 CFR 1910.146, WESTON (1995)
OSHA Competent Person Training, Fall Protection and Excavation, Miller Troll

Credentials (Continued)

2-Day DOT Shipping Course, 49 CFR 172 Subpart H, WESTON (2002)
Lead/Asbestos Training, WESTON (1998)
First Aid/CPR Certification, American Red Cross, WESTON (1999)
UXO/CWM Awareness Training (1995)
Managing Ionizing Radiation Programs for Industrial Hygienists (1991)
Biological Monitoring Fundamentals of Industrial Hygiene (1991)
OSHA Site Health and Safety Coordinator (1987)
(Instructed more than 50 40-hour and 50 8-hour refresher and site manager courses on hazardous materials, site activity, and emergency response)
American Industrial Hygienists Association (AIHA)
Special Interest Group, Engineering Industry, AIHA
AIHA Confined Space Entry Committee
OSWER and Labor, Health, and Safety Joint Task Force

Employment History

1983-Present	WESTON
1980-1983	Rollins Environmental Services
1969-1980	Pennsylvania Department of Environmental Resources
1967-1969	Columbia University Medical Center

Key Projects

Health and Safety Management, West Chester, PA, Weston Solutions, Inc., East Division Environmental Health and Safety (EHS) Manager. Served as WESTON's Corporate Health and Safety Director for 8 years; as Construction Safety Manager for 2 years; and currently is East Division Environmental Safety and Health Manager. Develops, manages, and updates the H&S Program to comply with OSHA general industry and construction standards, hazard communication, laboratory hygiene standards, asbestos abatement health and safety requirements, and USACE EM-385-1-1 General Safety Requirements. Achieved OSHA recordable incident rate of 1.5 over past 2 years in the East Division. Received Liberty Mutual Award for Safety Excellence in 2001. In this capacity, developed innovative approaches to implementing employee-based safety and health programs including an Employee Safety Handbook, a blue card system, which is a daily safety planning tool designed to manage changing assignments, and a weekly report card system. Manages corporate health and safety, industrial hygiene, hazardous materials response, and occupational health management for HTRW federal programs. Develops and implements health and safety programs, and personal protective equipment (PPE) at hazardous waste sites. Serves as technical manager for high-hazard projects involving UXO, CWM, reactives, explosives, military chemical agents, and thermal treatment technologies. Direct oversight experience for projects with unique hazards, e.g., military chemical agents, UXO, explosives residue in soil, dioxin, asbestos, lead, arsenic, PCBs, MOCA, mercury, and ionizing radiation. Prepares and/or reviews SSHPs, conducts initial site-specific training for projects requiring Levels A and B PPE, directs air monitoring, and assists project/remediation managers in implementing and complying with safety and health

Key Projects (Continued)

requirements. Conducts monthly construction safety audits, and reviews air monitoring data and accident reports weekly. Provided training for 100 internal/external 40-hour and over 200 refresher and site supervisor courses. Presented 11 emergency response training sessions at U.S. Navy, Marine, and U.S. Department of Energy (DOE) facilities nationwide.

Improvement Program, Barracks Triage, Fort Bragg, NC, CIH. Responsible for ongoing renovation and repair of 7 barracks at Fort Bragg. Activities included removing fan coil units for improved heating, ventilation, air conditioning (HVAC) ambient temperature ranges. Upgrading mechanical room equipment for better HVAC system operations. Converting existing flush valve units to bowl/tank type units for better maintenance of the plumbing systems. Replacing architectural items such as doors, ceiling tile and floor tiles, and windows, and minor painting of hallways and entranceways. Responsibilities include site Health and Safety Plan (HASP) review technical advisor.

West End Airfield Lighting Upgrades, Marietta, GA, Dobbins ARB, GA, CIH. Work involves ongoing renovation of lighting for runway. Responsibilities include site HASP review and approval oversight and technical advisor. Project includes the replacement of West End approach lights and vault electrical upgrade from existing 2,400-Volt system to a standard 480-Volt system.

Miami River Dredging, Miami, FL, USACE Jacksonville District, CIH. Project involved dredging of the Miami River, Miami, FL, dewatering of dredged materials, and transportation of materials. Supervised development of the site HASP and approved plan. Served as Program Safety and Health Manager performing both oversight and on-site safety officer functions, including training, air monitoring, and plan enforcement.

High-Temperature Indirect Thermal Desorption Treatment of Contaminated Soils, Coleman-Evans Superfund Site, Whitehouse, FL, CIH. Project involved the excavation of pentachlorophenol/dioxin contaminated soils and thermally treating the soil to remove the contaminants. Supervised development of the site HASP and approved plan. Served as Program Health and Safety Manager performing both oversight and on-site safety officer functions including training, air monitoring, and plan enforcement.

Coffey County Landfill Gas Collection System Installation, Arnold AFB, Tullahoma, TN, CIH. Project involved the installation of a gas collection system on an existing landfill where medical waste, UXO, and methane gas were known or anticipated hazards. Supervised development of the site HASP and approved plan. Served as Program Health and Safety Manager performing both oversight and on-site safety officer functions including training, air monitoring, and plan enforcement.

Remediation and Restoration for Early Transfer of Former Mare Island Naval Shipyard, Vallejo, CA, NAVSEA and NAVFAC, CIH. Developed transition EHS Program, reviewed Safety Plans, assisted in developing Asbestos Contractor Plans and submittals approved by CAL-OSHA, and provided industrial hygiene support services during program implementation. Services were provided under various firm fixed price (FFP) TOs issued through the $12 million NAVSEA Quick Response contract and the $54.9 million guaranteed fixed price remediation (GFPR) NAVFAC SW contract.

Key Projects (Continued)

Rapid Response/Immediate Response, Nationwide, U.S. Army Corps of Engineers (USACE), Omaha District, CIH. Developed template for plans preapproved by USACE and used to expedite preparation of site-specific HASPs. Approved all Work Plans, Site Safety and Health Plans (SSHPs), Construction Sampling and Analysis Plans (CSAPs), and Site-Specific Construction Management Plans (SSCMPs) to address health and safety factors, including chemical, physical, and biological hazards for all 65 task orders (TOs). At Fort Greely, AK, served as technical resource in conferring with regulatory agencies and other USACE districts. Acted as technical resource during all aspects of sampling for immediate response, bio-terror attacks, and postal facilities nationwide. The WESTON Rapid Team has successfully achieved 250,000 work hours without a lost time incident on this $65 million contract. Provided oversight during all sampling activities for emergency response anthrax sampling and testing. At Eastland Woolen Mill Superfund site remedial activities, conducted quarterly site audits to review implementation of the EHS program.

Base Environmental Support Services, Aberdeen Proving Ground (APG), MD, Directorate of Safety, Health, and Environment (DSHE), Health and Safety Manager. For this $100 million restoration, compliance, conservation, and pollution prevention (P2) TO cost reimbursable contract, has overall responsibility for health and safety, and develops and implements the programmatic HASP. Supervised 10 site safety personnel on 85 projects under this contract. Responsible for overall site health and safety on all DSHE/WESTON projects. Ensures all operations are in compliance with plan. Reviews all TO HASPs, Safety, Health, and Emergency Response Plans (SHERPs), and SSHPs to ensure compliance with program plan, and performs health and safety performance audits on individual TOs. To date, the contract has achieved 40,000 hours of work without a lost time incident, on projects including Levels A, B, C, and D personal protective equipment (PPE), and self-perform UXO location and identification projects.

- Used template for HASPs that have been preapproved to ensure better quality HASPs are provided more efficiently.
- Use of cooling suits for hot weather and thermal protection for cold weather work resulted in maintenance of productivity, even when working in Level B protection.

Key projects under this contract include:

- J-Field Burn Pit and Push Out Area—Hand and machine excavation of soil potentially containing UXO and CWM in non-metal containers as well as metals. Provided SSHP review and approval, training in Level A and Level B PPE, and assisted with development of methodology to allow machine excavation.
- J-Field Shoreline—Place stabilizing media along J-Field shoreline working in cold weather and, in many cases, in water.
- Phillips Landfill—Capping 5- and 10-acre segments of landfill.
- Canal Creek Water Treatment Plant—Design and manage construction of groundwater treatment plant to be constructed in existing facility. Project involved asbestos and lead abatement, and demolition prior to the construction management.

Key Projects (Continued)

Time-Critical Removal, U.S. Patent and Trade Office Site, Alexandria, VA, Project Safety Manager. Project involved the surgical excavation and removal of 750,000 cubic yards of soil contaminated with petroleum hydrocarbons, lead, arsenic, and PCBs. The job involved heavy construction and hauling of soils in a restricted space within a heavily populated and congested area. An aggressive perimeter air monitoring program was developed as well as a noise reduction process. Traffic to and from the site was restricted to certain streets and times. One portion of the site had been used as a landfill and later as a salvage yard. Previous work on-site had encountered military items and unknown cylinders. Contingency plans were developed and coordinated with local emergency responders for finding UXO and cylinders. The SSHP was designed to anticipate the encounter of these objects as well as asbestos, medical waste, and USTs. Developed health and safety program incorporating an automated perimeter air monitoring system with six measuring stations and a meteorological tower to measure, record, and warn against migration of VOCs and dusts. Audited construction activities biweekly during this $23 million excavation/contaminated soil removal project.

HTRW and A&E Contracts, Various Locations, USACE New England District (CENAE), CIH. Devised a safety planning process for HTRW contracts including development of an overall safety program and site-specific HASPs to be utilized for individual TOs under this $49 million contract. Reviews all HASPs; conducts field audits to ensure compliance with CENAE and WESTON Health and Safety Program, as well as OSHA regulations. Served as CIH for 6 CENAE projects that received outstanding CCASS ratings. Served as on-site safety and health manager for major portions of the $10 million Watertown U.S. Army Materials Testing Laboratory (AMTL) site. Played a key role in WESTON receiving CENAE's Safety Contractor of the Year Award in 1997.

HASPs, Various Locations Worldwide, U.S. Air Force Programs, AFCEE RAC/ENRAC/ WERC Contracts, Health and Safety Manager. Reviewed and approved HASPs for 60+ U.S. Air Force multimillion dollar programs including $61.5 million Remedial Action Contract (RAC), $114 million Environmental Remedial Action Contract (ENRAC), and $174 million Worldwide Environmental Restoration and Construction (WERC) Contract. Locations included Hachinohe Terminal, Yokosuka, Japan; and Pease, Kelly, Barksdale, and McConnell Air Force Bases (AFBs). Work involved asbestos, pesticides, heavy metals, polychlorinated biphenyls (PCBs), solvents, and petroleum, oil, and lubricants (POL). Ensured compliance with Occupational Safety and Health Administration (OSHA) and other regulations, conducted incident investigations and field site inspections, managed Material Safety Data Sheet (MSDS) programs, and developed and monitored routine medical examination and emergency medical care.

- Used template for HASPs that have been preapproved by AFCEE to ensure better quality HASPs are provided more efficiently.

HTRW Contract, USACE, Baltimore District, Health and Safety Manager. Directed and approved the implementation of field activities for adherence to safety, health, and emergency response plans (SHERPs); compliance with USACE safety requirements; OSHA; and other requirements. Responsible for medical monitoring, respirator fit testing, and training required by

Key Projects (Continued)

29 CFR 1910.120. Ensured appropriate health and safety measures were followed by subcontractors on this $15 million, 3-year contract.

Remedial Action Contract (RAC) Multiple Delivery Orders, CENAE, Certified Industrial Hygienist (CIH). Reviewed safety plans, and provided training and auditing of projects ranging from demolition to asbestos, to facility decontamination, to UXO. Recognized for Safety Achievement by CENAE in 1997.

Facility Decommissioning, Babcock and Wilcox, Mound, OH, DOE, CIH. Revised safety plans and monitored radiation for decontamination and turnover of government-owned, contractor-operated DOE facility structures for commercial development.

- Evaluation of on-site medical facilities resulted in recommendation of outsourcing, thereby reducing costs for the overall contract.

Housatonic River Project, Pittsfield, MA, U.S. Environmental Protection Agency (EPA) and USACE, CIH. As the CIH for the Housatonic River project (a 5-year $150 million PCB removal action), developed and implemented the health and safety program; performed initial site-specific training; directed air monitoring program; assists project superintendents in implementing the health and safety program. As CIH, visits the site monthly during sampling and construction activities, and is available for emergencies as needed. Oversees the activities of the SSHO, who reports directly to him. Reviewed and approved all safety and health plans and amendments. Performed reviews of safety program with Program Manager. Instituted self-safety audits with no safety incidents recorded. Under his direction, WESTON received the USACE's Safety Contractor of the Year Award.

Incineration of Contaminated Soils, Alabama Army Ammunition Plant, AL, USACE, Mobile District, CIH. Supervised safety and health during assembly and operation of high-temperature incinerator and feed stock excavation and preparation. Work was performed in Levels B-D PPE. Contaminants of concern were TNT, lead, and asbestos. Reviewed and approved SHERP and amendments. Visited site monthly for safety and health training and inspection. Supervised 3 S&H Officers and 4 Safety Monitors. Earned 7 safety awards over 4 years.

Submerged Quench Incinerator (SQI) Design/Construction/Operation, Hazardous Waste Management, Rocky Mountain Arsenal (RMA), USACE, CIH, Program Safety Officer. Reviewed/approved the SHERP for the CPFF SQI project designed to treat 11 million gallons of highly toxic liquid wastes. Provided initial training, established PPE levels of B-D, and audited safety program implementation. Supervised 2 Site Health and Safety Officers, and 2 Safety Technicians for 3 years. Project was completed on time with no OSHA-recordable accidents in more than 200,000 hours of work. Project received 2 Safety Awards from the Secretary, Department of the Army. Surveyed drums with potential CWM contamination, and managed drum handling and storage after characterization. Maintained hazardous waste containment facility and surveyed decontaminated buildings for asbestos-containing materials (ACM). Reviewed and determined levels of protection B-D and risk analysis.

Key Projects (Continued)

SQI Operation, RMA, Shell Oil/Morrison-Knudson, Program Safety Officer/CIH. Reviewed and approved the SHERP, provided technical guidance to the Site Safety Officer, and audited the project three times annually during the 3 years of operation. WESTON provided the maintenance and health and safety management during the management phase of the SQI. The SQI treated liquid with very high salt content in a high-temperature process. Operations hazards included hot surfaces and liquids, corrosives, 50% and 35% caustic solutions, acid treatment systems, and operation and maintenance (O&M) of the five-story complex. This phase of work also was completed without a lost time accident.

Groundwater Treatment Plant (GWTP), Construction and Operation, Old O-Field, Aberdeen Proving Ground, MD, USACE, Omaha District, Health and Safety Manager and CIH. Managed all health and safety activities during construction startup and initial phase of operation of the GWTP. Field crews performed work in PPE Levels A-D. Contaminants included CWM decomposition products, metals, and hydrocarbons. Periodically performed safety and health inspections and training. This project involved preparing and constructing a permeable infiltration unit (PIU) or cap over a 5-acre site contaminated with CWM, UXO, industrial chemicals, explosives, and reactive chemicals. Site preparation included UXO surveys and clearance, construction of roadways, and erosion control measures. PIU placement involved use of remotely operated, low-ground-pressure construction equipment protection. Supervised Site Safety and Health Officer for 2 years.

Old O-Field Permeable Infiltration Unit (PIU), APG, Aberdeen, MD, USACE, CIH and Health and Safety Manager. Responsibilities include overall management of the Health and Safety Program for this extremely sensitive and high-hazard project including safety plan development, air monitoring strategy development, risk assessment, Levels A and B PPE and emergency response training, and supervision of five Site Safety and Health Officers and technicians. This project involves preparation for and construction of a PIU or cap over a 5-acre site contaminated with CWM, UXO, industrial chemicals, explosives, and reactive chemicals. Site preparation included UXO surveys and clearance, construction of roadways, and erosion control measures. PIU placement involves use of remotely operated, low-ground-pressure construction equipment; operation of equipment in Level B protection; EPA Level A entries for UXO and container evaluations and response; fire contingency planning; and fire suppression system installation and management. The project proceeded with no lost time accidents in over 200,000 labor-hours of work. This achievement was recognized through a commendation from USACE.

Interim Remedial Measures (IRMs), APG, Aberdeen, MD, USACE, CIH. Reviewed all SHERPs, SSHPs, and plan amendments, and addenda for 15 cradle-to-grave delivery orders (DOs). Served as consultant to the Project Safety Officer and audited project for health and safety concerns. Reviewed and determined levels of protection, risk analysis process and CWM monitoring procedures, and quality assurance (QA) programs. Worked with military agencies and chemical protective clothing manufacturers to review PPE requirements and determine an effective approach. Approved final level of protection selection for sites involving potential military chemical agent contact.

Key Projects (Continued)

All DOs had high-hazard aspects, including potential encounter with UXO hazards and CWM, requiring UXO surveys and clearance for all DOs.

Unique hazards required development of additional special health and safety protocols such as:

- The first DO involving field work included decontaminating an underground tank containing a tearing agent. Level B protection was used, and a negative pressure containment cell was constructed around the work area.
- At Graces Quarters, disposal pits were excavated, which included potential UXO and CWM encounters that required close coordination with equipment operators, UXO contractors, and base Technical Escort Units (TEUs). Work also involved CWM monitoring, Level B PPE, operation of boats, and implementation of heat stress prevention protocols.
- At the Adamsite area, developed confined-space entry procedures for conducting sampling and instituted arsenic monitoring. A demolition plan was developed, but not implemented.
- At the Nike Missile site, confined-space entry protocols were implemented to enter and survey six underground missile vaults, remove lead paint and asbestos-containing materials (ACMs), and sample for PCBs prior to filling the vaults with a flowable fill. This task required rigid traffic control of 50 to 60 cement mixers traveling from Aberdeen to Edgewood.
- At the 26th Street site, where the excavation was similar to that at Graces Quarters, radiation contamination was encountered. Health physics resources were mobilized, and work continued safely. The health physics support was instrumental in assisting the base in dealing with regulatory issues and agencies.
- At Old O-Field, a groundwater assessment and containment well system was installed. Work was conducted in Level B PPE, and CWM monitoring was conducted. Following completion of this phase, a groundwater treatment facility (GWTF) was constructed.
- Used innovative technology, i.e., remotely operated equipment, to minimize time spent in Level A PPE, thereby reducing risks to individuals.

The achievement of more than 200,000 labor-hours without a lost time accident was formally recognized by USACE. Achieved significant cost savings by demonstrating that the Old O-Field GWTP did not have to meet “maximum credible event” criteria, and was commended by USACE for completing 4 years on the project without a lost-time incident.

The Old O-Field GWTF was designed by WESTON and built under the direction of WESTON. The GWTF is designed to treat the contaminated groundwater from Old O-Field. Contaminants included volatile hydrocarbons, metals, acids, and CWM breakdown products. The construction phase lasted almost 9 months and involved contracting with numerous tradespersons such as masons, concrete workers, pipefitters, electricians, and heavy equipment operators. This phase of the project was completed without a lost time injury.

Once construction was completed, WESTON assumed responsibility for operating the GWTF. The GWTF has treatment processes for acids, volatile organics, and CWM breakdown products.

Key Projects (Continued)

Treatment chemicals included sulfuric acid, caustics, hydrogen peroxide, sodium hypochlorite, lime, and polymer. Treatment technologies included filtration, neutralization, and ultraviolet light (UV) oxidation. This phase of work was completed without a lost time accident.

Multiple Projects, Picatinny Arsenal, NJ, USACE, CIH. Responsible for the review of all SHERPs, amendments, and addenda under this multiple, concurrent DO. Served as consultant to the Project Safety Officer, and audited the project for health and safety concerns. A key project included assessment of an explosives production process contaminated with explosive and reactive chemical residues. This involved use of remotely operated cameras to enter piping and assess crystalline deposits. Once contamination had been mapped, the piping was neutralized, decontaminated, and opened. The building housing the process was decontaminated, and asbestos and lead paint were removed following OSHA and EPA requirements. The building was successfully flashed to remove any traces of reactive contaminants.

Preplaced Remedial Action Contract (PRAC), Colorado, RMA, USACE, Program Safety Director, CIH. Responsible for surveying drums with the potential for chemical surety material (CSM) contamination, managing drums after characterization, maintaining a hazardous waste containment facility, and decontamination and surveying a building on the facility for ACM. Many buildings surveyed had been used in CSM production. Instrumental in review and determination of levels of protection (LOPs) and the risk analysis process.

Milan Army Ammunition Plant, Milan, TN, USACE, CIH. Provided CIH oversight, safety plan review, support of Site Safety Officer, and monthly auditing. Project involved extension of a landfill cap at Milan AAP. Project was principally a construction project and involved concrete work, excavation, and application of a clay and synthetic cap tied into the existing cap. Project was completed without a lost time accident.

HASPs and Field Operations Monitoring for Investigations and Remediation of U.S. Army Installations, Nationwide, USACE (Various Divisions), CIH. Provided oversight of preparation of HASPs and field work involving drilling and sampling at Volunteer AAP, Louisiana AAP, Umatilla AD, and Tooele AD (ordnance and explosive waste [OEW] and CWM were present). Worked with military agencies and chemical protective clothing manufacturers to review PPE requirements and to determine an effective approach acceptable to all parties. Approved final level of protection selected for sites involving potential military chemical agent contact. Performed similar work on remediation activities involving UXO and CSM at APG and Picatinny Arsenal.

Development of Health and Safety Program, Rocky Flats, CO, Rockwell International, Health and Safety Manager. Provided oversight of initial development of the health and safety program for the work performed by WESTON beginning in 1984. Reviewed and recommended training materials and programs for Rockwell, and provided training to WESTON personnel. Made regular visits to site to review conformance with the health and safety program, and reviewed and approved site-specific HASPs throughout the duration of the project.

Health and Safety Management, Pennsylvania, WESTON, Corporate Health and Safety Director. Developed, managed, and updated the health and safety program, as well as conducted training in and monitoring of conformance with the provisions of the health and safety program.

Key Projects (Continued)

Managed a staff of up to 15 persons and maintained an indirect management role with 50 Safety Officers. Instituted a practice of annual Safety Officer meetings, providing technical skill development.

Health and Safety Management, Spill Prevention and Emergency Response Technical Assistance Team (TAT) Multimillion Dollar Contract, New Jersey, EPA, Division Safety Officer. As the CIH for the cost-reimbursable, cradle-to-grave TAT contract, implemented the health and safety program, trained personnel for emergency response and hazardous materials site safety, audited conformance with the program, and assisted with management of the Corporate Health and Safety Program. Supervised 17 Safety Officers at various offices nationwide for 3 years (Safety Levels A, B, C, D).

Emergency Response Training, Various Locations, U.S. Navy, Naval Energy and Environmental Support Activity (NEESA), Training Manager. Developed, managed, and presented 11 emergency response training sessions at U.S. Navy and Marine facilities throughout the United States. In this same period, provided similar courses at U.S. Department of Energy (DOE) facilities at Rocky Flats, Fernald, and Los Alamos National Laboratory.

Hazardous Waste Site Training, Various Locations, Multiple Clients, Project Manager. Developed, managed, and provided training in more than 100 internal and external 40-hour training courses.

PCB Site Assessment and Emergency Action, Various Locations, EPA, TAT Contract, Industrial Hygienist/Toxicologist. Provided management and safety monitoring of assessments, sampling programs, and removal actions at PCB sites. Activities included safety protocol development, environmental assessment, and supervision of safety activities at PCB disposal and incineration sites.

Dioxin Site Assessments and Emergency Response Actions, New Jersey and Virginia, EPA, TAT Contract, Industrial Hygienist/Toxicologist. Managed the assessment and cleanup of dioxin-contaminated sites. Activities included sampling; developing cleanup, stabilization, and treatment processes; and safety management of cleanup contractors.

General Hazardous Waste Site Assessments and Emergency Response Actions, Various Locations, EPA, TAT Contract, Industrial Hygienist/Toxicologist. Provided management and safety monitoring of assessments, sampling programs, and removal actions at asbestos, pesticide, and volatile organics hazardous waste sites.

Dioxin Disposal Technology Assessment, Times Beach, MO, Confidential Client, Project Safety Manager. Provided safety management of a high-temperature dioxin decontamination testing process. Project included developing air-sampling strategies, as well as worker protection procedures, providing site-specific training, and implementing the air monitoring and decontamination sampling schemes.

Hazardous Waste Incinerator, New Jersey, Rollins Environmental Services, Safety Supervisor. Designed, managed, and implemented a health, safety, and emergency response program at a hazardous waste incinerator. Duties included training, emergency response team development, waste stream safety plan development, air sampling protocol development and

Key Projects (Continued)

implementation, safety plan development and audits of field services unit, medical program development, and management of a $1.2-million health and safety program and equipment budget. Reduced injury rate by 50% and lowered Workers' Compensation Experience Modification Rate to less than 1.0.

Industrial Hygiene, Pennsylvania, Pennsylvania Department of Environmental Resources (PADER), Industrial Hygiene Supervisor. Provided management and enforcement of industrial hygiene programs in two regional offices of PADER. Included conducting industrial hygiene surveys, authoring citations, and assisting with compliance plan preparation.

Occupational Health Assessment, Pennsylvania, Pennsylvania Department of Health, Technician. Managed occupational health mobile laboratory studies of coal miners and other occupations at risk from exposure to pneumoconiosis-producing dusts. Other projects included monitoring occupational health data from key Pennsylvania industries, reporting findings to occupational physician staff, and coordinating relevant industrial hygiene studies.

Publications and Presentations

Crawford, G.M., Jr. 1990. "Health and Safety at Hazardous Waste Sites." Presented at American Industrial Hygiene Association, Delaware Valley Section Meeting, Philadelphia, PA.

Crawford, G.M., Jr. 1990. "Hazardous and Radioactive Laboratory Materials Handling, Storage and Disposal." Presented at International Society of Pharmaceutical Engineers, North Carolina Seminars, Raleigh, NC.

Crawford, G.M., Jr. 1985. "Health and Safety Training at Hazardous Waste Sites." Presented at HazPro Workshop, Baltimore, MD.

Crawford, G.M., Jr. 1971. "Life Expectancy of Pennsylvania Coal Miners." *Archives of Environmental Health*.

Crawford, G.M., Jr. 1969. "Development of Patterns of Coal Workers' Pneumoconiosis." Proceedings of the National Academy of Sciences Conference on Coal Workers' Pneumoconiosis.

RYAN S. STEIGERWALT, P.G.

Qualifications Summary

- More than 6 years of professional experience in environmental and military munitions response investigations.
- Site management of sub-contractors on construction and MEC-related projects.
- Conducted geophysical investigations to identify munitions and explosives of concern (MEC) and MEC/CWM at a wide range of facilities.
- Conducted and coordinated project planning, removal action activities, QC, geophysical investigations, MC sampling, explosive safety submittals, Proposed Plans, and site-specific final reports.
- Interfaced multiple geophysical sensors with navigation systems for the development of wide-area survey equipment.
- Performed nonintrusive geophysical surveys to characterize and quantify environmental issues.
- Proficient in various GIS and geophysical software applications, i.e., Geosoft OASIS montaj contouring software.

Registration

Registered Professional Geologist in the Commonwealth of Pennsylvania (No. PG004779; 2007)
Blasters License in the Commonwealth of Pennsylvania (No. BL-7590; 2007)

Fields of Competence

Site management and on-site project coordination; quality control (QC); digital geophysical mapping (DGM) investigation design and digital data processing; Military Munitions Response Program (MMRP) implementation; preparation of work and safety plans; explosive safety submittals (ESSs); munitions disposal; munitions constituent (MC) investigations; tracking and progress reporting; and multiple client integration. Directly involved with a variety of munitions response investigations and program phases including site inspections, engineering evaluations and cost analyses (EE/CAs), remedial investigations and feasibility studies (RI/FSs), time-critical-removal actions (TCRAs), Proposed Plans, and removal actions.

Education

M.Sc., Geology/Geophysics—The University of Akron (2002)
B.Sc., Geology—Bloomsburg University of Pennsylvania (2000)

Credentials

Technology Committee Member – National Association of OEW Contractors (NAOC)
Environmental and Engineering Geophysical Society, Member
American Geophysical Union, Member
Radiological Worker II Training, Stoller Navarro Joint Venture (2005)
30-Hour Construction Safety Training, OSHA 29 CFR 1926, WESTON (2004)
40-Hour Hazardous Waste Site Training Course, OSHA 29 CFR 1910.120(e)(3), Daset (2002)
8-Hour Hazardous Waste Refresher Course, OSHA 29 CFR 1910.120(e)(8), WESTON (2007)
First Aid/CPR Training, WESTON (2007)
Bloodborne Pathogens Training, OSHA 29 CFR 1910.1030, WESTON (2005); Refresher (2007)

Credentials (Continued)

Geosoft DoD UXO QC System Training (2003)

Employment History

2008-Present	WESTON
2007-2008	Shaw Environmental, Inc.
2002-2007	WESTON
2000-2002	The University of Akron (Teaching Assistant)
2001	The University of Akron (Research Assistant)
1998-2000	Pennsylvania Geological Survey (Summers)

Key Projects

Interim Removal Action (IRA), New Boston Air Force Station (AFS), New Boston, NH, U.S. Army Corps of Engineers (USACE) Omaha District, Task Manager. This was an approximately $4.5 million IRA project involving a 1,100-acre surface munitions and explosives of concern (MEC) clearance and 80-acre subsurface MEC investigation in munitions response sites anticipated to be carried into the remedial investigation (RI) phase. The project site is characterized as remote with rough and variable terrain and thick vegetation. Developed planning documents to minimize impact to station operations and to avoid disrupting off-station activities. The project munition with the greatest fragmentation distance (MGFD) was the 100-lb general-purpose bomb (high explosive). Used maximum fragment distance and hazardous fragment distance arcs to segment the project area to direct project teams and minimize impact. This was the first IRA that was being performed under the Air Force Military Munitions Response Program (MMRP) . Required engineering evaluation/cost analysis (EE/CA) development and Action Memorandum signature prior to implementation.

Air Force MMRP Comprehensive Site Evaluation (CSE) Phase II Projects, USACE Omaha District, Technical Lead/Program Geophysicist. Implemented all aspects of the Air Force MMRP CSE Phase II program on more than 10 installations across the United States. Performed quality oversight on field teams performing transect surveys, munitions constituents (MC) sampling using X-ray fluorescence (XRF) and fixed-based laboratory samples and digital geophysical mapping (DGM). Developed work planning and safety documents. Assisted in frequent and open team meetings with USACE, AF Major Command, and installation personnel. Project sites included Arnold Air Force Base (AFB), Barksdale AFB, Buckley AFB, Clear AFS, Davis-Monthan AFB, Hill AFB, Langley AFB, McChord AFB, Nellis AFB, New Boston AFS, and Vandenberg AFB.

MEC Removal Action, Former Grenade and Rocket Ranges, Fort Sill, OK, USACE Tulsa District, Project Technical Advisor. Served as Technical Advisor for the $1.2 million MEC removal action at the former grenade and rocket ranges munitions response site located in the Southwest Cantonment Area of Fort Sill, OK. Provided oversight on all aspects of the project, including work and safety plan development, explosive siting issues, DGM, mag and dig

Key Projects (Continued)

implementation, and interim and final reporting. Replaced a previous contractor to complete project prior to critical Base Realignment and Closure (BRAC) construction activities.

Munitions Response Action, Former Fort Miles Military Reservation Formerly Used Defense Site (FUDS), USACE Huntsville Center (HNC) and Baltimore District, Project Geophysicist. Served as Project Geophysicist for munitions response actions at nine Munitions Response Sites (MRSs) at the Former Fort Miles Reservation (FMMR) FUDS located in Cape Henlopen State Park, Delaware. Was responsible for the project Proposed Plan, geophysical prove-out (GPO) work plan, GPO implementation, and GPO letter report.

Repair/Rehabilitation Project, Confidential and Secure Location, Air Force Center for Engineering and the Environment (AFCEE), Site Manager. Was Site Safety Manager for installation of a modular structure at a secure facility. Conducted oversight for a project team consisting of multiple subcontractors. Managed site earthwork, construction, and finishing phases of the project.

Area of Concern-1 MEC TCRA, USACE Baltimore District (CENAB), Hazardous, Toxic, Radioactive Waste (HTRW) 2000 Contract, Project Engineer/Geophysicist. Was Project Engineer/Geophysicist for the 278-acre MEC TCRA at the Tobyhanna Artillery Ranges (TOAR) FUDS, Tobyhanna, PA. Responsibilities included technical direction to dig, survey, and geographic information system (GIS) teams; progress tracking; and daily and weekly reporting. Prepared planning documents including work and safety plans, explosives safety submittal (ESS), and site-specific final report. Performed tracking and quality control (QC) of project metrics including production rates, costs, and progress milestones. Re-mobilized to perform a 74-acre TCRA expansion and adaptive clearance work funded by the Pennsylvania Department of Environmental Protection (PADEP) with USACE oversight. Performed munitions removal activities within neighboring residential developments. Began to prepare munitions response site prioritization protocol, project designation, and revised inventory project report for the FUDS property.

Geophysical Investigation, Spring Valley FUDS, Washington, DC, USACE CENAB, HNC, HTRW Contract, Project Geophysicist. Was Project Geophysicist for the Spring Valley FUDS DGM investigations. Conducted more than 50 DGM surveys in a residential/urban environment. Implemented both electromagnetic and magnetic methods to locate pit and trench-like features in addition to individual discrete anomalies indicative of buried military munitions and/or chemical warfare materials (CWM). Aided in the design of advanced geophysical data processing procedures for anomaly/clutter discrimination. Conducted frequent Anomaly Review Board presentations to the Spring Valley Partners (CENAB, HNC, U.S. Environmental Protection Agency [EPA], and other regulators).

Repair/Rehabilitation Project, Confidential and Secure Location, AFCEE, Worldwide Environmental Restoration and Construction (WERC) Contract, Site Manager. Functioned as the Site Manager and provided safety oversight for a subcontractor team of six personnel performing repair/rehabilitation design and implementation work. Conducted QC activities throughout the project to ensure structural stability and safety for the team and surrounding infrastructure. Coordinated with facility personnel daily to update on project progression.

Key Projects (Continued)

Historic Outfall 4S MEC TCRA, Former Mare Island Naval Shipyard, U.S. Department of Navy BRAC Program Management Office West and Naval Facilities Engineering Command Southwest, Geophysicist. Conducted DGM to locate MEC. Prepared planning documents. Implemented a GPO. Located and reacquired geophysical anomalies. Prepared geophysical site-specific final report.

Demolition and Transportation of an Indirectly Heated High Temperature Thermal Desorption System, West Chester, PA, WESTON, Site Coordinator. Aided in the coordination and dismantling of an indirectly heated high temperature thermal desorption system. Inventoried and tracked the shipping of all equipment and machinery related to the system. Managed and provided oversight of transportation and crane operations during final equipment staging.

Well Abandonment Activities, Defense Distribution Depot Susquehanna, Pennsylvania (DDSP), USACE CENAB, HTRW 2000 Contract, Site Manager. Conducted a geophysical investigation to locate buried supply wells in a residential neighborhood. Managed a team of subcontractors to excavate and abandon identified wells. Performed quality oversight and coordinated directly with the client on quality and technical issues.

Geophysical Anomaly Reacquisition, Luke AFB, AFCEE, WERC Contract, Geophysicist. Reacquired geophysical anomalies over approximately 60 miles of roadway through Barry Goldwater Former Bombing Range. Used real-time kinematic global positioning system (RTK-GPS) for reacquisition.

Nevada Test Site – Areas 7 and 18, U.S. Department of Energy (DOE)/Stoller Navarro Joint Venture, Geophysicist. Responsible for DGM activities using a multi-sensor towed array system, and data collection using MAGLOG with Trimble RTK navigation. Performed surveying and reacquisition using RTK.

Ordnance and Explosives (OE) Site Inspection Addendum (SIA), Fort Dix, Ocean, and Burlington Counties, NJ, USACE, HTRW 2000 Contract, Geophysicist/Site Manager. Managed geophysical teams, MEC dig operations, and subcontractors. Directed site operations while processing and performing QC activities on geophysical data. Developed a target prioritization scheme for magnetic anomalies by extracting anomaly information such as size, response, and fit properties. This process reduced digs by approximately 30%. Approval was granted by CENAB and HNC reviewers.

Tobyhanna Artillery Ranges Remedial Investigation/Feasibility Study (RI/FS), EE/CA, PADEP/CENAB, HTRW 2000 Contract, Processing/Site Geophysicist. Processed and interpreted magnetic data collected using a variety of positioning systems including GPS and USRADS. Performed QC checks and discussed daily operations with the project geophysicist and site manager. EE/CA involved the evaluation of approximately 27,000 acres of rough and wooded terrain located in Tobyhanna State Park and Pennsylvania Game Lands #127. Transitioned through EE/CA to RI/FS.

Geophysical Prove-out (GPO), Fort Worth, TX, Carswell AFB, AFCEE WERC Contract, Project Geophysicist. Designed and implemented GPO. Created sled for EM-61 MK2 to enable

Key Projects (Continued)

detection of 20mm rounds. Used Trimble RTK for navigation and surveying. Provided QC on towed-array system data.

TCRA, Buckroe Beach, Hampton, VA, USACE, Baltimore and Norfolk Districts, HTRW 2000 Contract, Project Geophysicist. Performed electromagnetic geophysical surveying to identify 40, 75, and 76mm projectiles of World War I and World War II era. Items were mistakenly emplaced during beach replenishment activities in the 1990s. Approximately 13 acres were surveyed extending from and including the dry beach to 18 inches of water. The EM-61 MK2 system was water-proofed and modified to withstand the high-energy surf zone environment. The single coil system was integrated with an RTK GPS using NMEA output to eliminate the need for time synchronization.

OE Removal Action, Open Detonation Grounds, Romulus, NY, Seneca Army Depot, USACE, Remedial Action Contract (RAC), QC Geophysicist. Implemented newly prepared QC procedures to ensure geophysical data and positional quality during towed-array electromagnetic geophysical surveys. The primary objective of this investigation was to accurately identify MEC over an area encompassing approximately 230 acres. The use of these QC procedures identified problem areas quickly and efficiently, and needed less client oversight and supervision.

Quality Assurance (QA) Geophysical Surveys, Open Burning Grounds, Romulus, NY, Seneca Army Depot, USACE, RAC, Geophysicist. Electromagnetic (EM-61) and magnetometry (G-858 and G-856) surveys were conducted for QA purposes on 4 acres of the Seneca Army Depot. The objective was to detect anomalies that had the potential to be unexploded ordnance (UXO) at depths of up to 2 ft below ground surface (bgs). Anomaly maps and dig sheets were submitted and investigated on-site to evaluate previous geophysical investigations.

UXO Geophysical Survey, Fort Dix, Ocean, and Burlington Counties, NJ, USACE, Baltimore District, HTRW 2000 Contract, Geophysicist. Performed meandering magnetic surveys over approximately 90 acres using GPS navigation in accordance with a visual sample plan developed through VSP software. Aided in identifying six high-priority areas that required further investigation. These six 1-acre sites were geophysically scanned using both EM-61 MK2 and G-858 instrumentation utilizing fiducial navigation along relative grids.

OE/Debris Pile Delineation, Former Nansemond Ordnance Depot, Suffolk, VA, USACE, Norfolk District, HTRW 2000 Contract, Geophysicist. Utilized a combination of magnetics, electromagnetics, and ground-penetrating radar (GPR) to delineate and three-dimensionally image debris piles having the potential of containing OE materials. This technique provided approximate debris volumes needed for cost estimation and future removal actions, and focused sampling. Devised flotation devices for both G-858 and EM-31 instrumentation to scan a horseshoe-shaped pond directly inland from the Nansemond River.

Nonintrusive Geophysical Investigation, Howard County, MD, Department of Public Works, Geophysicist. Geophysically scanned high-priority areas for buried foundations, tanks, drums, and other debris that posed potential risks for future land development plans.

Key Projects (Continued)

Suspect Drum Search, Removal Support Team (RST), Saratoga Springs, NY, EPA, Region 2 Superfund Technical Assessment and Response Team (START), Geophysicist. Performed metal detection and GPR surveys to identify anomalies indicative of buried drums. Produced anomalies table with position information to perform intrusive activities.

Leach Field Delineation and Well Placement, Newtown, CT, Confidential Client, Geophysicist. The objectives of this geophysical investigation were to provide subsurface information to locate and identify former and current septic leach fields and geologic/ hydrogeologic conditions. The geophysical results were used to determine the placement of subsequent groundwater monitoring wells. Subsurface imaging of the site was conducted utilizing a complement of terrain conductivity electromagnetic (EM) and earth resistivity (ER) methods.

Underground Storage Tank (UST) and Utility Investigation, West Virginia, City of Wheeling, Economic and Community Development Department, Geophysicist. Performed electromagnetic and GPR surveys to provide subsurface information needed for Phase II investigations and future land development.

Buried Drum Investigation, Lock Haven, PA, Confidential Client, Geophysicist. Performed both EM-61 high-sensitivity metal detection and EM-31 terrain conductivity surveys to scan the subsurface in search of alleged drums buried at a former chemical plant. Anomalies were geographically referenced, navigated to, and flagged for follow-up GPR imaging. The results were used as reference for potential property purchasers.

Geophysical Investigation, Philadelphia, PA, Philadelphia Gas Works, Passyunk and Richmond Plants, Geophysicist. The primary objective was to locate and map potential USTs, utilities, and former building foundations that may affect soil boring and test pit placement. Reconnaissance surveying using electromagnetic (EM-61) methods was used to determine areas that may need further investigation. Investigated these areas using GPR to provide information necessary to enhance the resolution and depth of specific major anomalies previously imaged by the EM-61.

Formerly Utilized Sites Remedial Action Program (FUSRAP) Project, Deepwater, NJ, Confidential Client, Level B Support. Supported Level B operations during FUSRAP investigations. Aided in decontamination procedures, and worked closely with drill crews and sampling teams.

Site and Location Map Development, Strasburg Landfill, Chester County, PA, PADEP. Developed a site and location map using GPS positions collected on-site.

Publications and Presentations

Ervine, M.J., R.S. Steigerwalt, and N. Fatherly. 2007. “Lines of Evidence Support New Investigation of Lake Target Outside of TOAR FUDS.” Accepted, UXO Forum 2007, Orlando, FL. 30 August 2007.

Publications and Presentations (Continued)

Steigerwalt, R.S., J.A. Williams, and C.L. Evans. 2006. "Digital Geophysical Mapping Program at the Spring Valley FUDS, Washington, D.C." SERDP/ESTCP Partners in Environmental Technology Technical Symposium, Washington, DC.

Steigerwalt, R.S. 2005. "Prioritization Routine for Digital and Visual Magnetic Anomaly Evaluation." EEGS *FastTimes*.

Pasapane, B.P., J. Brzezenski, R.S. Steigerwalt, and D. Pohl. 2003. "Real-Time and 3D Delineation of Possible OE-Related Buried Materials." Mid-Atlantic SAME Conference 2003 Proceedings.

Steigerwalt, R.S. and D.N. Steer. 2002. "New Evidence for Shallow Lateral Movement Within the Grenville Province: Implications for Basin Development." *GSA Bulletin.*

Steigerwalt, R.S. and D.N. Steer. 2002. "New Constraints on Transport Direction During the Grenville Orogeny: Evidence for a Basement Lateral Ramp in the Eastern Mid-Continent, North-Central Section and South-Central Section." GSA joint meeting.

Steigerwalt, R.S. and D.N. Steer. 2001. "Constraints on Transport Direction Along a Shallow Detachment in the Upper Precambrian of the Eastern Midcontinent." *EOS*, Trans., AGU 82(47): F1236, Fall Meeting Supplement.

EUGENE F. "SONNY" RICHARDSON

Qualifications Summary

- Over 31 years of professional experience.
- Over 31 years of EOD/UXO experience including 24 years of active duty military impact/demolition range operations as an EOD Technician performing UXO search, detection, clearance identification, and disposal operations.
- Eight years of civilian UXO industry experience.
- Master Explosive Ordnance Disposal Technician.
- UXO Operations Supervisor and Project Manager.
- Handling, removal, and disposal of all aspects of UXO and range residue.

Registration

UXO Certification, USACE Huntsville Center (No. 0653)
Licensed Blaster in the Commonwealth of Pennsylvania (2003)
Licensed Blaster in the State of Alabama (2005)
Certified Master EOD Technician, U.S. Navy (1983)
Certified Radiation Worker II, Nevada Test Site (2007)
Accredited AHERA Asbestos Inspector, EPA (2001)

Fields of Competence

Supervision of hazardous, toxic, radioactive waste (HTRW)/ munitions and explosives of concern (MEC) projects; unexploded ordnance (UXO) Project Manager; high hazard remediation; Site Safety and Health Officer; Senior UXO Technical Manager. UXO site excavation, removal, and disposal; range clearance and disposal operations; explosive ordnance disposal (EOD); chemicals; radioactive materials including nuclear weapons; explosives transportation and storage; and safety and environmental compliance.

Education

B.S., General Studies—Chaminade University of Honolulu (1988)
Graduate, Explosive Ordnance Disposal School, U.S. Navy, Indian Head, MD (1976)

Credentials

Facilities and Infrastructure 101 Training, WESTON (2006)
40-Hour Hazardous Waste Operations Health and Safety Course, 29 CFR 1910.120(e)(3), K.I.S 2 (1994)
8-Hour Hazardous Waste Refresher Course, OSHA 29 CFR 1910.120(e)(8), UXB International (2003)
8-Hour Managers and Supervisors Course, OSHA 29 CFR 1910.120(e)(8), UXB International (2003)
Confined Space Entry Rescue Training, OSHA 29 CFR 1910.146, UXB International (2001)
CPR/First Aid Training, WESTON (2001)
Qualified Mixed Gas Diver, U.S. Navy (1984; 1981)

Credentials (Continued)

Qualified Naval Free Fall and Static Line Parachutist, U.S. Navy (1983)
Advanced Access and Disablement – EOD, U.S. Navy (1984)
Dynamics of International Terrorism, U.S. Air Force (1991)
Qualified Free Fall and Static Line Parachute Jumpmaster, U.S. Navy (1984)

Military Awards and Decorations:

Navy Achievement Medal (1980): Project monitor for Area Point Search System development, implementation, and service acceptance.

Navy Commendation Medal (1982): Diving operations response to a diving accident resulting in the saving of a life.

Employment History

2003-Present	WESTON
1999-2003	UXB International, Inc.
1998-1999	U.S. Navy, EOD Mobile Unit Two
1994-1998	U.S. Navy, Defense EOD School
1990-1994	U.S. Navy, EOD Mobile Unit Two Det. Mayport
1976-1990	U.S. Navy, Various Naval EOD Units

Key Projects

Time-Critical Removal Action (TCRA) Unexploded Ordnance (UXO) Removal and Disposal, Former Tobyhanna Artillery Range, Tobyhanna, PA, U.S. Army Corps of Engineers (USACE), Baltimore District, Site Technical Manager. Provided oversight for execution of deliverables, including UXO removal and disposal of munitions and explosives of concern (MEC) items located in 120 acres of former artillery ranges.

UXO Assessments and Quality Control (QC), Tallil Military Base, Iraq, Air Force Center for Engineering and the Environment (AFCEE), Technical Manager. Conducted UXO assessments and QC oversight of deliverables.

Remedial Investigation/Feasibility Study (RI/FS), Former Tobyhanna Artillery Ranges, Tobyhanna, PA, Pennsylvania Department of Environmental Protection (PADEP), Site Manager. Supervised execution of deliverables, including site characterization of 25,000 acres of previously used artillery ranges, and disposal of all UXO and material potentially presenting an explosive hazard (MPPEH) encountered.

TCRA, Former Tobyhanna Artillery Ranges, Tobyhanna, PA, Project Manager. Supervised execution of deliverables, including UXO removal of deposited ordnance items located on 12 miles of roadway.

Range Residual Removal (R3) Program, Various Locations (Fort Drum, NY; Moody AFB, GA; Saylor Creek Bombing Range, Mountain Home, ID; Dare County Bombing Range, NC; Falcon Bombing Range, Cash, OK; Poinsett Bombing Range, Shell AFB, SC;

Key Projects (Continued)

Townson Bombing Range, Townson, GA; Claiborne Bombing Range, Shreveport, LA), U.S. Air Force, Operations Director. As Operations Director, managed the location, identification, removal, and demilitarization of bombing range residue. Used an innovative technology, which consisted of a hydraulic crushing machine designed specifically to demilitarize practice ordnance. Supervised activities of 6 staff members.

TCRA, Buck Roe Beach, VA, USACE, Baltimore District, HTRW Contract, Project Manager. Supervised execution of deliverables, including UXO removal of deposited ordnance and disposal items on Buck Roe Beach, VA. Used geophysical mapping, not previously used at this site, prior to excavation of ordnance items (40mm and 76mm anti-aircraft projectiles).

TCRA, Quonset Point, RI, USACE, Omaha District, Rapid Response Contract, UXO Project Manager. Created work plans, and worked on-site to institute removal of an unexpected discovery of a cache of sea mines. Used excavator and hand access mine to determine if safe before removal.

Remediation/Demilitarization Services, Various Locations, Multiple Clients, Life Cycle Project Manager (LCPM), Demilitarization Services Division Operations Director, Senior UXO Supervisor, UXO Safety Specialist. Responsible for the development of numerous projects, managing all aspects of assigned projects from cradle to grave. Most recently involved in the R3 work on various military bombing ranges (U.S. Air Force, U.S. National Guard, and U.S. Air Force Reserve) throughout the United States. Projects included:

- Management of UXO remediation contract for USACE on a time and materials basis at the former Camp Maxey, TX. Maintained a 16% profit line and received positive comments from all concerned.
- Management of UXO fixed price remediation contract at the former Fort Learnard, AK for the USACE. Achieved a profit margin of 51.38% versus the 10% bid rate.
- Management of a UXO fixed price remediation contract at the Quantico Marine Corps Base for Whiting Turner Contracting Co. During this demanding and logistically difficult project, managed to achieve a profit margin of 27% versus the 10% bid rate.
- Demilitarization Services, Various Locations, Multiple Clients, Operations Director. Management of five demilitarization projects for various clients under a fixed price contract basis.

UXO Remediation, Loring AFB, ME; Canoga Park, CA; Former Camp Maxie, TX; Houston, TX; Dutch Harbor, AK; USACE Huntsville, CONUS/OCONUS Contract, Life Cycle Project Manager. As a Life Cycle Project Manager, made resources available (personnel, facilities, and equipment); communicated and directed instructions from the client for scoping, negotiating, or modifying contract costs and schedules; managed all aspects of the project; coordinated all contract work; and supervised task identification and resolutions. Was responsible for achieving the contractual cost and schedule targets. Coordinated the preparation of detailed work order specifications and schedules; identified the technical and site personnel to accomplish the work scope; assisted the UXO QC Specialist and UXO Safety Officer in the

Key Projects (Continued)

implementation of project quality, and safety and health procedures; and directed personnel. Ensured that the proper project documentation was on-site, including personnel certifications, the approved work plan, and corporate memoranda and policies. Interfaced directly with the client's Project Manager, advised the client on progress, and promptly implemented client-authorized changes.

UXO and Ordnance Explosives Remediation, Former Nansemond Ammunition Depot, Virginia, USACE Huntsville, CONUS/OCONUS Contract, Senior UXO Supervisor. During this temporary assignment, planned, coordinated, and supervised all UXO and subcontractor activities; supervised multiple project teams that were performing UXO and UXO-related activities (clearance, land surveying, geophysics, reconnaissance and classification of UXO, pyrotechnic items, and military explosives and materials); located surface and subsurface UXO; destroyed UXO and ordnance and explosives (OE) by burning or detonation; and/or transported and stored UXO and explosive materials. Participated in the preparation of standard operating procedures (SOPs) for UXO operations; ensured compliance with U.S. Department of Defense (DOD), federal, state, and local statutes and codes; certified ammunitions, explosives, and dangerous articles and/or range scrap were ready for turn-in or disposal; identified potential problem areas and instituted corrective measures; assisted the QC Specialist and UXO Safety Officer with quality and health and safety procedures; documented site conditions; prepared project reports; and identified efforts to accomplish the scope of work.

Training/Readiness Programs, NAB Little Creek, VA, U.S. Navy, EOD Mobile Unit Two, Readiness, Training, and Diving Officer. Responsible for developing and implementing EOD Mobile Unit Two's training and readiness programs. This included the monitoring of real world contingencies, and tailoring training and readiness exercises to meet and exceed the requirements necessary to succeed in all possible military events.

Operation of United Kingdom's Explosive Ordnance Disposal (EOD) School, Lodge Hill Camp, Chattenden, England, U.S. Navy, Defense EOD School, Second in Charge (2 I/C), Naval Training Officer, Diving Officer, and Instructor. As the Executive Officer (2 I/C), responsible for the day-to-day operation of the United Kingdom's Explosive Ordnance Disposal School including: personnel (military and civilian), discipline, budget, foreign training, and curriculum development. As Naval Training Officer, researched, devised, and implemented new curriculum to meet the needs of the Royal Navy.

EOD Services, EOD Mobile Unit Two Det. Mayport, Mayport Naval Station, Florida, U.S. Navy, Officer in Charge and Command Diving Officer. Responsible for EOD services for Mayport Naval Station and Naval ordnance items that were within the State of Florida. Assisted and augmented various federal agencies as required. Performed semiannual range clearance at Pinecastle Bombing Range in Astor, Florida. Was also responsible for all diving evolutions on Mayport Naval Station. Received numerous accolades and letters of appreciation for operational response, support, and assistance.

Ordnance Location/ID/Rendering Safe, Multiple Naval EOD Units, Various United States and International Locations, EOD Technician to Readiness and Training Officer/Diving Officer. Duties included, but were not limited to, the location, identification, and rendering safe

Key Projects (Continued)

of foreign and domestic surface, air dropped, and underwater ordnance; remote or clandestine insertion by means of parachute or diving; and the rendering safe of improvised explosive devices. Employed on numerous high-risk evolutions ranging from Presidential protection to EOD support for the 1984 Summer Olympic Games to range clearances in Somalia.

Qualifications Summary

- More than 20 years of professional experience in environmental investigations (industrial and federal facilities), property transfer, CERCLA RI/RAs, auditing, remedial actions, and RCRA Facility Investigations (RFIs) and closures at industrial/ hazardous waste sites, including environmental/hazardous waste sampling, vapor intrusion evaluations, geophysical studies; FSs, including conceptual design of cleanup scenarios; Proposed Plans and RODs; BRAC process; PA Act 2 site closure process; NEPA EAs; development and execution of field laboratory analytical procedures for environmental/hazardous samples; and QA/QC.
- Four years of Community Planning; promote sustainability, GreenGrid®, and LEED®; training for LEED®-Accreditation.
- Review of federal and state regulations, compliance issues, RCRA Part B and Subpart X permits, stormwater including green roof, and NPDES permit applications.
- Experimental design, data interpretation/evaluation, statistical analyses, data management.
- Two years of industry experience (major petroleum corporation), including product development, field trials, process plant simulation, and data management/analysis.

STACIE A. POPP, P.E.

Registration

Registered Professional Engineer (P.E.) in the Commonwealth of Pennsylvania (#PE-043232-E; 1992)

Fields of Competence

Property transfer/real estate solutions including environmental assessments (EAs), real estate transfer audits, community planning, sustainable design including Leadership in Energy and Environmental Design (LEED®), vapor intrusion evaluations, land use controls (LUCs), stormwater issues (including GreenGrid® roof), and Base Realignment and Closure (BRAC) process; project management; Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA), Resource Conservation and Recovery Act (RCRA), and Pennsylvania Act 2 site investigation (SI)/closure processes; hazardous and toxic waste site audits; remedial investigations/ feasibility studies (RI/FSs); technical oversight for remedial actions; environmental, hazardous waste, and toxic materials sampling and analysis; value and cost estimating; statistical analyses; environmental compliance and permitting; industrial plant process/product research and development (R&D); quality assurance/quality control (QA/QC); computer modeling; and data review and management.

Education

M.Ch.E., Chemical Engineering—Villanova University (1985)
B.Ch.E., Chemical Engineering—Villanova University (1981)

Credentials

LEED® (Leadership in Energy and Environmental Design) for New Construction Technical Review Workshop (2006), U.S. Green Building Council
Certified Master Planner Certificate (Penn State Association of Boroughs and the PA Municipal Planning Education Institute)
U.S. Green Building Council (USGBC), National Member and Delaware Valley Chapter Member
Green Building Association of Central Pennsylvania (GBACPA)

Credentials (Continued)

8-Hour Hazardous Waste Refresher Course, OSHA 29 CFR 1910.120(e)(8), (2005)
Bloodborne Pathogens Refresher Training, OSHA 29 CFR 1910.1030, (2006)
First Aid Training, (2005)
CPR Training, (2004)
8-Hour Managers and Supervisors Course (SHSC), OSHA 29 CFR 1910.120(e)(4), (1987)
40-Hour Hazardous Waste Site Training Course, OSHA 29 CFR 1910.120(e)(3), WESTON (1988)
Health and Safety Officer
Pennsylvania Society of Professional Engineers
Society of Women Environmental Professionals (SWEP)

Employment History

1985-Present WESTON
1982-1984 Villanova University, Graduate Assistant
1983 (Summer) Sun Refining and Marketing Company, Inc.
1981-1982 Sun Refining and Marketing Company, Inc.

Key Projects

Quality Control (QC) Oversight, U.S. Army Corps of Engineers (USACE), Baltimore District (CENAB) Hazardous, Toxic, Radioactive Waste (HTRW) Contract, Program QC Manager. Provides program-level QC oversight for all document reviews, field activities, and reports. Manages technical reviews, conducts audits, and implements corrective actions.

1995 Base Realignment and Closure (BRAC) Program, Letterkenny Army Depot (LEAD), Chambersburg, PA, USACE, Baltimore District, Technical Manager/Project Engineer. Responsible for technical oversight/quality assurance (QA) for detailed background investigation and overall program documents including preparation of Environmental Baseline Survey (EBS), BRAC Cleanup Plan (BCP), Community Relations Plan, Community Environmental Response Facilitation Act (CERFA) Report, Depot-Wide Quality Assurance Project Plan (QAPP), and several Finding of Suitability to Lease (FOSL) documents. Acted as representative to BRAC team and Restoration Advisory Board (RAB), including public/community relations, giving presentations for the Army, and negotiating with Project Managers and technical representatives from U.S. Environmental Protection Agency (EPA) Region 3 and Pennsylvania Department of Environmental Protection (PADEP) regulators, legal personnel, Chambersburg Area School District (CASD), and Local Redevelopment Authority (LRA) (Letterkenny Industrial Development Authority [LIDA]). Developed technical content and addressed Army, regulatory agency, LIDA, and public comments for Finding of Suitability to Transfer (FOST) documents to facilitate property transfer for four phases of the LEAD BRAC 95 parcel. Helped design innovative land transfer strategies allowing for early transfer to satisfy regulators and the U.S. Department of Defense (DOD) while providing marketable property for LIDA. The program was conducted in accordance with the DOD Fast Track Cleanup Program for Closing Installations.

Key Projects (Continued)

Responsible for continual updating of project milestone schedule, priorities list for agency reviews, and monthly BRAC Cleanup Team (BCT) meeting minutes.

Remedial Investigation/Risk Assessment (RI/RA) of 60 BRAC Parcels, LEAD, Chambersburg, PA, USACE, Baltimore District, Technical Manager/Project Engineer. Responsible for technical and regulatory issues for technical planning, implementation, data review/laboratory coordination, and reporting for simultaneous investigations at up to 20 parcels to determine if the property is suitable for industrial reuse by the LRA. Technical leader for successful development, negotiations with EPA and PADEP, and implementation of a screening-level risk assessment process to "clear" non-impacted parcels. Also streamlined processes resulting in reduced cost and condensed schedules through programwide data quality objectives (DQOs) approach and template report. Was technical leader for reports and schedule prepared for the project, and demonstrated ability to adjust schedules and reprioritize RIs and reporting based on Army and LRA needs. Provided technical oversight and review of field work including geophysics and field screening techniques to limit sampling requirements; baseline human health and ecological risk assessments for sites that do not pass the screening-level process; and closure of radiological buildings in accordance with both Nuclear Regulatory Commission (NRC) and BRAC requirements for unrestricted reuse. Technical lead for vapor intrusion studies/evaluations conducted in accordance with new guidance from EPA and state regulators.

Community Planning, Letterkenny Army Depot, PA and Honey Brook, PA. Assisted update of environmental provisions portion of Master Plan for several BRAC and restoration sites at Letterkenny Army Depot. As community planner, have served on the planning commission for local township (Honey Brook, PA) (4 years) and contributed to updated Community Comprehensive Plan (like a Master Plan for the community).

Sustainability, LEED® and Green Grid Roof, Various Locations, Multiple Clients, Technical Manager. As Technical Manager, prepared and presented sustainability presentation for Andrews Air Force Base. Continue promoting and educating federal clients on GreenGrid® roof, Leadership in Energy and Environmental Design (LEED®) and other sustainability practices/goals, including those specified in Executive Order 13423, "Strengthening Federal Environmental, Energy, and Transportation Management.

Resource Conservation and Recovery Act (RCRA) Closures for 10+ Sites and RCRA Part B Permit Application for Open Burning/Detonation Area, LEAD, Chambersburg, PA, USACE, Baltimore District, Project Engineer. As Professional Engineer, provided technical oversight/QA including scoping, sampling, technical plan preparation/review, reporting, permit application review, negotiating with regulatory agencies, and addressing regulatory agency comments.

Bench- and Pilot-Scale Studies for Evaluating Innovative In Situ Groundwater and Surface-Water Remediation Techniques and Vapor Intrusion Testing, LEAD, Chambersburg, PA, USACE, Baltimore District, Technical Manager. Responsible for technical quality of bench- and pilot-scale studies and oversight of subcontractors, including technical oversight/review of preparation of plans and specifications, field testing, and evaluation of the following innovative in situ remediation technologies relative to site-specific conditions at LEAD:

Key Projects (Continued)

- In situ chemical oxidation (ISCO) (using hydrogen peroxide [H_2O_2]) of dense nonaqueous phase liquid (DNAPL) in the shale bedrock aquifer.
- In situ chemical oxidation (using H_2O_2) of DNAPL in the limestone (karst) bedrock aquifer.
- Treatment of volatile organic compounds (VOCs) in surface water via a patented microporous ozone sparging technology.
- Removal of polychlorinated biphenyl (PCB)-contaminated suspended sediment from surface waters via sedimentation and filtration with coagulant/polymer additives.
- Technical oversight for soil gas sampling testing and results to evaluate vapor intrusion and effects of changes in seasonal/groundwater height.

Focused Feasibility Study (FFS), Proposed Plan (PP), and Record of Decision (ROD) for Two Groundwater Operable Units (OUs) with DNAPL Sources in Karst, LEAD, Chambersburg, PA, USACE, Baltimore District, Technical Manager. Primary author or QA reviewer of FFS, PP, and ROD for two groundwater OUs at LEAD. Evaluation of alternatives included innovative solutions to source removal of DNAPL in a limestone (karst) bedrock aquifer, including several ISCO approaches to destroy DNAPLs mixed with petroleum, oil, and lubricants (POLs).

- Streamlined processes through data quality objectives (DQOs) approach and produced $500,000 in cost savings.

Site Assessments, RI, RA, and Removal Actions (Pennsylvania Act 2 and CERCLA), Fort Indiantown Gap, PA, USACE Baltimore District, Department of Military and Veterans Affairs (DMVA), National Guard Bureau, and U.S. Army Environmental Center (USAEC), Project Manager and Technical Manager. Project Manager/Technical Manager for CERCLA-type remedial investigation/risk assessment (RI/RA) and site remediation for three sites including procurement of subcontractors, invoicing, managing budget, staffing for office and field work, managing technical personnel, reviewing documents, and communications and negotiations with client. Was technical lead and performed QA for SI, removal actions, and Pennsylvania Act 2 closure report, including: writing and reviewing planning documents and reports; preparing Community Involvement Plan; reviewing/evaluating data; preparing public notices; coordinating with subcontractors; managing field and office staff; and interfacing with clients. Was Project Manager for remediation (excavation and off-site disposal) of lead-contaminated soils/ash material and semivolatile organic compound (SVOC)-contaminated soils. Used on-site laboratory screening to allow for fast-track removal action. Implemented lessons learned/best practices procedure based on feedback from client concerning document preferences. Studies included soil, sediment, groundwater, and waste material for multiple chemicals. Managed up to eight field and office personnel.

- Tracked three sites together, which resulted in cost savings and less documentation for clients to review.

Key Projects (Continued)

Federal Business Team, WESTON, Quality Management Representative. Works with Project Managers, administrative, and technical staff to implement quality project plans, sharing lessons learned, and best practices. Provides input for quality issues on high risk project reviews. Serves as liaison between team and corporate/regional quality groups. Assisted profit center implement corporate quality management initiatives.

Military Munitions Response Process Manual, USACE Huntsville District/Zapata Engineering, Technical Manager. Technical expert, contributing author, and reviewer for updating Military Munitions Responses Process engineering pamphlet. Held a working meeting with clients to incorporate comments to streamline the revision process. The document is pertinent to Formerly Used Defense Sites (FUDS), BRAC, and other sites with munitions and explosives of concern (MEC). Also assisted Tobyhanna project team at WESTON to implement the process for a large piece of property because the CERCLA process had not yet been implemented for a MEC project.

Hazardous Waste Management and Contingency Plans, Naval Air Station, Brunswick, ME, U.S. Navy Engineering Field Activity Northeast, Technical Manager. During on-site meetings/site visit, interviewed staff and assessed waste generation, storage, and disposal practices. Reviewed records and files for recycling practices, and hazardous waste generation, management, minimization, and training documentation. Reviewed federal (RCRA/CERCLA), state (Maine Department of Environmental Protection [MDEP]), and Navy (OPNAVINST) regulations that apply to the wastes generated. Prepared revised/updated hazardous waste management plan and contingency plan, incorporating needs found during site visit and recommendations for training and recordkeeping procedures.

RI/FS, Wallops Island, VA, USACE Norfolk District, Technical Expert. Provided critical review of and cost estimate for revising an existing RI/FS prepared by a separate consulting firm. Involved quick turnaround time so that the client could procure a budget for additional work.

RCRA Closure, Pennsylvania, Boeing, Project Engineer. Conducted RCRA closure inspection, team leader for site sampling, and reviewed/certified closure of former RCRA hazardous waste storage area. Produced certified closure report that was submitted to PADEP.

Toxic Substances Control Act (TSCA) Documentation, Allentown, PA, Pennsylvania Power and Light (PP&L), Project Engineer. Provided technical expertise for PCBs and TSCA, reviewed records for 7 years of PCB waste disposal (transformers, capacitors, PCB articles, and bulk containers), and combined information for PCB annual regulatory documents and produced template to streamline future reporting for the client.

SIs and Remedial Response, Various Locations, USACE, Omaha District, Rapid Response, Chemist. Prepared and provided technical oversight for analytical and QA aspects of SIs and remedial actions; helped select analytical laboratories; involved with data quality issues and data review; involved with on-site sampling strategy planning/decision sessions with the client. Involved quick turnaround time for immediate and rapid response tasks. Sites have included DOD and EPA/Superfund sites in Pennsylvania, Michigan, Montana, and Missouri. Produced

Key Projects (Continued)

various sampling and QA Plans**,** including creating template to streamline process to save client time and money.

Hazardous Waste Management and Sampling Plan, Various Locations, Air Combat Command, U.S. Air Force, Project Engineer. Team leader for evaluating and updating hazardous waste sampling and analysis plans for 4 Air Force bases. Performed site inspections of RCRA waste management facilities; evaluated hazardous waste accumulation points/waste streams and management/sampling procedures; and conducted records reviews at several facilities that included maintenance shops, paint booths, wood shops, and auto shops. Provided recommendation report for modifications to procedures, including updating sampling plans and analytical protocols.

Multiple Site Characterizations and Remediations, Pennsylvania, Kentucky, and West Virginia, Confidential Gas Pipeline Client, Project QC Officer. Performing project QC for a major characterization and remediation program (more than 300 sites) for an industrial client involved in active natural gas pipeline facilities. Responsibilities include preparation and QC review of major program documents (including quality assurance project plan [QAPP]), communications and negotiations with the client and regulatory agencies; technical oversight of remediation activities; QA/QC reviews of characterization and remedial work plans, standard operating procedures (SOPs) to streamline operations, and data reports; statistical evaluation of data; and audits of field activities. Principal constituents are PCBs, benzene, toluene, ethylbenzene, and xylenes (BTEX), and mercury, as well as other organics and inorganics. Managing up to five people at any one time.

Multiple Site Characterizations and Remediations, Various Locations, Confidential Gas Pipeline Client, Lead Project Engineer. Performed numerous site characterizations, oversight of remediations, and related activities for an industrial client with active facilities (natural gas pipeline) in Pennsylvania, New Jersey, Kentucky, and Ohio for a period of more than 7 years. Included evaluation, assessment, and costing of remedial actions and technical oversight of remedial actions and reports. Principal contaminant was PCBs. Responsibilities included QA/QC reviews; communications and negotiations with the client, subcontractors, and state regulatory officials; coordination and supervision of technical activities (managed up to 10 people at a time); site evaluations; experimental design and design of field investigations; preparation and review of site sampling plans, QA/QC plan, health and safety plans (HASPs), numerous site data reports and technical support data evaluations, and site remediation plans; evaluation and interpretation of data including statistical analyses and preparation of presentations for negotiations with agencies; evaluation of potential treatment technologies; and applicability of federal and state regulations and Consent Decrees. Performed on-site activities such as surface water, soil, and equipment surface sampling; site reconnaissance for mapping purposes; and auditing of field activities. Provided technical QC review and coordination of plans, reports, and field sampling activities through setup/management of field operations center.

SI and Remedial Action, Harvey Point Defense Testing Activity (HPDTA), North Carolina, Baker Environmental and the Department of the Navy, Atlantic Division (LANTDIV),

Key Projects (Continued)

Project Engineer. Performed site characterization and planning documents for remedial actions for an active U.S. testing facility (HPDTA), including plans and reports. Duties included technical oversight and QA/QC for site characterization activities; evaluation and costing of remedial action alternatives; preparation of remedial plans and design specifications; and client and agency communications.

RFI/Corrective Measures Study (CMS) and Remedial Actions, Michigan, Confidential Client, Project Engineer. Performed site characterization activities for an industrial client at three facilities, one of which is an active facility, planning activities for an RFI/CMS, costing of remedial actions, and technical oversight/reporting for remedial actions. Dealt with multiple organic and inorganic contaminants of concern. Responsibilities included communications and negotiations with the client and regulatory officials, budget compilation and tracking, data review and interpretation, coordination and supervision of technical and field activities, statistical evaluation of data, and preparation and QC review of plans and reports. Managed three people.

Multiple Site Characterizations and Remedial Action Evaluations, Pennsylvania, Massachusetts, and New York, Confidential Gas Pipeline Client, Lead Project Engineer. Performed several site characterizations for an industrial client at eight active natural gas pipeline facilities. Responsibilities included communication with the client, subcontractors, and other consultants; preparation of planning documents; data reports/data management; and field activities. Also provided support for evaluation and planning of remedial activities. Schedules were carefully planned and expedited to allow for as much work as possible in good weather events. Managed up to four people at any one time.

SIs and Remedial Action, Morgantown Energy Technology Center (METC), West Virginia, CENAB, Project Engineer. Performed site characterization and technical oversight for verification of remediation activities for an active U.S. Department of Energy (DOE) research facility, including planning documents and reports. In addition, was primary author for QA/QC oversight manual. Managed three people. Provided technical oversight, document QC reviews, and client communications.

EA/Site Assessments and Remediations, Pennsylvania, City of Philadelphia, Division of Aviation, Lead Project Engineer. Conducted EAs of a former municipal incinerator site, an open property to be developed, and four jet hangars. In addition, provided oversight of several other consultants/contractors on sampling/remediation tasks and planned site assessment for airport fire training pit. Duties included review of existing documentation, site inspections, contact with client and regulatory agency personnel, preparation of findings report, recommendations for Phase II investigations, and planning for characterization of fire training pit. Managed three people. In addition, prepared EAs for numerous new airport projects.

Enhanced Preliminary Assessments, California and Indiana, U.S. Army Toxic and Hazardous Materials Agency (USATHAMA), Project Engineer. Conducted an extensive background investigation and assessment of site conditions, history, and operations of two operating Army bases in preparation for base closure. Duties included interviews with site and agency personnel, regulations reviews, management of team, data compilation, records searches

Key Projects (Continued)

and reviews, and preparation of a report that included recommendations for characterization and sampling for base closure.

Environmental Audit, Pennsylvania, Texas, and Mexico, Confidential Client, Lead Project Engineer. Conducted an environmental audit, extensive background investigations, and assessment of conditions of multiple sites for a real estate transfer environmental assessment (RETEA). Duties included (as team leader and manager of two people) interviews with site and agency personnel, audit of waste disposal procedures, site inspections, regulations reviews, records searches and reviews, and preparation of a findings report that included recommendations for follow-up sampling and remediation actions.

Site Screening Inspections, Florida, USATHAMA, Project Engineer. Conducted audits of site operations and disposal activities, including investigations of background information and records of operating U.S. Army facilities to support the EPA Hazard Ranking System (HRS) scoring. Duties included interviews with site and agency personnel, site audit, and preparation of a report that included recommendations for characterization and sampling.

RI/FSs, (Various Locations, EPA, Project Engineer. Project Engineer for two Superfund hazardous waste sites (inactive and active wood-treating facilities) in Maryland and Virginia. Contaminants included polynuclear aromatic hydrocarbons (PAHs) and dioxins. Set up on-site laboratory and performed on-site analysis of PAHs in soil, groundwater, and surface-water samples during field investigations. On-site laboratory allowed for continued site work under adverse weather conditions (excessive heat). Performed additional on-site work, including geophysical studies, air monitoring, and soil and groundwater sampling. Performed FS to design optimum alternative for soil, sediment, and groundwater cleanup, including innovative thermal treatment technologies.

Regulation Review and Permit Application, Tennessee, Confidential Client, Lead Project Engineer. Prepared National Pollutant Discharge Elimination System (NPDES) permit application for stormwater discharge during the construction of an automobile manufacturing facility. In addition, prepared a specifications outline for waste management during construction and operation of the facility. Conducted extensive review of potentially applicable state and federal regulations, including issuance of a report summarizing compliance issues such as NPDES and solid waste permits.

Permit Application, Ohio, Fondessy, Project Engineer. Prepared revisions for a Part B RCRA permit application for a major hazardous waste treatment and disposal facility. Included extensive evaluation of landfill liner technology and chemical compatibility.

FS, Pennsylvania, EPA, Project Engineer. Performed an FS of a Superfund site (inactive facility) where the main contaminant was asbestos. Evaluated alternative remediation scenarios for the treatment of asbestos piles.

Regulations Review, Pennsylvania, Bentley-Harris, Lead Project Engineer. Performed an extensive review of potentially applicable state and federal regulations for a manufacturing client

Key Projects (Continued)

planning to build a new facility; issued a report summarizing compliance issues such as NPDES and solid waste permits.

QAPP, Pennsylvania, Horsehead Resource Development Company, Inc., Lead Project Engineer. Prepared a QAPP for a remediation plan at a Superfund site where the main contaminant was zinc. Involved with meetings and negotiations with EPA personnel.

RI/FS, New Jersey, New Jersey Department of Environmental Protection (NJDEP), Lead Project Engineer. Conducted an RI/FS of a New Jersey state agency-led Superfund hazardous waste site where the contaminants were various organic and inorganic compounds. Duties included interaction with state regulatory agency officials; planning, implementation, and coordination of sampling activities; supervision of engineers and scientists; investigation and evaluation of site background information; evaluation of data from site sampling activities; and preparation of site sampling plans, QA/QC plans, and the RI (data) report.

FS, Maryland, USATHAMA, Project Engineer. Performed feasibility screening of technologies for contaminated soils for USATHAMA. The main contaminants were metals. Duties included the evaluation and screening of treatment technologies, and the optimization, design, and costing of micro-encapsulation and rotary kiln thermal treatment systems for determination of the most cost-effective treatment scheme.

FS, Ohio, Dover Chemical, Project Engineer. Performed an FS to determine the optimum alternative for cleanup of groundwater at a chemical processing facility where the main contaminants were carbon tetrachloride and chlorobenzenes. Evaluated soils and groundwater contamination, and prepared conceptual design and economic analysis of treatment alternatives, including aeration and activated carbon adsorption systems.

Permit Application, New York, Confidential Client, Project Engineer. Prepared a response for Notice of Deficiency (NOD) for a Part A permit for a manufacturing facility. Designed a training program for employees involved with hazardous waste management at the facility.

Process Development R&D, Pennsylvania, Sun Co., Project Engineer. While employed by Sun Refining and Marketing Co., Inc., performed computer simulation of a lube process plant by performing computer regression analysis to evaluate process operating data for an oil refinery and preparation of samples from the lube refining process for physical property analysis.

Product Development R&D, Pennsylvania, Sun Co., Project Engineer. While employed by Sun Refining and Marketing Co., Inc., coordinated development programs for new automotive fuels and fuel components for a major petroleum company, including product testing, bench-scale laboratory analysis for testing of gasoline physical properties, and automotive part compatibility.

Publications and Presentations

Popp, S.A. 1991. "An Approach for Determination of Average Residual Concentration of PCBs in Soil." Presented at the Hazardous Materials and Environmental Management Conference and Exhibition/South, Atlanta, GA.

Popp, S.A. and J.N. Motwani. 1989. "UV Fluorescence Field Screening Technique Developed and Utilized Under the Superfund Program." Presented at the Hazardous Waste and Hazardous Materials Conference, New Orleans, LA.

Popp, S.A. and J.N. Motwani. 1987. "Chemical Compatibility Studies of Geosynthetic Liner Systems." Presented at HAZMACON, Santa Clara, CA.

Motwani, J.N., S.A. Popp, G.M. Johnson, and N.A. Minoch. 1986. "Field Screening Techniques Developed Under the Superfund Program." Presented at the Superfund 1986 Conference, Washington, DC.

Yeh, G.C., B.J. Ratigan, J.G. Wilber, S.J. Correnti, B.V. Yeh, D.M. Richmond, S.A. Popp, and M.C. Cashian. 1983. "Capillary Distillation." Presented at the AIChE National Conference.

JOHN A. WILLIAMS, JR., P.G.

Qualifications Summary

- More than 32 years of professional experience.
- More than 24 years of experience in geological and geophysical investigations, including subsurface profiling with GPR, electrical resistivity (ER) and EM conductivity, TDEM, magnetics, VLF, SP, shallow seismic refraction, magnetotelluric, GPS techniques for numerous private industry, municipal, and state and federal facilities.
- Over 23 years of experience in analysis, interpretation, integration, and reporting of geological and geophysical data; and 6 years of experience in bathymetric, hydrographic, and aquatic biological studies.

Registration

Registered Professional Geologist in the State of Tennessee (#1127; 1987)
Certified Ground-Penetrating Radar (GPR) Operator, Geophysical Surveys Systems, Inc. (GSSI) (1987)
OASIS UX-Detect Data Processing, Geosoft, Inc. (2001)

Fields of Competence

Geological and geophysical investigations; geological and groundwater sampling techniques and instrumentation technology; design, operation, and evaluation of geophysical survey equipment; testing and analysis of aquifers and groundwater pollution; and remedial investigations/feasibility studies (RI/FSs).

Experienced in several computer software programs for processing geophysical data, including GSSI-RADAN3, EM-DAT31/34/61, MagMap, Geosoft (OASIS/UX-Detect), and Trimble Pathfinder.

Education

B.S., Earth Science (Geology)—West Chester University (1983)
A.S., Marine Technology—Cape Fear Technical Institute (1975)
Graduate Studies, Geophysics—West Chester University (1988-1989)

Credentials

40-Hour Hazardous Waste Site Training Course, OSHA 29 CFR 1910.120(e)(3), WESTON (1985)
8-Hour Hazardous Waste Refresher Course, OSHA 29 CFR 1910.120(e)(8), WESTON (2007)
10-Hour Construction Safety Training, OSHA 29 CFR 1926, WESTON (2004)
Bloodborne Pathogens Training, OSHA 29 CFR 1910.1030, WESTON (2007)
Project Management Training, WESTON (1993)
Short Course in Theory and Field Application of Magnetotellurics Methods in Hydrogeological Investigations, University of Berkley Field Campus (1996)

Credentials (Continued)

Theory and Practice of Applying Subsurface Interface Radar Technology in Engineering and Geological Investigations, GSSI Facility (1987)
Short Course, OASIS montaj UX-Detect Software for UXO Data Analyses, Geosoft, Inc., UXO Countermine Conference (2001)
Environmental and Engineering Geophysical Society

Employment History

1982-Present	WESTON
1980-1982	Environmental Resources Management, Inc.
1977-1980	WESTON
1976-1977	Highway Service Marineland
1975-1976	Lawler, Matusky, Skelly Engineers

Key Projects

Geophysical Investigation, Laughlin Air Force Base (AFB), TX, Air Education and Training Command (AETC), Geophysicist. Led preparation of work plan and design of geophysical investigation at U.S. Air Force Marina, Release Site, Lake Amistad National Recreation Area, Del Rio, TX. Supervised very low frequency (VLF) profiling and earth resistivity electrical imaging methods to map structure (conductive/resistive zones) in the shallow bedrock. The objective of this survey was to provide information necessary to locate and map structural trends in the shallow bedrock, specifically major vertical fractures and voids. It is suspected that these features in proximity to a hydrocarbon release point may have acted as possible conduits for migration of hydrocarbons. The results and information yielded from the geophysical investigation provided focus and guidance for follow-up intrusive activities (i.e., optimizing locations for exploratory excavations to confirm the movement and extent of contamination).

Pilot Study, Area A, Barry M. Goldwater Range (BMGR), Luke AFB, AZ, AETC, Geophysicist. Led geophysical investigations to locate ordnance and explosives (OE) (especially unexploded ordnance [UXO]) in a 60-mile network of roads within Area A in support of investigation/eventual clearance of OE and cleanup of munitions constituents (MC) for formal acceptance of Area A by the Bureau of Land Management (BLM). Utilized multi-sensor towed array to acquire high density data and expedite field activities on roads and trails. Field activities included geophysical prove-out (GPO), geophysical survey, investigation of identified anomalies, and removal/disposal of OE/UXO. WESTON also had the challenge of meeting AETC/BLM's aggressive performance standard for clearance of munitions and explosives of concern (MEC) within former Area A and coordinating with state, local, and other federal stakeholders in order to complete the field work in a National Monument. In addition, there were several logistical issues related to working in the remote area of the Sonoran Desert under extremely hot weather conditions. These projects were located in a remote section of the Sonoran Desert National Monument area. WESTON coordinated with the Air Force, BLM, U.S. Fish and Wildlife Service, and Arizona Game and Fish Department in order to accommodate sensitive habitat of

Key Projects (Continued)

protected flora and fauna including saguaro cactus and pygmy owl. Provided Basis for Conveyance Strategy Plan to develop operations and maintenance (O&M) costs and enabled the site's lessee to accelerate remedial activities and optimize formal acceptance of the area.

Remedial Investigation, Former Carswell AFB, TX, Air Force Center for Engineering and the Environment (AFCEE) 4P Architect-Engineering (A-E) Contract, Geophysicist. Directed geophysical investigations that were part of this RI to remove identified UXO and related materials, based on site-specific conditions. Project resulted in the site receiving a U.S. Department of Defense Explosive Safety Board (DDESB) Residential Land Certification.

UXO Site Investigation (SI), Thule AB, Greenland, AFCEE Environmental Remedial Action Contract (ENRAC), Geophysicist. Assisted in preparation of work scope. Provided technical oversight in the preliminary UXO site investigations, including digital geophysical mapping. Work consisted of visual sweeps of off-base areas where UXO had previously been found, delineation of other UXO source areas, and mapping of located UXO in other areas of environmental concern with electromagnetic instrumentation. Work was performed at remote locations in rigorous terrain. The work schedule was expedited taking into consideration a 3- to 5-month window surrounding seasonal weather conditions.

Geophysical Investigations, Seneca Army Depot, NY, U.S. Army Corps of Engineers (USACE), New England District, Rapid Response, Lead Geoscientist. Worked closely with CENAB and CEHNC geophysicists on developing Type II Work Plan relative to CEHNC Data Item Descriptions (DID). Responsible for quality assurance (QA) of geophysical subcontractor data acquisition and reporting relative to all aspects of CEHNC DID requirements.

Geophysical Investigations, Fort Dix, NJ, USACE, Baltimore District (CENAB), Hazardous, Toxic, Radioactive Waste (HTRW) 2000 Contract, Lead Geoscientist. Participated in TTP session to design geophysical investigations using time-domain electromagnetic (TDEM), and magnetometry (MAG) techniques at Fort Dix to identify potential buried ordnance and ordnance related items. Worked closely with CENAB and CEHNC geophysicists on developing Type I Work Plan and project geophysical quality control (QC) requirements relative to CEHNC DIDs.

Geophysical Investigations at Various Sites, Spring Valley, DC, USACE, Baltimore District, HTRW 2000 and HTRW 2005 Contracts, Lead Geoscientist. Conducted and provided technical oversight for digital geophysical mapping of 56 property parcels under this high profile project for USACE, Baltimore District, over a 4-year period from 2002 through 2006. Required close coordination with USACE based on limited time-frames for rights-of-entry (ROE). The project required state-of-the-art geophysical techniques for mapping anomalies looking for evidence of MEC and chemical warfare material (CWM). Electromagnetic (EM-61, MK 2) and magnetometry (G-858 and G-856) surveying methods were used to investigate the parcels. Stringent data collection and QC requirements, as described in the USACE-approved work plan, are required. Data and reports are thoroughly reviewed by the USACE Baltimore and Huntsville clients, in addition to the U.S. Environmental Protection Agency (EPA), DC Public

Key Projects (Continued)

Health, and the property owners. Aggressive schedules are required by USACE to expedite removal actions at these high-profile residential and American University properties. Expert support and presentation of data at Anomaly Review Board meetings is required for consensus approval from regulators and Army clients. WESTON has effectively identified numerous high priority anomalies on this project.. WESTON has provided high quality digital geophysical mapping with a dedicated team of professionals. Integration of a target prioritization protocol through data modeling and analysis has minimized unnecessary anomaly reacquisition and allowed WESTON to streamline the collection and data processing on this project, giving the client a cost-effective option for identifying anomalies. WESTON has also utilized the TeamLink[SM] website for the transfer of files and collaborative workspace with the clients. Since initiating the Spring Valley, MD, FUDS support in 2002, WESTON has used DrChecks, a specific application of the USACE PROJect extraNet (ProjNet) web service. This web service allows the secure exchange of design and construction information among authorized business partners in the context of specific business processes, and has been used extensively on this project to reduce meeting time and cost, eliminate collating of comments submitted in a variety of formats, promote participation by facility managers and owners, and speed reviews. On the Spring Valley project it has been clearly demonstrated that the use of the program has saved USACE and the project shareholders time and effort, and has resulted in a higher quality product. WESTON has used DrChecks in the review of over 50 documents, resulting in an estimated savings of over $25,000. Work performed at Spring Valley has been performed consistent with Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) Section 104, and in substantial compliance with National Contingency Plan (NCP) Sections 300.120(c) and 300.295(e), and applicable provisions of 29 Code of Federal Regulations (CFR) 1910.120.

"New Techniques for Precisely Locating Buried Infrastructure" Project, Various Locations, American Water Works Association Research Foundation (AwwaRF), Lead Scientist. The project required the use of electromagnetic (EM) and sonic and acoustic (S&A) instruments and ground penetrating radar (GPR). Responsibilities included coordination of field evaluation, workshop presentations, data analyses, interpretation, and reporting.

Geophysical Investigation, Shenandoah Road Groundwater Contamination Site, East Fishkill, NY, EPA, Region 2 Superfund Technical Assessment and Response Team (START), Lead Geoscientist. Conducted geophysical surveys to better characterize general structure (conductive/resistive zones) in the shallow bedrock along the Shenandoah Ridge using very low frequency (VLF) profiling and electrical imaging using earth resistivity (ER) methods. The objectives were to provide structural information about the bedrock and overburden on the northern portion of the ridge and better locate and delineate fault and joint surfaces, which facilitate the transport toward the main valley. (These fracture zones represent high-yield zones that the drillers were likely seeking when they were installing the residential wells.) The information obtained from this investigation was used to: (1) further develop the site conceptual model; (2) provide focus for the RI activities and optimize the placement of proposed monitoring wells; (3) better understand the migration pathways of PCE to the various locations where it was

Key Projects (Continued)

detected; and (4) to provide structural information to better determine if the easternmost fault acts a hydraulic barrier, keeping contaminated water from migrating beyond the Precambrian block.

Geophysical Investigation at Lajes Airfield, Azores, Portugal, U.S. Air Force (USAF), Lead Geoscientist. Designed and implemented magnetotelluric (MT) surveys to image hydrogeologic characteristics adjacent to the airfield's water supply wells. All of the supply wells drew their water from a deep basal aquifer system under the island. Over-pumping and saltwater intrusion were identified as potential contributors to elevated drinking water quality standards. The objectives of the MT surveys were to image the suspended and basal aquifers in regard to variations in the thickness and location of the freshwater/saltwater (transitional) zones. Additional structures, such as fractures and faults, were identified. Responsible for analyses, interpretation, and reporting of data. Results were used to map well field stratigraphy, identify seawater intrusion zones, and freshwater recharge zones to locate future production wells.

Geophysical Investigations at Various Sites, USACE, Baltimore District, HTRW Contract, Geophysicist. Conducted geophysical investigations using GPR, EM, and MAG techniques at five facilities. At Aberdeen Proving Ground (APG), MD, conducted GPR and EM investigations to identify buried ordnance waste pits, buried process lines, and buried septic systems at several sites. At Morgantown Energy Technology Center (METC) in Morgantown, WV, conducted GPR and EM investigations to identify a potential buried chemical waste pit, and a buried process line at two sites. At Lower Saddle River, NJ, conducted GPR, EM, and MAG investigations to characterize a buried waste area for a flood control project.

Geophysical Investigation for UXO, APG, Edgewood Area, MD, N-Field Site, Geophysicist. The objective of the investigation was to locate and map MAG and EM anomalies (indicative of potential ordnance and/or related anomalies) at depths of approximately 2 to 8 feet below ground surface (bgs). WESTON conducted both electromagnetic (EM-61) and magnetic (G-858) surveys. Surveys were conducted using a dense sampling interval to obtain the high resolution necessary to detect significant anomalies. A total of 109 anomalies requiring further analysis and visualization were selected from these plots. Data were used to construct the geophysical anomaly summary tables. Potential "discrete" ordnance locations were derived in state planar coordinates for the 109 selected anomalies. Reacquisition activities were conducted in March 2000. Results were used to identify and remove significant munitions-related items that could potentially impact site construction activities proposed at the site.

Subsurface Imaging, Washington Navy Yard, Washington, DC, Geophysicist. Used GPR and EM to locate underground storage tanks (USTs), associated piping, and other potential utilities/assets. A geographic information system (GIS) database was developed, which included asset codes, characteristics, and ID confidence ratings for mapping the features. Assets were color-coded and plotted on GIS site facility maps.

Geophysical Investigation, Fullco Wood Treatment Facility, Alabama, EPA Region 4, Emergency Response Team (ERT), Project Coordinator/Field Team Leader. Coordinated and supervised field crews conducting seismic refraction, EM terrain conductivity (EM-31 and EM-34), VLF, and spontaneous potential (SP) to determine bedrock configuration and the

Key Projects (Continued)

presence of weathered or fractured zones in the shallow subsurface. Additional responsibilities included data analysis and interpretation, and report preparation.

Geophysical Investigation, Riverbank Army Ammunition Plant (RBAAP), Riverbank, CA, USACE, HTRW Contract, Lead Project Scientist. Conducted a preliminary geophysical investigation using GPR and MAG to characterize the disposition of waste materials as part of a site assessment. Data from the study located the boundaries of a former landfill.

Base Realignment and Closure (BRAC) Soils Investigation, 15 Military Facilities in the States of Connecticut, New York, and New Jersey, and Commonwealths of Massachusetts and Virginia, Argonne National Laboratory (ANL), USACE, Under Contract to U.S. Army Toxic and Hazardous Materials Agency (USATHAMA), Field Team Leader. Coordinated and supervised a three-person field crew conducting soil boring, surface soil, and sediment sampling for geological, hydrogeological, and contaminant characterizations at 15 sites, including housing and commissary areas and Nike sites. Responsible for data management, interpretation, and report preparation.

Enhanced Preliminary Assessment (PA), Massachusetts, Fort Devens, USACE, Under Contract to USATHAMA, Project Geologist. Performed property characterizations to identify and characterize "areas requiring further environmental evaluation" associated with historical and current uses, with emphasis on physiography, geology, hydrogeology, and sensitive environments, and the effects related to human and environmental receptors. In addition, served as project geologist for enhanced PAs conducted at Fort McClellan, AL, and the Kansas Army Ammunition Plant, KS.

Groundwater Assessment, Newark, OH, Owens Corning Landfill, Project Geologist/Field Team Leader. Conducted field investigations for hydrogeological SIs pertaining to a permit-to-install application. Provided interpretation of geological conditions and hydrogeological regime in the underlying aquifer.

Geophysical Investigation, Virginia, Fort Myer, USACE, Baltimore District, Lead Project Scientist. Conducted a preliminary geophysical investigation using GPR to characterize the disposition of waste materials as part of a site assessment pertaining to a proposed construction project. Data from the GPR study located a lobe of the former sanitary landfill under the proposed construction area.

SI and RI/FS, Naval Weapons Station (NWS) Earle, Colts Neck, NJ, Northern Division (NORTHDIV), Naval Facilities Engineering Command (NAVFAC), Lead Project Geologist. Coordinated and supervised a field crew conducting soil borings, monitor well installations, Hydropunch sampling, and groundwater, surface-water, and sediment sampling for geological, hydrogeological, and contaminant characterizations at 25 waste disposal sites. Conducted and supervised aquifer slug testing. Member of project Technical Review Committee (TRC) responsible for reporting to NORTHDIV, EPA Region 2, and the New Jersey Department of Environmental Protection (NJDEP). Additional responsibilities included data management, data interpretation, and preparation of work plans and reports.

Key Projects (Continued)

RI/FS, NWS Yorktown, Yorktown, VA, Atlantic Division (LANTDIV), NAVFAC, Lead Project Geologist. Conducted preliminary geophysical investigations, including the use of GPR and EM to characterize the disposition of waste materials at eight sites. Coordinated follow-up activities and supervised a field crew conducting soil borings, monitor well installations, Hydropunch sampling, aquifer slug testing, tidal and groundwater monitoring, and groundwater, surface-water, and sediment sampling for geological, hydrogeological, and contaminant characterizations at 16 waste disposal sites. Conducted and supervised aquifer slug testing. Member of project TRC responsible for reporting to NORTHDIV, EPA Region 2, and NJDEP. Additional responsibilities included data management, data interpretation, and preparation of work plans and reports.

Publications and Presentations

Williams, Jr., J.A., et al. 2001. "New Techniques for Precisely Locating Buried Infrastructure." American Water Works Research Foundation. September 2001.

Qualifications Summary

- More than 21 years of professional experience in environmental analytical chemistry.
- Responsible for managing the development and implementation of all data management tools for WESTON under the DSHE BEST contract.
- Over 10 years of experience in EPA CLP deliverable program validation, supervision of data reporting, and package construction.
- Staff and subcontractor laboratory supervision.
- Data validation/management (ERPIMS), QA/QC procedures.
- Strong working knowledge of EPA Region I QAPP Compendium, U.S. Army Corps of Engineers (USACE) QAPP guidance, and AFCEE QAPP guidance; and state QAPP guidance.

KELLY MUIR SPITTLER

Fields of Competence

Environmental analytical data validation and management, laboratory quality assurance/quality control (QA/QC) procedures, and QA Project Plan (QAPP) development for military, federal, and state agencies. Coordination/implementation of U.S. Environmental Protection Agency (EPA) Contract Laboratory Program (CLP); validation of EPA CLP deliverables; CLP package construction, review, and reporting of data.

Education

B.S., Chemistry—Purdue University (1986)

Credentials

Data Validation Training, U.S. EPA Region I (1990 and 1998)
Environmental Resources Program Information Data Management Systems (ERPIMS) Training, AFCEE (1999)
American Chemical Society

Employment History

1987-Present WESTON

Key Projects

Hurricanes Katrina and Rita Emergency Response, U.S. Environmental Protection Agency (EPA) Superfund Technical Assessment and Response Team (START) Region 6, Environmental Unit (EU), Leader and Senior Project Chemist. The EU is the interface between the planning and operations sections in the local Incident Management Team (IMT). Supervised a staff of up to 5 individuals, working 12 to 16 hours per day, and 7 days per week for more than 1 year (3-week on-site rotations). The EU received two letters of commendation from EPA senior leaders. Responsibilities include:

- Production of Quality Assurance Sampling Plans (QASPs) for 10 Federal Emergency Management Agency (FEMA) temporary housing sites and 20 hazardous waste and white goods collection sites.

Key Projects (Continued)

- Evaluation of data and generation of "closure" reports for all hazardous waste and white goods collection sites, which included negotiating "closure" criteria with Louisiana Department of Environmental Quality (LDEQ).
- Development of a plan for inspecting homes and properties affected by the Murphy Oil spill in St. Bernard Parish. Evaluated the correlation between samples taken by Murphy Oil's contract laboratory and split samples analyzed by EPA's contract laboratories.
- Management of all laboratory contracts and was the primary technical lead for evaluation of environmental data.
- Authored two plans for air monitoring and sampling, during and after fires at landfills, and developed a plan to provide samples for split asbestos analyses on ambient air samples.
- Assisted with the formaldehyde and volatile organic compound (VOC) sampling plan, supported sampling and analyses for the 3-week ultra-high-security event, and provided a full data report for controversial indoor air sampling of FEMA trailers.

Base Environmental Support Team (BEST) Services Contract, Aberdeen Proving Ground, MD, Directorate of Safety, Health, and Environment (DSHE BEST 1 Contract), Program Data Quality Manager. Developed new QAPP for WESTON's operations under the DSHE BEST Contract. Compared original scope of work to DSHE's current need to ensure programmatic QAPP was responsive to current project demands. The QAPP conforms to the requirements established by EPA's QAMS-005/80 *Interim Guidelines and Specifications for Preparing Quality Assurance Project Plans.*

Conducts quality review for all data generated under this program. Ensures all QC data are compliant with established project requirements. Ensures all data generated in the field and prepared for submittal meet quality and scheduling benchmarks. Provides review for all site-specific QAPPs. Worked in close concert with WESTON Project Managers and Operations Manager to manage the transition to EnviroData data management software tool for all DSHE projects.

Manages analytical laboratory operations. Provides oversight for all data validation subcontractor activities. Developed electronic deliverable specifications to expedite accurate data transmittal. Reviews all subcontractor-generated data. Oversees the auditing of laboratory operations against client and program-specific QA requirements.

Ensures compliance for all sampling protocols. Assumes responsibility for all data once chain-of-custody process has begun. Provides oversight of method-specific audits and surveillances of the corresponding analytical practices against published and regulatory methods such as those documented in SW-846; EPA 500 and 600 series methods for organics; EPA 200 series methods for metals; EPA 10/300/400 series for classical wet chemistry; and National Institute for Occupational Safety and Health (NIOSH), American Society for Testing and Materials (ASTM), and EPA Standard Methods procedures and guidelines.

Key Projects (Continued)

Manages two technical personnel. Manages up to 8 data validation and laboratory analytical subcontractors.

Manages the validation of EPA CLP deliverables according to EPA Regions 1, 2, 3, and 4 for Routine Analytical Services (RAS) for organic/inorganic analyses, and Special Analytical Services (SAS) for organic, inorganic, and dioxin analyses. Performs QA of all third-party data validation of both RAS/SAS type analyses for non-EPA contractors.

Performs data review of contract compliance, adherence to protocols, GLPs, and usability for potential litigation use under EPA RCRA/CERCLA Programs.

Uses a secured web-based application "TeamLink" to share all data (as applicable), with both the client and internal project staff.

Remedial Investigation/Feasibility Study (RI/FS), Other Edgewood Areas, Aberdeen Proving Ground, MD, DSHE BEST 1 Contract, Project Chemist. Provide quality assurance/quality control (QA/QC) oversight for all data management activities. Merged previously collected analytical data with EnviroData data management tool to facilitate data reporting to DSHE. Coordinated with subcontractor laboratories to produce new electronic deliverables compatible with the new EnviroData software to expedite turnaround. Responsible for all laboratory QC. Developed new surface media sampling methods to facilitate real-time results and reports. Worked with WESTON Mentor-Protégé company, Geotech, to ensure EnviroData software met program requirements.

Supplemental Remedial Investigation at the Former Nansemond Ordnance Depot, Suffolk, VA, U.S. Army Corps of Engineers (USACE) Baltimore District (CENAB HTRW 2000 and 2005), Project Chemist. Modified QAPP to meet USACE and EPA Region 2 requirements. Responsible for all data quality management processes. Negotiated project analytical specifications with laboratory and data validation subcontractors, in conjunction with the USACE project chemist, in order to maximize analytical performance and conformance to project requirements while minimizing cost implications. Monitored analytical and data validation-subcontractor performance.

Coordinated all data management activities relating to the Supplemental Remedial Investigation. Developed all QA protocols, ensuring conformity with applicable EPA and USACE regulations. Has capitalized on close client interaction to strengthen the communication network, and enable real-time accessibility to data.

Managed one technical personnel. Managed up to 4 data validation and laboratory analytical subcontractors.

Rapid Response, U.S. Postal Service (USPS) Anthrax Response, USACE Omaha District, Project Chemist. Coordinated commercial and public health laboratory activities for this high-visibility time-critical biological warfare response. Orchestrated private and commercial bio-hazardous sample shipment from 24 postal facilities around the country to the Centers for Disease Control (CDC) in Atlanta, GA, State Public Health, and commercial laboratories. Managed the receipt and QC reviews of laboratory results.

Key Projects (Continued)

Developed data platform database compatible with USPS format within 5 days. Verified and delivered results to USPS in less than 24 hours of data receipt from analytical labs. Became knowledgeable of analytical protocols in very short time-frame so that WESTON could ensure all data conformed to CDC requirements. Provided QC reviews of all final reports developed for each facility.

Managed 2-3 technical personnel. Orchestrated staffing of data management and sample shipment activities over long hours and weekends. Responsible for communicating with WESTON field teams across the country by remaining continually accessible. Utilized a web-based application for clear and concise communications and sample tracking.

Air Force Center for Environmental Excellence (AFCEE) Worldwide Remedial Action Contract (RAC), West Chester, PA, Analytical QC/Lead Chemist. Developed QAPP, assisted with laboratory procurement, oversees subcontractor analytical laboratory activities, and ensures data validation/correctness for ERPIMS and consistency of results/deliverables among task orders (TOs)/laboratories for this $68 million contract. In addition, established analytical standards with each laboratory to ensure compliance with AFCEE requirements and project specifications. Managed the consistency of all laboratory results for all WESTON task orders under this contract. Established a core network of compliant laboratories nationwide to provide competitive advantage and best values for AFCEE. Offered geographical advantages by building this network by shortening sample result times and shipping costs. Strengthened the chemical interpretation and internal document generation of the AFCEE QAPP in order to minimize DO-specific QAPP development, saving valuable project startup and document costs. Has managed up to three subcontractors under the AFCEE program. Represented WESTON at AFCEE analytical conferences, established network of compliant laboratories, and strengthened chemical interpretation of current AFCEE QAPP. Completed ERPIMS training for prime contractors. Advised procurement staff of specific scope issues that eliminated potential budgetary concerns.

GE/Housatonic River Project, Pittsfield, MA, U.S. Army Corps of Engineers/U.S. Environmental Protection Agency (USACE/EPA), Analytical QC/Project Chemist. Primary author of the sitewide QA plan with adherence to EPA's *Requirements for QAPP for Environmental Data Operations* and other EPA documents for this $25 million contract. Manages up to 20 analytical and data validation subcontractors. Negotiates project specifications, and coordinates the sample collection activity with laboratory capacity. Tracks all samples from collection through analysis, data validation, and report generation. Serves as the primary chemist for all analytical issues. Initiates corrective actions as deemed appropriate. Performs invoice oversight and reconciliation. Supervises the electronic loading for all analytical data, coordinates internal review of all data generated at the on-site laboratory to ensure compliance with contract requirements, and orchestrates the tracking of DV services. Subcontractor laboratory coordinator for all biological sampling, which includes extensive interaction with the U.S. Fish and Wildlife Service and 13 commercial environmental laboratories. Worked extensively with EPA Region 1 to develop format and content for a comprehensive QAPP, in accordance with newly implemented agency requirements. Implemented many innovative analytical techniques and explored varying methods to improve extraction efficiency and achieve lower detection limits.

Key Projects (Continued)

Went beyond analytical comfort zone to investigate new emerging analytical technologies, as well as gained knowledge of many new methods in which there was no previous experience, in order to exceed client expectations. Managed up to six technical personnel, including chemists, environmental scientists, and system administrators. The agency approval process was significantly expedited as a result of document compliance with established protocol, and received accolades from the agency requirement author.

PCB Remedial Project, West Chester, PA, Confidential Client, Project Scientist. Performed all electronic data loading for various matrices into a data management system. Conducted data review for all deliverables in accordance with project specifications. Prepared system user manuals for the data loading operating modules for internal training purposes.

Data Validation Projects, West Chester, PA, Multiple Clients, Data Validation Unit Leader. Provided scheduling, coordination, and staff supervision for all data validation projects. Responsible for validation of organic data packages according to CLP guidelines for governmental agencies and commercial clients for completeness and conformity to CLP requirements. Contract specifications varied from 1- to 4-week turnaround times, with DV being performed on organic, inorganic, dioxin/furan, and radiochemistry analyses. DV was performed as specified by the client, according to either EPA Region 1, 2, 3; NYSDEC; NJDEP; or functional guidelines. Supervised up to four technical personnel – environmental chemists.

Prime contracts included:

- ARCS Region I – Supported the ARCS contract for 4 years performing DV on RAS and SAS.
- NJDEP – Prime Data Validation Contractor for 4 years; performed DV on both organic and inorganic parameters.
- Also performed DV for many commercial clients: Baker Environmental, Bechtel, BBL, Dover Chemical, Engineering Science, Jacobs Engineering, Metcalf & Eddy, Confidential Client, and Stearns & Wheeler.

Organic Analyses, Lionville, PA, Multiple Clients, Organic Data Reporting Group Leader. Responsible for coordinating/implementing EPA CLP deliverables package for all organic analyses for EPA, state analytical contracts, and commercial clients within EPA. Validating EPA CLP deliverables for EPA Regions 1, 2, and 3; NJDEP; PADEP; and special clients for organic routine analytical services. Document Contract Officer and primary contact for WESTON's EPA organics contract.

CLP Data, Lionville, PA, EPA, Assistant Project Scientist. Responsible for CLP package construction, review, and reporting of data; intensive review of other external CLP contractual organic data; Document Control Officer and primary contact for WESTON’s EPA Organics Contract.

Qualifications Summary Draft

- More than 14 years of professional experience as EOD/UXO Specialist and Supervisor.
- Supervision of personnel conducting UXO/EOD removal and disposal operations.
- Recovery of UXO and firing range residue, including detection, excavation, transport, storage, and disposition.
- Responsible for quality control (QC) and safety of UXO operations; compliance with site safety and health plans; conduct daily site safety briefings.
- Responsible for sampling, packaging and shipping of possibly contaminated soils
- Compliance with federal, state, and local regulations.

MARTY A. HOLMES

Registration

UXO Certification, USACE Huntsville Center (No. Pennsylvania Blasters License (2004)

Fields of Competence

Supervision of personnel conducting range recovery and unexploded ordnance (UXO) investigation, detection, excavation, transportation, storage, and disposal operations. Quality control (QC) officer. Compliance with site safety and health plans, conducting daily safety briefings. Conducted soil sampling and packaging.

All task for any level UXO Technician, including:

- Supervision of UXO Teams.
- Reconnaissance, identification and classification of UXO.
- Handling, certification and disposition of scrap material.
- Excavation and recovery of subsurface UXO.
- Transportation and storage of commercial explosives, ensuring compliance with federal, state and local laws.
- Demilitarization of UXO by detonation or burning operations.
- Quality Control oversight and inspections.
- Soil sampling, packaging and shipping.

Credentials

- Explosive Ordnance Disposal School, Indian Head, MD (1991)
- 40-Hour Hazardous Waste Site Training Course, OSHA 29 CFR 1910.120(e)(3), (1998)
- 8-Hour Hazardous Waste Refresher Course, OSHA 29 CFR 1910.120(e)(8), (2008)
- 30-Hour Construction Occupational Safety and Health (2007)

- 8-Hour Managers and Supervisors Course (SHSC), OSHA 29 CFR 1910.120(e)(4), (2008)
- First Aid/CPR Training, (2008)

Employment History

2004-Present Weston Solutions
2002-2003 Explosive Ordnance Technologies, Inc.
1998-2001 UXB International, Inc.
1995-1998 LauriMar, Inc.
1988-1995 U.S. Army

Key Projects

Ordnance Removal Action, Former Nansemond Ordnance Depot, VA, USACE Baltimore District

- **Senior UXO Supervisor**
    - Provided leadership and direction of MEC clearance, and recovery teams. Supervised UXO personnel conducting detection, investigation, excavation, transport and storage operations. Supervised and conducted explosive demilitarization of UXO. Ensured quality work of field teams.

Ordnance Removal Action, Ft. Miles, DE, USACE Baltimore District

- **Senior UXO Supervisor**
    - Provided leadership and direction of MEC clearance, and recovery teams. Supervised UXO personnel conducting detection, investigation, excavation, transport and storage operations.

Ordnance Removal Action, Former Ft. Devens, MA, Mass Development

- **Senior UXO Supervisor / Site Safety.**
    - Provided leadership and direction of MEC clearance, recovery and disposal teams. Supervised UXO personnel conducting detection, investigation, excavation, transport and storage operations. Supervised and conducted explosive demilitarization of UXO. Ensured quality work of field teams.

Ordnance Removal Action, Seneca Army Depot, NY, USACE, New York District

- **Senior UXO Supervisor/ Quality Control.**
    - Provided leadership and direction of MEC clearance, recovery and disposal teams. Supervised UXO personnel conducting detection, investigation, excavation, transport and storage operations. Supervised and conducted explosive demilitarization of UXO. Ensured quality work of field teams.

Ordnance Removal Action, Ft. Drum NY, USACE, New York District.

- **UXO Specialist.**
    - Conducted surface and subsurface detection, investigation and excavation. Performed demilitarization operations of UXO. Ensured all three phases of range 48 reconstruction was successful. Conducted ordnance avoidance and construction support for construction personnel.

Engineering Evaluation/Cost Analysis (EE/CA), Tobyhanna Army Depot, PA.

- **UXO/Demolition Supervisor**.
    - Supervised UXO personnel conducting MEC detection, investigation, excavation, transport and storage operations. Supervised and conducted explosive demilitarization of UXO.

Ordnance Removal Action, AZ.

- **UXO Supervisor**.
    - Supervised UXO team conducting MEC detection, investigation, excavation, transport and storage operations.

Ordnance Removal Action, Ft. Knox, KY, USACE, Louisville District.

- **UXO Supervisor.**
    - Supervised sweep team conducting surface detection, investigation and GPS operations.

Ordnance Removal Action, Ft. Meade MD. USACE, Huntsville District.

- **UXO Specialist**.
    - Conducted surface and subsurface detection, investigation, excavation and demilitarization operations.

Ordnance Avoidance/Removal, Dutch Harbor, AK. **USACE, Huntsville District.**

- **UXO Specialist.**
    - Conducted UXO operations including UXO investigation, detection, excavation, transport and disposition. Provided escort for nonUXO personnel conducting survey operations.

Ordnance Removal Action, Loring AFB, ME. USACE Huntsville District.

- **UXO Specialist**.
    - Conducted UXO operations including UXO investigation, detection, excavation, transport, storage, and disposal.

Qualifications Summary

- More than 12 years of military and civilian experience in UXO/EOD field.
- Surface and subsurface location of UXO using Fisher, Schonstedt, and MK 26 magnetic locators; USRADS; EM-61; and Gamin GPS.
- Disposal of UXO by explosive detonation and open burning.
- Location, render safe, transportation, and final disposition of classified foreign and domestic ordnance items.
- Operation of heavy equipment including excavator, dump truck, front-end loader, backhoe, and forklift.

DANIEL D. DORRELL

Registration

UXO Certification, USACE Huntsville Center (No. 0744)

Fields of Competence

Explosive demolition operations, including detection, render safe, and disposal of military munitions. Planning, scheduling, and coordinating logistical operations. Organization and supervision of explosive demolitions, including range clearance. Compliance with site safety and health plans, conducting daily safety briefings.

Education

Naval Explosive Ordnance Disposal School, U.S. Army, Redstone Arsenal, AL; Eglin AFB, FL; Indian Head, MD (1997)

Credentials

40-Hour HAZWOPER, OSHA 29 CFR 1910.120(e)(3)(I), Compliance Management, Inc. (1999)
8-Hour Hazardous Waste Refresher Course, OSHA 29 CFR 1910.120(e)(8), WESTON (2008)
8-Hour Hazardous Waste Worker Supervisor Course, OSHA 29 CFR 1910.120(e)(4), WESTON (2008)
30-Hour Construction Safety and Health Training Course, OSHA 29 CFR 1926, C, E, M, P, and X
Basic Radiation Safety Course, USACE (2001)
Military Munitions Rule 2 CBT Course, Defense Ammunition Center (2001)

Employment History

2007	PresentWESTON
2006	USA Environmental, Inc.
2006	WESTON
2005	Ordnance and Explosive Remediation, LLC
2004-2005	Advent Environmental, Inc.
2004	WESTON
2004	USA Environmental, Inc.
2002-2003	EOTI, Inc.
2002	Tetra Tech NUS, Inc.

Employment History (Continued)

2001	SpecPro, Inc.
2001	Ordnance and Explosive Remediation, LLC
2000-2001	Tetra Tech NUS, Inc.
1999-2000	Sudhakar Co., Inc.
1990-1999	U.S. Army

Key Projects

On-Site Quality Control (QC), Tobyhanna State Park, PA, QC Officer/Site Safety Officer. Responsible for ensuring QC on-site, including explosives accountability, demolition procedures, reporting, and quality of work performed in MRS-2D and MRS-2B. Responsible for equipment and vehicle accountability and maintenance.

Subsurface Unexploded Ordnance (UXO) Clearance, Surf City, NJ, UXO Technician II. Responsible for subsurface clearance with Schonstedt and MK26 magnetic locators, construction of magazine facility, and ensuring heavy equipment was cleared from explosive hazards. Supervised sifting operations.

Subsurface UXO Clearance, Tobyhanna State Park, PA, UXO Technician III. Responsible for supervising subsurface clearance in MRS-2D with Schonstedt magnetic locator. Logged ordnance items with UXOFast^{SM} program. Assisted with demolition operations.

Subsurface UXO Clearance, Former Nansemond Ordnance Depot, VA, UXO Technician III/Site Safety Officer. Responsible for supervising subsurface clearance of Main Burning Ground and riverbank using Schonstedt magnetic locators. Conducted manual sifting operations and trenching. Ensured quality work of team. Prepared daily and weekly documents. Conducted daily safety briefs and was responsible for the overall safety of the team. Operated excavator.

Surface Clearance Time-Critical Removal Action (TCRA), Tobyhanna State Park, PA, UXO Technician III/Demolition Team Leader. Responsible for supervising surface clearance of TCRA add-on in MRS R01 (AOC-1) with Schonstedt magnetic locators. Supervised demolition operations.

Subsurface UXO Clearance, Seneca Army Depot, NY, UXO Technician III/Demolition Team Leader. Responsible for supervising subsurface clearance with Schonstedt magnetic locators. Supervised demolition operations.

Surface UXO Clearance TCRA, Tobyhanna State Park, PA, UXO Technician II/III. Responsible for supervising clearance of TCRA in MRS R01 (AOC-1) with Schonstedt magnetic locators. Assisted with demolition operations.

Former Housing Area UXO Subsurface Clearance, Fort Devens, MA, UXO Technician II. Performed subsurface clearance with Schonstedt magnetic locators in former housing area that had previously been used as a target range. Area was being cleared for future site development.

Location, Segregation, and Disposal of UXO, Former Conway Gunnery and Bombing Range, SC, UXO Technician II. Responsible for locating, segregating, and disposing of UXO

Key Projects (Continued)

on the International Paper owned property of the former gunnery and bombing range. Used EM-61, Whites, and Schonstedt magnetic locators.

Housing Area UXO Clearance, Ft. Dix, NJ, UXO Technician II. Responsible for clearing the family housing area of all potential UXO hazards. Used USRADS and EM-61 data, and Schonstedt magnetic locators.

Surface/Subsurface UXO Investigation, Tobyhanna State Park, PA, UXO Technician II. Responsible for conducting surface and subsurface investigations of UXO. Recorded types, locations, and concentrations of UXO; cleared and disposed of UXO found in test plot and transect areas; and conducted safety escort of non-UXO personnel in the state park and game land areas. Used USRADS, EM-61 data, UXOFast^{SM} program, Garmin global positioning system (GPS), and Schonstedt magnetic locators.

Surface UXO Clearance and Disposal, Castner Range, TX, UXO Technician II. Conducted surface clearance and disposal of UXO on Castner Range using Schonstedt magnetic locators.

Location and Disposal of UXO, Seneca Army Depot, NY, UXO Technician II. Responsible for locating and disposing of UXO using explosive detonation and open burning operations on the open burning/open detonation (OB/OD) ranges. Used Magellan GPS, EM-61 data, UXOFast^{SM} program, and Fisher and Schonstedt magnetic locators.

Former Training Area UXO Clearance, Picatinny Arsenal, NJ, UXO Technician II. Conducted clearance for potential UXO in former training area for construction of future homeland defense range.

Location and Disposal of UXO, Seneca Army Depot, NY, UXO Technician II. Located and disposed of UXO on the open burn range using Fisher and Schonstedt magnetic locators.

Location, Segregation, and Documentation of UXO on J-1, J-2, J-3, and HUTA Ranges, Massachusetts Military Reservation, MA, UXO Technician II. Responsible for locating, segregating, and documenting UXO on J-1, J-2, J-3, and HUTA ranges using: Schonstedt magnetic locators and EM-61 data. Conducted soil sampling, and performed explosive demolition, trenching, and sifting operations. Operated excavator, dump truck, and front-end loader.

Location and Segregation of UXO on 44A and OB/OD Ranges, Seneca Army Depot, NY, UXO Technician II. Responsible for locating and segregating UXO on 44A and OB/OD ranges using Fisher and Schonstedt magnetic locators. Also conducted sifting operations and provided UXO safety escort.

Location and Segregation of UXO on CS-19, Massachusetts Military Reservation, MA, UXO Technician II. Responsible for locating and segregating UXO on CS-19 using a Schonstedt magnetic locator. Conducted soil sampling, and performed explosive demolition and sifting operations. Operated front-end loader.

Location, Segregation, and Documentation of UXO on J-1, J-2, J-3, and HUTA Ranges, Massachusetts Military Reservation, MA, UXO Technician II. Responsible for locating, segregating, and documenting UXO on J-1, J-2, J-3, and HUTA ranges using: Schonstedt

Key Projects (Continued)

magnetic locators and EM-61 data. Conducted soil sampling, and performed explosive demolition, trenching, and sifting operations. Operated excavator, dump truck, and front-end loader.

Location and Segregation of UXO from Scrap Metal, White Sands Missile Range, NM, UXO Technician II. Responsible for locating and segregating UXO, by hand, from over 2 million pounds of scrap metal; relocating the scrap metal to ordnance and explosives (OE) and non-OE scrap yards; and sifting over 1 thousand cubic yards (yd^3) of soil, in a 7-month time period. Operated forklifts, front-end loader, dump truck, and backhoe.

Location, Render Safe, Transport, and Disposition of Classified Ordnance, White Sands Missile Range, NM, U.S. Army, Explosive Ordnance Disposal (EO) Sergeant. Was responsible for locating, rendering safe, transporting, and final disposition of classified foreign and domestic ordnance items, including ICBMs, missiles, rockets, bombs, improved cluster munitions (ICMs) and classified components, associated with the research, test, and development of these ordnance items and weapon systems on the largest land surface range in the United States. Responsible for training personnel on the dangers of explosive hazards. Escorted and safeguarded the lives of civilian and military personnel around explosive hazards. Was accountable for ordering, inventorying, and tracking usage of unit's explosives. Also served as helicopter crew member and was familiar with flight operations and aerial reconnaissance. Operated heavy equipment including a backhoe. Held Top Secret SSBI clearance.

EOD Training, Redstone Arsenal, AL, Eglin AFB, FL, Indian Head, MD, U.S. Army, EOD Trainee. Trained to locate, identify, render safe, remove, and destroy ordnance items, including domestic and foreign ordnance; nuclear, biological, and chemical ordnance items; and improvised explosive devices (IEDs). Trained to operate heavy equipment. Held Top Secret SSBI clearance.

Unit Personnel Training and Supervision, Camp Greaves, Republic of Korea, Infantry Team Leader/Squad Leader. Trained and supervised subordinate personnel in the accomplishment of their duties. Trained extensively on map reading, weapons proficiency, leadership development, small unit tactical operations with integrated support for larger unit operations; and provided tactical and technical guidance and professional support to supervisors while stationed in an Air Assault battalion in the demilitarized zone.

Informational/Physical Security, Fort Bragg, NC, Physical Security Supervisor. Supervised six military police personnel who provided physical security for the XVIII Airborne Corps Headquarters, and conducted training on physical and information security procedures for the XVIII Airborne Corps Headquarters while working for the Directorate of Counterintelligence and Security. Operated and maintained security access control system. Served as assistant operator of the Classified Destruction Facility. Implemented policy changes to enhance security. Held Top Secret SSBI clearance.

Supervision of Tactical Operations Personnel, Schofield Barracks, HI, U.S. Army, Anti-Armor Team Leader. Supervised five personnel engaged in tactical operations to destroy armor threats to unit. Demonstrated ability to respond rapidly to changing priorities, changing conditions, and to work under pressure to meet deadlines, with an emphasis on team building

Key Projects (Continued)

Evaluated personnel performance and ensured critical elements needed to maintain organizational standards were achieved.

Qualifications Summary

- More than 28 years of experience in writing reports, newsletters, and press releases/packets; providing counseling support for crisis management, personal management/concerns, and group dynamics situations.
- Consultant to EPA in four regions and USACE throughout the North Atlantic Division for public and community relations projects.
- Completed Superfund Community Relations State Training Program.
- Participated in a variety of community relations activities at more than 75 removal and remedial sites.
- Assisted in the preparation of "Frequently Asked Questions" for USACE personnel.
- Monitored public attitudes and concerns, and developed community relations resources to facilitate interaction between residents and EPA.
- Wrote, designed, and edited publications, which involved contracting for printing, photography, layout, and paste-up.
- Coordinated meetings and special events, including conferences, lectures, trips, and residency programs.
- Supervised personnel, volunteers, and publications staffs.
- Three years of experience in classroom teaching.
- Consultant to industrial clients for public information, participation, and education strategies and activities for specific environmental situations.

DEBORAH E. VOLKMER

Fields of Competence

Community relations project management; project planning; communications, including risk communication; report preparation; publications; media relations; training and education; counseling; U.S. Environmental Protection Agency (EPA) Superfund and U.S. Army Corps of Engineers (USACE) community relations requirements.

Education

M.S., Counseling and Guidance—University of Nebraska at Omaha (1978)
B.A., Journalism/English—University of Nebraska at Kearney (1974)

Credentials

40-Hour Hazardous Waste Site Training Course, OSHA 29 CFR 1910.120(e)(3), WESTON (1985)
Superfund Community Relations State Training Program, EPA (1986)
Past President, National Association of Professional Environmental Communicators (NAPEC)
International Association for Public Participation

Employment History

1987-Present	WESTON
1985-1987	Jacobs Engineering Group, Inc.
1979-1985	Avila College, Director of Student Development
1977-1979	University of Nebraska at Omaha, Full-Time Student
1974-1977	Teacher in Lexington and Omaha, NB

Key Projects

Munitions Response at Fort Miles Formerly Used Defense Site (FUDS), Fort Miles, DE, U.S. Army Corps of Engineers (USACE) Baltimore District, Community Relations Specialist. Implemented community relations activities under a performance-based contract. Supported public affairs activities by drafting and coordinating publication of a newspaper legal notice to announce a proposed plan public meeting and availability of the administrative record file. Assisted with the logistics of the public meeting: drafted a news release, identified and confirmed a court reporter, and assembled information for distribution. Assisted with a media day event near the site to acquaint the area news media with the technical activities and equipment to be used in the remediation of the site. Also, helped to update the administrative record file.

Public Scoping Meetings, Dredged Material Management Plan (DMMP), USACE Baltimore District, Community Outreach Specialist. Identified, confirmed, and contracted facilities for public meetings in three counties in Maryland. Organized facility services with the needs of USACE Baltimore District. Drafted text and coordinated the publication of a newspaper advertisement in nine area newspapers to promote the three meetings. Prepared and distributed, per the project mailing list, an announcement of the public scoping meetings, the purpose of the meetings, and opportunity for public comment. Identified and confirmed the services of a court reporter for the three meetings. Assisted in the preparation and coordinated reproduction of 10 separate handouts for distribution to the public. Made nametags for USACE participants. Coordinated the setup and take down of each room for the three meetings. Served as greeter to welcome attendees and have them sign in. Took photographs of the meetings for potential use on the project website. Assisted in the preparation of the Public Scoping Meetings Summary Report.

Response Action Contract (RAC), Various Locations, Superfund Sites Region 5, U.S. Environmental Protection Agency (EPA), Site Community Involvement Consultant. Site Manager for 41 EPA Superfund sites and contract manager for community relations subcontractor. Executed a variety of community relations techniques to address community issues and concerns regarding site activities. The techniques included assisting with community interviews to assess community concerns; producing community involvement plans, proposed plans, and fact sheets; researching and developing extensive mailing lists of residents adjacent to sites; providing public meeting support (logistics, facility rental, audiovisual aids, and equipment); and coordinating publication of newspaper advertisements. Special community relations projects included scheduling and assisting with a four-week community interviews effort in which over 100 public officials and residents were interviewed; designing and producing a "yearbook" entitled *Superfund Jobs Training Initiative 1997-1998*, which highlighted the experiences of the participants; coordinating the production and distribution of a bi-monthly newsletter to over 10,300 addresses; and coordinating the development and mailing of invitations and registration for community involvement/project workshops. Attended seminar for writing "plain language" text (for proposed plans and fact sheets) of highly technical information for distribution to the general public. Applied a readability formula to community relations documents to ensure better public comprehension of technical matters.

Key Projects (Continued)

Administrative Record Files and Community Relations Activities, NIKE Site in Waldorf, MD; Croom, MD; and Willistown Township, PA; USACE Baltimore District, Community Relations Specialist. Developed and updated site Administrative Record Files, coordination placement of files in local repository, and wrote and coordinated publication of newspaper notices. Developed fact sheet and community interviews questionnaires. Implemented community interviews questionnaire and drafted Public Involvement Plan for NIKE site in Willistown Township, PA.

Community Information Sessions, Indoor Air Quality Sampling Program, Defense Distribution Depot Susquehanna, PA (DDSP), USACE Baltimore District, Community Outreach Specialist. Contracted the facility for the community information sessions (afternoon and evening). Coordinated meeting logistics, i.e., meeting room, food service, security, checklist, nametags, insurance, and posters. Assisted in the preparation of "Frequently Asked Questions" for DDSP and USACE personnel. Assisted in writing a letter to residents informing them of the need to collect indoor air samples from their homes. Coordinated publication of advertisements in two area newspapers. Assisted in the reproduction of seven handouts. Served as greeter to welcome attendees and have them sign in. Took photographs of the meeting for potential use on the project website.

Public Involvement Support, Former Schenectady Army Depot, Voorheesville Area (FSADVA), USACE New York District, Community Outreach Specialist. Coordinates publication of advertisements in three area newspapers to announce Restoration Advisory Board (RAB) meetings. Coordinates meeting facility logistics, i.e., meeting room, audiovisual equipment, kitchen, and security deposit. Attends the RAB meetings, takes notes, and prepares draft minutes of the RAB meetings. Assists with the setup of meeting room and audiovisual equipment for USACE presentations at RAB meetings. Serves as greeter to welcome attendees and have them sign in. Designed the "partnering charter" presentation for the USACE Project Manager. Maintains and updates the project mailing list. Audits and submits reports to two project information repositories.

Lower Fox River Natural Resources Damage Assessment, Polychlorinated Biphenyl (PCB) Releases, WI, EPA Region 5, Project Manager for Community Relations. Interviewed local officials and environmental leaders, identified interested local residents, and scheduled appointments for community interviews. Developed a mailing requesting area residents to reply if interested and available to participate in the community interview effort. Interviewed residents had a better understanding of the roles of the various agencies, the Superfund program, and the technical challenges of addressing the contamination in the river. Managed the publication of a bimonthly newsletter, the *Fox River Current,* and the distribution of over 10,000 copies of the *Current.* Assisted EPA with project workshops and public meetings/availability sessions. Managed the development of fact sheets and proposed plans for the various site operable units. Supported the maintenance of the site mailing list of over 1,200 addresses. Coordinated the publication of advertisements in four area newspapers.

Key Projects (Continued)

Base Realignment and Closure (BRAC) Activities, Watertown, MA, Army Materials Technology Laboratory (AMTL), Community Relations Consultant. Coordinated with Army personnel to conduct community interviews and develop a Community Relations Plan. Drafted a letter of introduction for the Army to send to potential community interview candidates. Prepared a list of interview questions and scheduled the community interviews. Assisted the Army and EPA personnel with the community interviews. Interviewed public officials, nearby residents, and members of the Restoration Advisory Committee and the Watertown Arsenal Reuse Committee. Attended a RAB meeting. Assessed interviewees' concerns about the laboratory and their preferences for reuse of the base. Prepared a Community Relations Plan to document the community concerns. The plan presented techniques to communicate with the public regarding environmental and base closure activities, and the eventual reuse decision.

Research, Assessment, and Report Preparation, West Chester, PA, The Soap and Detergent Association, Project Manager. Compiled and reviewed more than 350 printed articles and studies to identify and assess public perceptions associated with cleaning products and residential graywater usage. Researched and summarized historical, current, and projected legislation, regulation, use, and application of residential graywater. Provided an international perspective on graywater treatment and usage. Developed and coordinated a questionnaire and a mailing to more than 500 individuals. Incorporated three sets of review comments from the Association's nationwide subcommittee members. Prepared an 80-page report titled *Issues, Perceptions, Regulations, and Legislation Associated with Cleaning Product Ingredients in Graywater*. Categorized and organized approximately 2,000 pages of report appendices.

Emergency Response Removal, Garfield Heights, OH, EPA/Rockside Hide-a-Way Landfill, Site Community Relations Consultant. This project was for a landfill methane contamination site located adjacent to an apartment complex and single-family dwellings. Conducted interviews with public officials and residents. Produced two fact sheets: site background/EPA response activities, and explanation/characteristics of methane. Developed a Community Relations Plan. Assisted with a media tour of the site. Organized and attended a public meeting.

Emergency Response Removal, Cincinnati, OH, EPA/Kelly-Koett Instrument Company, Site Community Relations Consultant. For a radiation contamination project, assisted EPA with interviews with public officials and residents. Produced four fact sheets: public meeting announcement/site overview, site background detail/EPA activities, EPA Superfund Removal Program, and site-related questions and answers. Organized and attended a public meeting. Maintained contact and coordinated communication with concerned residents and EPA.

Emergency Response Removal, Detroit, MI, EPA/Carter Industrials, Site Community Relations Consultant. Project was for a PCB-contaminated site. Maintained community relations support throughout both EPA Removal and Remedial Programs involvement. Site activities began as an emergency response, and an Engineering Evaluation/Cost Analysis (EE/CA) was produced. The site has since been placed on the National Priorities List (NPL). Produced two fact sheets: EPA emergency response activities and EE/CA alternatives, and EPA

Key Projects (Continued)

proposed plan. Established information repository and developed Community Relations Plan. Assisted in scheduling public meetings and copywriting newspaper notices.

Emergency Response Simulation, Chicago, IL, EPA, Community Relations Consultant. Project involved planning a Superfund Amendments and Reauthorization Act (SARA) Title III spill response demonstration, cosponsored by the Chicago Fire Department and Cook County. Coordinated media and guest relations.

Alternative Remedial Contract Strategy (ARCS), Superfund Sites Regions 5 and 6, EPA, Site Community Relations Consultant. Served as Site Manager for 17 EPA Region 5 Superfund sites. Prepared work plans and budgets, and executed a variety of community relations techniques to address community issues and concerns regarding site activities. These techniques included researching and developing extensive mailing lists of residents adjacent to sites, assisting with public meetings and interviews with public officials, assessing community concerns, and producing Community Relations Plan and introductory fact sheets. Also assisted with community relations projects for sites in EPA Region 6.

Remedial Investigation/Feasibility Study (RI/FS), Griffith, IN, EPA/America Chemical Services, Site Community Relations Consultant. Project involved a groundwater contamination site. Developed Community Relations Work Plan. Coordinated all logistics for a public meeting. Wrote ad copy and coordinated publication of two newspaper ads that announced the RI/FS and public meeting. Prepared a fact sheet and organized its mailing. Assisted the EPA Community Relations Coordinator and Remedial Project Manager with public meeting presentation techniques. Produced materials for public meeting presentations. Provided community support at the meeting.

Emergency Response Removal Program, State of Missouri (Southwest and East), EPA, Community Relations Consultant. Participated in community relations team effort to provide information to residents near dioxin sites. Provided community outreach services through staffing EPA on-site information centers and weekly door-to-door delivery of dioxin site updates. Delivery of dioxin updates included visiting with residents who had questions and concerns regarding site activities. Communicated residents' questions and concerns to EPA. Assisted EPA with a technical seminar/site tour of the mobile incinerator near Verona/Springfield, MO. Assisted EPA with the mobile incinerator permit extension public hearing. Coordinated public concerns and questions for a toll-free telephone line.

Low-Level Radioactive Waste Disposal Facility Siting Committee, New York, New York State Department of Environmental Conservation (NYSDEC), Negotiating Team Member. Was program management representative on a negotiating team (three members) to solicit access of private property to conduct precharacterization studies of potential sites for the New York State low-level radioactive waste disposal facility. Presented information to the landowners, answered landowners' questions regarding the facility and state requirements and regulations, addressed landowners' personal concerns and issues, and coordinated communication with on-site negotiation team and project management. Prepared to address the media, if required.

Key Projects (Continued)

Residential Sampling Program Support, Midwestern United States, Confidential Industrial Client, Community Relations Consultant. Conducted indoor and outdoor sampling of 500 homes for possible lead and heavy metals contamination. WESTON prepared information kits, public meeting presentations, and graphics to explain the project to residents in nontechnical terms. Color photograph identification cards were produced on-site for sampling crews, and door hangers were prepared to facilitate communications between residents and the sampling crew. WESTON also assisted the client with media activities. The first round of sampling was successfully completed.

Low-Level Radioactive Waste Disposal Facility Siting, Appalachian Compact Region, Pennsylvania Department of Environmental Protection (PADEP), Public Involvement Task Manager. Selected by Pennsylvania's Bureau of Radiation Protection to support its program to develop a regional capability to manage and dispose of the low-level radioactive waste generated within the Appalachian Compact region. Since 1987, the project has involved assisting PADEP with printed materials, a series of public meetings and open houses, displays and visual aids, and a 21-member citizen advisory committee; providing assistance with a local government outreach program; and supporting PADEP with oversight of the private operator's public involvement program to ensure that its commitment to inform and involve Pennsylvania's citizens in facility siting, development, and operations is implemented.

Municipal Drinking Water System, Reading, OH, Confidential Client, Community Relations Consultant. Drafted a press release explaining the contaminant, health risks, alternatives considered by the city, and federal regulations. Assisted in the drafting of a letter to drinking water consumers.

Qualifications Summary

- More than 10 years of professional experience in human health and ecological risk assessments.
- Computation of estimated daily intakes, hazard quotients and indices, and carcinogenic risks.
- Derivation of reference doses, critical toxicity values for mammalian and avian receptors, and human health criteria for short-term occupational exposures to inhalation toxicants.
- Evaluation of arsenic and PCB exposure to multiple receptors through soil, groundwater, surface water, sediment, and air.
- RBC, PRG, and remedial cleanup goal development.
- Toxicology database development with responsibilities including searching other on-line databases, coordinating gathering and logging in of relevant journal articles, and summarizing relevant information for physical and chemical properties, fate and effect, mammalian acute and chronic effects, teratogenicity, mutagenicity, and carcinogenicity sections.
- Previous work experience includes surveying geomorphology of streams using instruments such as laser levels, total stations, gravelometers, flow meters, and GPS units. Using GIS, create vegetative maps from aerial photographs and GPS points. Perform stream restorations, determine slope factors to cut back banks, remove evasives and weeds, plant trees, etc.

TERESA N. VERSTRAET

Fields of Competence

Statistical assessment of data, toxicology; human health and ecological risk assessments (HHRAs/ERAs); habitat assessment; sediment, stream, and stormwater sample collection; technical review; reference dose derivation; toxicological profiles; geographic information systems (GISs); global positioning systems (GPSs).

Education

M.S., Environmental Pollution Control—Pennsylvania State University (2001)
B.S., Environmental Science—West Chester University (1998)

Credentials

40-Hour Hazardous Waste Site Training Course, OSHA 29 CFR 1910.120(e)(3), EPA (1998)
8-Hour Hazardous Waste Refresher Course, OSHA 29 CFR 1910.120(e)(8), WESTON (2000)
Bloodborne Pathogens Training, OSHA 29 CFR 1910.1030, (1999); Refresher (2000)
Boaters Safety Course, Pennsylvania Fish and Boat Commission (PAFBC) (1999)

Employment History

1998-Present	WESTON
1998	The Academy of Natural Sciences (Intern)
1997	Bureau of Reclamation - Department of Interior (Student)

Key Projects

Remedial Investigation/Risk Assessment (RI/RA) of 60 BRAC Parcels, Letterkenny Army Depot (LEAD), Chambersburg, PA, U.S. Army Corps of Engineers (USACE), Baltimore District, Senior Project Scientist. Under the Base Realignment and Closure (BRAC) guidelines, conducted screening-level risk assessments (SLRAs) for 60 BRAC parcels in preparation for transfer to local community for future commercial/industrial use. Created human health risk assessment (HHRA) tables following the U.S. Environmental

Key Projects (Continued)

Protection Agency's (EPA) Risk Assessment Guidance for Superfund (RAGS) Part D guidance for several exposure scenarios. Ran statistical analyses on soil and groundwater data using various software. Estimated site risks using "risk ratio" approach. Prepared text. Performed vapor intrusion studies/evaluations conducted in accordance with new guidance from EPA and state regulators. Major chemicals of potential concern (COPCs) included arsenic, lead, and other metals; polychlorinated biphenyls (PCBs); dioxins; volatile organic compounds (VOCs); and other organic compounds (including pesticides).

Multiple Baseline Human Health Risk Assessments (BHHRAs), LEAD, Chambersburg, PA, USACE Baltimore District, Senior Project Scientist. Produced BHHRAs for soils, groundwater, surface water, and sediment exposure at several LEAD sites. Projects involved BHHRAs to identify and characterize human environments that are potentially at risk from hazardous waste sites. Project responsibilities consisted of data management; selecting COPCs; calculating exposure point concentrations (EPCs); developing current and future use exposure scenarios; assessing the toxicity of the COPCs; characterizing risk; evaluating uncertainty for human receptors; and calculating remedial goal options. Followed EPA and Pennsylvania Department of Environmental Protection (PADEP) guidance. COPCs were primarily VOCs and metals, including arsenic.

Hazardous Air Pollutant (HAP) Regulatory Development, Arizona Department of Environmental Quality (ADEQ), Senior Project Scientist. Identified the source categories that emit federal HAPs and should be considered for listing under the proposed state air toxics regulations such that new and modified sources in those categories with the potential-to-emit 1 ton per year (tpy) of a single HAP or 2.5 tpy of a combination of HAPs would be potentially subject to HAPRACT. Used data supplied by ADEQ on Section 112 HAP sources and emissions, and screening techniques to determine ambient impacts resulting from sources with potential emissions of HAPs exceeding the 1-tpy or 2.5-tpy threshold. Worked with ADEQ and WESTON teams to develop a hierarchy of health effects criteria for comparison to predicted concentrations. The approximately 79 compounds identified in the ADEQ database were the basis for this effort. Recommended ambient air quality criteria guidelines for all of the compounds in the database. Two different averaging times were considered: annual and 1 hour.

BHHRA, Port Heiden, AK, Air Force Center for Engineering and the Environment (AFCEE), Senior Project Scientist. This baseline risk assessment involved assessing potential human health risks associated with chemical contamination at the following Port Heiden RRS sites: RRS Facility Source Areas (RRS FSAs); Former Pipeline Corridor (FPC); and Marine Terminal Area (MTA). This project involved the collection of over 800 samples including soil, groundwater, surface water, sediment, and biota (shellfish and berries). Receptors evaluated included current child and adult subsistence users, future subsistence residents, long-term workers, and short-term workers. Conducted small mammal uptake modeling as part of the subsistence exposure pathway. Project responsibilities consisted of uploading all data into a risk assessment database system; calculating EPCs; developing current and future use exposure scenarios; assessing the toxicity of the COPCs; characterizing risk; evaluating uncertainty for human receptors; and calculating remedial goal options.

Key Projects (Continued)

BHHRA for Former Staging Area Area of Concern (AOC) at Fort Indiantown Gap, PA, Senior Project Scientist. Followed PADEP and EPA guidance. Responsibilities consisted of uploading all data into a risk assessment database system; calculating EPCs; developing current and future use exposure scenarios; assessing the toxicity of the COPCs; characterizing risk; evaluating uncertainty for human receptors; and calculating remedial goal options. Major COPCs included arsenic, iron, and manganese.

Comprehensive Human Health and Ecological Risk Assessment (HHRA/ERA), New Castle County, DE, Confidential Client, Project Scientist. Developed dietary models and algorithms for comprehensive ERA. Followed EPA Region 6 guidance (*Screening Level Ecological Risk Assessment Protocol for Hazardous Waste Combustion Facilities*) to create dietary exposure models for several mammal and avian receptors at the site. Calculated dietary doses and ecological effects quotients (EEQs), and collected various benchmarks.

Screening-Level HHRA/ERA, Fort Pickett, VA, Zone 2, Blackstone, VA, USACE Norfolk District, Project Scientist. Under BRAC guidelines, performed individual risk screening analyses at 30 BRAC parcels ranging in size from less than 1 acre to several hundred acres by comparing chemical concentrations at each parcel to various federal and state human health and ecological benchmarks. Performed statistical analyses on soil and groundwater data, and summarized data into risk assessment tables and text.

BHHRA, Fort Pickett, VA, EBS-103, EBS-115, and EBS-124, Blackstone, VA, USACE Norfolk District, Project Scientist. Assisted with the preparation of three HHRAs for Sites EBS-103, EBS-115, and EBS-124 that required further evaluation after completion of the Zone 1 screening assessment. Evaluated soil and groundwater data for both direct and indirect exposure pathways. Major COPCs included arsenic, pesticides, PCBs, and polycyclic aromatic hydrocarbons (PAHs).

BHHRA, Kensico Reservoir, Shaft 18 Building and Catskill Screen Chamber, Valhalla, NY, New York City Department of Environmental Protection (NYCDEP), Project Scientist. Performed statistical analyses on air and wipe data and prepared BHHRA. Primary COPCs were PCBs, mercury, arsenic, and lead. Evaluated ingestion, dermal, and inhalation risks from air and wipe sample data. Directed and prepared data management for the risk assessment.

HHRA, Allentown, PA, City of Allentown, Project Scientist. Determined human health cumulative cancer risk and cumulative hazard index (HI) for oral and inhalation pathways using groundwater well data collected at various residences on a quarterly basis. Determined risks using probabilistic methodology (Latin Hypercube analysis) and the program @RISK.

Screening-Level HHRA/ERA, Fort Pickett, VA, Zone 1, Blackstone, VA, USACE Norfolk District, Associate Project Scientist. Responsible for data validation and evaluation. Ran statistical analyses on data, set up summary tables, and compared concentrations to applicable or relevant and appropriate requirements (ARARs). Compiled table of physical/chemical properties. Contributed text.

ERA/HHRA, Nansemond Ordnance Depot (FNOD), Suffolk, VA, USACE Hazardous, Toxic, Radioactive Waste (HTRW) 2000 Contract, Associate Project Scientist. Prepared

Key Projects (Continued)

screening-level ecological risk assessment (SLERA) and HHRA for two sites within FNOD. Evaluated soil, sediment, and surface-water sample concentrations against various ecological screening criteria/benchmarks. Prepared HHRA tables following EPA's Risk Assessment Guidance for Superfund (RAGS) Part D guidance for several exposure scenarios. Major COPCs included PAHs and metals. Analyzed and prepared report reviewing background soil and groundwater concentrations, which included a statistical review of sample size and a statistical comparison to site data.

HHRA and ERA, General Electric/Housatonic River Project, Pittsfield, MA, USACE New England District, HTRW Contract/Remedial Action Contract (RAC) 5/Site-Specific Environmental Remediation Contract (SSERC), Associate Project Scientist. Evaluated data. Characterized potential current and future risks to human health posed by the ingestion of contaminated fish from contaminated surface water bodies.

Development of Risk-Based Concentrations for Workers, LEAD, Chambersburg, PA, USACE, HTRW Contract, Project Scientist. Calculated risk-based concentrations (RBCs) for various COPCs, including PCBs spilled in soil at a maintenance work area at the depot through several exposure pathways.

Screening-Level HHRA, Federal Creosote Site, Manville, NJ, EPA Region 2, Assistant Project Scientist. Prepared carcinogenic and noncancer RBCs for a number of PAH compounds and compared these to subsurface soil levels of PAHs at a former creosote site. Made recommendations for the protection of remediation workers at the site.

Restoration Program for Fairmount Park and Various Other Projects, Philadelphia, PA, The Academy of Natural Sciences, Intern. Surveyed stream channels using various field instruments. Assessed stream conditions from field data, previous studies, and by collecting various stormwater documents to explain erosion patterns and propose possible solutions for restoration. Constructed vegetative maps from orthophotographs. Assisted in administering GPS training session to PADEP. Used computer programs such as Unix, ARC/INFO, ArcEdit, and ArcView 3.0.