

Education

Ph.D. Chemical Engineering, University of Kentucky, 1993

M.S. Chemical Engineering, University of Kentucky, 1989

B.S. Chemical Engineering, University of Kentucky, 1987

Experience Summary

- Over 20 years of experience with sampling plan development, data statistical analysis, waste management and compliance, site remediation, waste and facility characterization, membrane technology development and application, project/process engineering, technology development
- Over 15 years experience with characterization, waste management, remediation, and D&D projects at DOE facilities (ORO, PGDP, Fernald)
- Hazardous and radioactive waste management, characterization, compliance, and treatment and disposal support
- CERCLA site characterization, remediation, and disposal support, including RCRA, PCB, and radiological characterization guidance and spatial analysis (ArcGIS) of characterization data
- Decontamination & decommissioning facility characterization support
- Verification, validation, assessment, and statistical analysis of radiological and chemical data
- Membrane process development, design, testing, modeling, and sizing
- Project/process engineering for development and installation of wastewater treatment and desalination and high recovery resource reclamation systems
- Direction of treatability studies and preparation of treatability study reports
- Data set management and evaluation
- Technical and economic feasibility and due diligence investigations
- Direction of activities of multi-disciplinary teams that included technicians, waste and environmental samplers, scientists, and engineers to plan, implement, and document performance of a diverse range of process development and environmental projects

Present Position

August/2000 - Present

- Waste management and waste characterization support for DOE ORO subcontractors, with activities including: waste management and treatment and disposal planning; development of sampling and analysis strategies and plans for D&D, site remediation, and facility characterization projects; waste certification program support (including for NTS waste shipments); waste disposition

Key Qualifications:

- Professional Engineer, Kentucky (License No. 21243), Tennessee (Registration No. 106271), and Louisiana (License No. PE.0033124)
- 20 years of experience with sampling plan development, data statistical analysis, waste management and compliance, site remediation, waste and facility characterization, membrane technology development and application, project/process engineering, technology development
- Detailed technical knowledge and understanding of environmental compliance and waste management requirements, including DOE, federal, and state regulations and requirements
- Significant remediation planning and implementation experience, including characterization and waste management planning for cleanup of DOE sites and D&D of contaminated DOE facilities
- Skilled in the development of procedures, strategies, and plans to demonstrate compliance with regulatory requirements
- Detailed understanding of analytical data set management, assessment, verification, and validation
- Project/process engineering and applied development of membrane-based treatment and resource reclamation systems
- Demonstrated ability to apply engineering principles and methods to direct complex process & environmental projects or studies

support (including NTS and EMWMF); and radiological and chemical data verification, validation, and assessment. Example projects include:

- Development of waste management and sampling and analysis plans, support for waste management and environmental compliance, and spatial and statistical analysis and reporting (ArcGIS) of characterization data during DOE remediation of the Witherspoon 901 and 1630 sites.
 - Support for data review, statistical analysis, RCRA determination, and waste profile development for multiple lots of waste to be disposed at the Environmental Management Waste Management Facility (EMWMF) at Oak Ridge.
 - Development of sampling and analysis strategies and plan for D&D of the Homogeneous Reactor Experiment (HRE) support facilities at ORNL.
 - Sampling analysis strategies and plan development support for BNFL Inc. D&D activities at East Tennessee Technology Park (ETTP) Buildings K-33, K-31, and K-29.
 - Sampling and analysis plan development for the K-770 Scrap Metal Yard at ETTP.
 - Waste specific sampling and analysis plan development for filter cake, zeolite, and other waste streams from the ORNL Liquid and Gaseous Waste Operations & Maintenance (LGWO&M) Project for disposal at Envirocare or NTS.
 - Overall project sampling and analysis plan for LGWO&M in support of NTS waste certification program development.
 - Sampling and analysis plan for the ORNL Hydrofracture Well Plugging and Abandonment Project.
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- Site remediation support for DOE ORO subcontractors, including development of characterization plans, spatial and statistical analysis (using ArcGIS) and reporting of characterization data, development of waste disposal profiles, and technical audit of project engineering and data management. Projects required the management of large data sets and interface of these data sets with ArcGIS in support of remediation and disposal decisions.
 - Radiological and chemical data validation on diverse data sets, including soils, filter cake, zeolite, PCB oils, and air filters.
 - Process engineering support for commercial clients in development of treatment and recycling systems for antifreeze, biodiesel by-product, and various wastewater and desalination applications. Activities include support for design, testing, and modeling, equipment selection and sizing, cost modeling, application evaluation, and patent application submittals.
 - Direction of treatability studies for desalination and wastewater treatment applications (e.g., arsenic removal from high TDS groundwater). Activities include development of estimates, test plans, analysis of data, preparation of reports and flowsheets, system scale-up, and capital and operating cost estimation.
 - Waste management, characterization, and other technical support to DOE subcontractor at the PGDP, with activities including radiological and chemical data validation, support for mixed waste treatment statements of work, preparation of characterization reports and data assessments, and Site Treatment Plan (STP) inventory reconciliation.
 - Waste management planning support for subcontractors at DOE's Fernald Environmental Management Plant (FEMP).
 - Hazardous, mixed waste, and environmental sampling training for commercial clients and DOE/DOD contractors and subcontractors.

Professional History

Project Engineer / Project Manager / Senior Environmental Specialist, EET Corporation, Knoxville, TN, 1996 - August/2000

- Project/process engineering services for commercial client in development and installation of treatment and recycling systems for various wastewater applications. Activities included support for verification of design applicability and capacity, research of unit operation and process alternatives, formulation of test plans, laboratory verification of processes, procurement of process equipment, preparation of system user manuals and waste acceptance criteria, and preparation of schedules, preliminary designs, and cost estimates for proposed \$5K to \$3M processes.
- Technical and economic evaluation for proposed and existing innovative and conventional waste treatment technologies for commercial clients. Activities included serving as expert witness for engineering issues related to a worker's compensation lawsuit, acting as lead reviewer for technical and production cost due diligence investigation of a recycling facility prior to acquisition in a multimillion dollar stock trade, expert witness for evaluating innovativeness and uniqueness of a recycling technology, and technical lead for evaluation of a waste solidification technology for an investment firm.
- Project management for \$2M subcontract (October 1996 – March 2000) supporting regulatory-driven STP implementation activities at the PGDP. Responsibilities and support activities included:
 - serving as project point of contact, interfacing with multifaceted PGDP departments, organizations, and personnel, and oversight of up to 6 EET task personnel;
 - developing and reviewing databases, procedures, sampling and analysis strategies and plans, and other documents necessary to support meeting schedules and milestones and satisfying regulatory compliance requirements;
 - supporting compilation, assessment, and verification of characterization information and data;
 - providing RCRA, TSCA, radiological, and mixed waste compliance recommendations;
 - writing progress and regulatory-driven quarterly and annual reports (including STP updates);
 - investigating waste treatment and disposal alternatives at commercial and DOE facilities;
 - disposal facility waste profiling for off-site waste shipments, preparing radiological manifest forms (540/541/542), and supporting waste shipment readiness assessments; and
 - preparing statements of work for treatability studies and treatment and disposal.

Environmental Specialist, EET Corporation, Knoxville, TN, 1993 - 1996

- Field coordination for Federal Facility Compliance Agreement characterization activities subcontract (\$450K) at the PGDP (March 1994 – October 1996). Responsibilities and support activities included formulation of waste sampling and analysis strategies and plans, technical oversight of sampling projects, project coordination with various site personnel and organizations, and formulation of project analytical statements of work to ensure analytical data obtained would meet required data quality objectives and waste treatment and disposal needs.

Research Assistant, Univ. of Kentucky Chemical Engineering Dept., Lexington, KY, 1987 – 1993

- Reverse osmosis and nanofiltration membrane projects (EPA / NSF funded).

Professional Certifications / Patents

- Professional Engineer, Kentucky (License No. 21243), Tennessee (Registration No. 106271), and Louisiana (License No. PE.0033124).
- U.S. Patent awards: 5,988,017; 6,058,808; 6,274,020; 6,537,436; 7,501,064.