

Robson Forensic

Engineers, Architects, Scientists & Fire Investigators

MICHAEL D. KLEIN, PE, CHMM Engineer and Hazardous Materials Expert

A Professional Engineer, Certified Hazardous Material Manager, Project Management Professional, and licensed Treatment Plant Operator with over 20 years of experience in the planning, design and delivery of Department of Energy (DOE) and private sector projects. Project Manager and or lead engineer for technical studies, system design, capital construction and software development for project teams of up to 120 personnel. He has also, acted as a liaison between executive management and project teams comprised of engineers, quality control personnel, union craft, and multiple subcontractors. Areas of expertise include:

- remedial investigations
- feasibility studies
- engineering design
- remedial actions
- environmental compliance
- facility waste management programs
- technical project management
- strategic planning for decommissioning and demolition of contaminated facilities

Manufacturing Processes: General machining, metal forming, foundry operations, welding, brazing, grinding, soldering, oxyacetylene cutting, hot isostatic pressing, aligning, shrink fitting, slitting, blending, drying, dry solids handling, slurry handling, liquid handling, paint preparation, painting.

Manufacturing Procedures, Standards and Specifications: Pressure vessels, power piping, pipe welding, structural welding, international steel specifications, sanitary manufacture, pharmaceutical manufacture, drawing standards, and hazardous area requirements.

Testing Methods and Specifications: Hydrostatic testing, static and high speed dynamic balancing, acceptance sampling, material testing, mechanical and digital measurement inspection systems and thermal mapping.

Management Systems and Standards: Quality and material control systems, resource loaded PRIMAVERA P5 and Microsoft Project schedule development, earned value management systems.

Engineered Systems: Steam, condensate, feed water, liquid fuel systems, natural gas, chemical feed systems, process water, waste water treatment, potable water production, deionized and ultra pure water production, automated liquids bottling, refrigeration, fire protection, hydraulic power, pneumatic power, pneumatic control, heating, ventilating and air conditioning, clean room, vacuum, inert gas systems and HEPA filtration.

Machinery: Diesel engines, high-speed centrifuges, cable winches, pumps, drive gears, clutches, compressors, distillers, heat exchangers, chillers, cooling towers, air handlers, valves, boilers, turbines, jib cranes, monorail cranes and hoists, overhead bridge cranes, milling machines, lathes, presses, segmented gamma scanners, high-energy particle calorimeters, screw

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conveyors, belt conveyors, roller conveyors, chain conveyors, spreader beams, lifting and rigging gear, material shredders, and hammer mill grinders.

Machinery Safeguarding: Safety interlocks, drive guards, operational guards, pinch point guards, failsafe modes, caution and warning signs, instruction manuals.

Safety Procedures and Requirements: Environmental Management Systems, material safety data sheets, right-to-know, confined space entry, lockout/tagout, high-rise scaffold, training, policies, inspections, OSHA requirements and nuclear materials management.

Tools: Reciprocating electric hammers, rotary electric drills, and material mixers.

Buildings: Facilities systems, fire protection, code conformance, inspections, industrial and domestic hot water systems, water and chemical mixing.

Regulatory Compliance: RCRA Permitting and RCRA closure, NPDES and air quality permitting.

PROFESSIONAL EXPERIENCE

2009 to present **Robson Forensic, Inc.**
Associate

Provide technical investigations, analysis, reports, and testimony towards the resolution of commercial and personal injury litigation involving machinery, processes, hazardous materials, and safety issues related thereto, and failure analysis.

2005 to 2010 **Time Solutions**
Cost and Schedule Analyst

Technical consultant performing project management, cost and risk estimating, analysis, and project control activities. Team member for the design and selection of a machining center and foundry for the manufacture of nuclear weapon system components. Construction, and start-up of The Chemistry and Metallurgy Research Replacement (CMRR) Project new laboratory facilities at the Los Alamos National Laboratory.

2004 to 2005 **X West Group**
Project Manager

Technical consultant for the preparation of Unreviewed Safety Question (USQ) Determinations, Evaluations and annual updates to the DOE Pantex Regional Office in accordance with the Implementation Guide for Use In Addressing Unreviewed Safety Question Requirements, DOE G 424.1-1 and the Pantex Plant Unreviewed Safety Questions Program (U), STD 3014 for Facility and Weapon Programs. Responsible engineering lead for maintaining the LINAC/CT/X-RAY and Mass Properties Safety

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Analysis Report modules. USQ reviews performed for tooling, weapon disassembly operations, and explosive safety.

2002 to
2003

Services First Inc. *Project Manager*

Technical consultant for the development of a Self Assessment Program (SAP) implementing procedure per the DOE Order 414.1A, Quality Assurance and DOE G 414.1-1A, Management Assessment and Independent Assessment Guide in support of operations at the Nevada Test Site (NTS). The self-assessment process established a methodology for employees and organizational units to evaluate their performance in meeting NTS program and projects objectives. These included, but were not limited to, effective implementation of Environmental, Safety, and Health (ES&H) requirements and other programmatic requirements.

2002 to
2003

ARES Corporation *Project Manager*

Project Manager for the preparation of nuclear safety basis (SB) documents in accordance with DOE-STD-3009-94, and Los Alamos National Laboratory (LANL) LIR-300-00-06 and for several activities associated with the performance of a large-scale, contained dynamic experiment in support of Los Alamos National Laboratory's (LANL) Nuclear Weapons Stockpile Stewardship and Certification Mission.

2001 to
2002

Qwest Communications *Project Manager*

Project Manager for the Interconnect Mediated Access (IMA) Electronic Data Interchange (EDI) systems that provide the Competitive Local Exchange Carriers (CLECs) ability to access Qwest Communications systems through a web browser, EDI, or by fax to the Interconnect Imaging Systems (IIS). Provided project management of EDI system software definition, development, and deployment for the Interactive Agent (IA), EDI Hub, and the GE Global eXchange Services (GXS) Application Integrator (AI) software product in a UNIX environment.

2000 to
2001

GE Access *Project Manager*

Project Manager responsible for the development and implementation of an EDI program that is both EDI and XML capable in a UNIX environment utilizing the GE GXS Enterprise System at both the application-to-application (A2A) and business-to-business (B2B) levels.

1992 to
2000

Rocky Flats Plant *Project Manager*

Project Manager for the Department of Energy (DOE) Rocky Flats Plant Nuclear Waste Residue Stabilization Project. Project responsibilities included scope development,

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budget coordination and control, engineering design, treatment system construction, startup, material processing operations, and project closeout.

- Direction and supervision of technical staff for the startup and operations of nuclear waste residue processing. Unit operations included material blending and measurement, high temperature furnace operations in an inert atmosphere and material measurement utilizing segmented gamma scanners.
- Responsible for the compliance with applicable requirements leading to the certification of Transuranic (TRU) waste shipments to the Waste Isolation Pilot Plant (WIPP)
- Direct the development of a secure Oracle Database for the management of TRU waste shipments to the Waste Isolation Pilot Plant (WIPP)
- Organize and direct the development of a life cycle project plan and budget for the treatment, packaging, and storage of TRU waste
- Coordinate with Department of Energy (DOE) headquarters and Site DOE staff personnel as specified by customer requirements and coordination with outside regulatory agencies is required by the project

Engineering Manager at the Department of Energy (DOE) Rocky Flats Plant.

Responsibilities included the prioritization, direction, and approval of engineering designs for facilities and nuclear materials management programs within the project area.

- Direct the development and implementation of all project area facility operability documents and facility authorization documents affected by engineered modifications
- Develop appropriate operational readiness reviews, readiness assessments and management reviews for newly engineered systems and processes being brought into service within the project area
- Project design approval authority for residue reprocessing unit operations, reprocessing equipment such as mills and material grinders, mixers, high temperature furnaces, mixing equipment inert gas systems, glove boxes, downdraft tables and contamination control cells.
- Coordinated construction and installation of nuclear processing unit operations, equipment and glove boxes, downdraft tables and contamination control cells
- Additional responsibilities included the project management of decommissioning and demolition activities of furnaces, machine tools and their glove boxes.
- Construction management of facility equipment. Acted as owner's representative and construction manager for general contract firms.
- Responsible for the review and approval for new projects and building modifications with respect to the impact on environmental compliance.
- Act as point of contact for regulatory agencies.

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- Engineering design responsibilities included the design of the vapor extraction wells, piping systems, vacuum systems and adsorption and thermal treatment system for extracted soil gas for a remedial action.

1989 to 1992 **Harding Lawson Associates** *Project Manager*

Project manager and/or the design engineer for remedial actions utilizing treatment facilities that have incorporated soil vapor extraction, ultraviolet enhanced chemical oxidation, reverse osmosis, ultrafiltration, packed tower counter current air stripping, ion exchange, and granular activated carbon. These technologies have been applied in the decommissioning and demolition of structures, treatment of soils, the production of high-purity water and the treatment of hazardous waste streams that contain heavy metals, radionuclides, volatile organics, semivolatile organics, and pesticides. Engineering responsibilities have included design, construction, and operation of an ultraviolet radiation/chemical oxidation treatment facility for the destruction of liquid hazardous waste. Engineering design performance, and evaluation of data from treatability studies utilizing biological treatment, ion exchange, granular activated carbon, chemical precipitation, ultraviolet radiation/chemical oxidation, solidification, and thermal treatment technologies for the treatment of liquids and soils with hazardous waste properties.

1986 to 1989 **IT Corporation** *Project Engineer*

Project Engineer performing remedial actions for the removal, storage, and disposal of polychlorinated biphenyl (PCB) contaminated materials and the clean up of soils containing volatile organic compounds. Development of facility waste management programs for handling, storage, and disposal of hazardous waste under the Resource Conservation and Recovery Act (RCRA) and the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA). Designed and operated media filtration and granular activated carbon adsorption systems treating process waste streams containing hazardous waste.

1985 to 1986 **Water Services of America** *Project Manager*

Project manager and responsible engineer for project life cycle costs, and the engineering design of water treatment systems. Projects consisted of design, construction and operation of water treatment equipment and turnkey water treatment systems. Engineering designs included unit operation utilizing ion exchange; media pressure filtration, counter-current air strippers, membrane ultra filtration, and reverse osmosis.

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1979 to **Bruner Corporation**

1982 *Project staff member*

Project staff member responsible for cost estimating, engineering design, and field service of water treatment equipment and turnkey water treatment systems. Engineering designs included unit operations utilizing ion exchange, media pressure filtration, and granular activated carbon adsorption.

1979 **Ford Motor Company**

U.S. Merchant Marine 3rd Assistant Engineering Officer

Various assignments as an engineer aboard vessels traversing the great lakes.

PROFESSIONAL CREDENTIALS

Professional Engineer: National Council of Examiners for Engineering & Surveying, No. 31304, Colorado, 1996

Certified Hazardous Materials Manager, No. 1745, 1989

Project Management Professional (PMP), Project Management Institute (PMI), No. 06126

Industrial Wastewater Operator, Class A, No. 1058, Colorado, 1992

Wastewater Operator, Class D, No. 6114, Colorado 1991

Water Works Operator, Class D, No. 4078, Colorado 1991

Wastewater Operator, Grade T-ABCEGH, No. 17774, Wisconsin, 1985

Water Works Operator, Grade T-DJH, No. 17774, Wisconsin, 1985

United States Coast Guard, 3rd Assistant Engineer, Steam and Motor Any Ocean, 1979

SECURITY CLEARANCE

DOE "Q"

EDUCATION

M. S., Civil Engineering, University of Wisconsin, Milwaukee, 1986

B. E., Ocean Engineering, State University of New York, Maritime College, Bronx, 1979

Additional training:

A total of 128 hours of classroom and hands-on health and safety training that meet the safety training requirements specified in U.S. Environmental Protection Agency (EPA) Executive order 1440.2 and Occupational Safety and Health Administration (OSHA) 29 Code of Federal Regulations (CFR) 1920. 120.

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Certificate of Training, Military Sea Lift Command (MSC) Fire Fighting School
Contract Management Principles and Practices, George Washington University
Project Leadership, Management and Communications, George Washington University
PRISM Project Manager for the Cost Package, ARES Corporation, Seminar Sponsored
by the Los Alamos National Laboratory, Los Alamos New Mexico
Earned Value Management System Certification Training, Los Alamos National
Laboratory, Los Alamos New Mexico
PRISM Project Manager for the Cost Package, ARES Corporation, Seminar Sponsored
by the Los Alamos National Laboratory, Los Alamos New Mexico
Primavera Project Manager for the Enterprise, Los Alamos National Laboratory, Los
Alamos New Mexico
10CFR830 Subpart b Nuclear Safety Rule, seminar sponsored by the DOE National
Nuclear Security Administration (NNSA)
Unreviewed Safety Question Process, seminar sponsored by the Los Alamos National
Laboratory, Los Alamos New Mexico
Change Acceleration Process (CAP), General Electric Corporation, Boulder Colorado
Zodiac / Business and Finance Strategy, General Electric Corporation, Boulder
Colorado
ISO 14000/Environmental Management Systems (EMS), Westinghouse Corporation,
1996.
Project Management: The Kerzner Approach, University of Colorado at Denver, 1996.
Soil Vapor Extraction, University of New Mexico, 1995.
Remediation Technologies for Controlling and Containing Groundwater
Contamination, National Groundwater Association, 1993.
Air Transportation of Dangerous Goods, seminar sponsored by Federal Express, 1993.
RCRA Corrective Action Stabilization Technologies, seminar sponsored by EPA,
Denver, Colorado, 1992.
Industrial Waste Treatment, Volume I, California State University, Sacramento, 1992.
Management of Hazardous Materials, Colorado State University, Fort Collins,
Colorado, 1990.
Operation of Wastewater Treatment Plants, Volumes I and II, California State
University, Sacramento, California, 1989.
Treatment of Metal Waste Streams, Volume I, California State University, Sacramento,
California, 1989.
Project Management, American Management Association, Denver, Colorado, 1989.
Proper Management of PCBs, General Electric Corporation, Denver, Colorado, 1988.

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AWARDS

Environmental Health and Safety Excellence Award, Westinghouse Corporate Environmental Health and Safety Council, 1997
EG&G Rocky Flats Inc., EG&G Award of Excellence, Building Deactivation Programs, 1995
EG&G Rocky Flats Inc., Management Initiative Award, Cost Productivity Improvement, 1995
Harding Lawson Associates' Dick Harding Technical Excellence Award, 1992
Nominated for the Karen Morehouse Best Paper Award, Great Plains-Rocky Mountain Hazardous Substance Research Center, 1992
Engineering Excellence Award. Environmental Projects category EI, "Hydrazine Wastewater Treatment" Consulting Engineers Council of Colorado, 1991
International Technology Corporation, Quarterly Quality Award, 1998

PUBLICATIONS and PRESENTATIONS

Rocky Flats Building Deactivation Program "Where Are We Today" Presented at the ASME Professional Development Short Course Program, Golden, Colorado May, (with J.G. Lehew, C. S. Reed, and R. J. Schmidt), 1996.

Deactivation, Decontamination, and Decommissioning Activities under CERCLA and RCRA at the Rocky Flats Environmental Technology Site, presented at ER'95 Committed to Results, Denver, Colorado, August, (with R. B. Heitland, C. M. Martin, and J.G. Lehew), 1995.

Lessons Learned From Deactivation and Decommissioning at the Rocky Flats Environmental Technology Site, Presented at ER'95 Committed to Results, Denver, Colorado, August, (with J. G. Lehew and R. J. Schmidt), 1995.

Operable Unit 2 Subsurface Interim Measure/Interim Remedial Action Soil Vapor Extraction Pilot Test, Poster presented at ER'95 Committed to Results, Denver, Colorado, August, (with, D. Parson and B. O'Melia), 1995.

Operable Unit 2 Subsurface Interim Measure/Interim Remedial Action Soil Vapor Extraction Pilot Test, presented at the Seventy National Technology Information Work Shop, Cincinnati, Ohio, April, (with R. McLaughlin, D. Parson, and B. O'Melia), 1995.

Soil Vapor Extraction of Volatile Organic Compounds at the East Trenches of Operable Unit 2. Presented at the Fifth National Technology Information Work Shop, Denver, Colorado, October, (with R. E. Madel, D. Parson, and B. O'Melia), 1993.

Treatment of a Complex Liquid Matrix using Powdered Activated Carbon Treatment (PACT). Presented at the Second International Symposium on In Situ and On-Site Bio Reclamation, San Diego, California, April, (with D. C. Erickson and K. A. DeFelice), 1993.

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Evaluation of Pretreatment Options for a Complex Liquid Matrix. Presented at the HMC Superfund 92 Conference, Washington DC December, (with K. A. DeFelice and D. C. Erickson), 1992.

Treatment of Liquid Matrixes by Advanced Oxidation Processes. Presented at the Conference on Hazardous Waste Research, University of Colorado at Boulder (with K. A. DeFelice and R. L. Kinshella), 1992.

Bench-scale Evaluation of Technologies for Removal of Organic, Inorganic, and Radionuclide Contaminants from a Complex Liquid Matrix. Presented at the Conference on Hazardous Waste Research, University of Colorado at Boulder (with K. A. DeFelice and D. C. Erickson), 1992.

Bioenumeration Treatability Studies for Liquids and Solids. Poster presented at the Conference on Hazardous Waste Research, University of Colorado at Boulder (with K. A. DeFelice and D. C. Erickson), 1992.

Biological Treatability Studies for a Complex Liquid Matrix. Poster presented at the Conference on Hazardous Waste Research, University of Colorado at Boulder (with K. A. DeFelice and D. C. Erickson), 1992.

Bench-scale Treatability Program for Chemical Fixation and Stabilization. Poster presented at the Colorado Hazardous Waste Management Society Annual Conference, Denver, Colorado, October (with K. A. DeFelice), 1991.

Development of Optimal Treatment Processes and Operational Procedures for Treatment of Hydrazine Wastewater. Presented at HMCRI Research and Development Conference, Anaheim, California, February (with R. T. Jelinek and K. R. Cain), 1991.

Evaluation of Adsorption Processes for the Removal of Residual Chemicals from Water Treated by Ultraviolet/Chemical Oxidation System. Presented at Superfund 90 Conference, Washington, D. C., November (with M. E. Zappi and K. R. Cain), 1990.