

# Robson Forensic

Engineers, Architects, Scientists & Fire Investigators

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

Michael is a Professional Engineer and Certified Hazardous Material Manager with 25 years of experience in the design, planning, and delivery of high-value projects for the government and private sectors. He has operated water, waste water, and industrial treatment systems. He has conducted environmental investigations and hazardous waste remediation per the Environmental Protection Agency (EPA) Superfund requirements. His experience managing hazardous materials includes Department of Energy (DOE), EPA, Occupational Safety and Health Administration (OSHA), and Department of Transportation (DOT) requirements.

Michael's project management experience includes technical studies, system design, capital construction, and software development in industrial manufacturing and DOE nuclear facilities. He has particular expertise in the treatment and distribution of water to meet the requirements of the Safe Water Drinking Act (SWDA), laboratory analytical testing services, and data validation. His extensive chemical hazardous waste consulting includes hazardous waste source reduction, hazardous waste treatment, waste recovery, wastewater recycling, operator training programs, and troubleshooting water and waste water treatment plants.

Areas of expertise include:

- remedial investigations
- feasibility studies
- engineering design
- remedial actions
- environmental compliance
- construction economics
- water , wastewater treatment facility operations
- facility waste management programs
- laboratory quality assurance and data validation
- technical project management
- strategic planning for decommissioning and demolition of contaminated facilities
- industrial facility operations and maintenance
- project cost and schedule management

**Manufacturing Processes:** General machining, metal forming, foundry operations, welding, tungsten inert gas (TIG) welding, metal inert gas (MIG) 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.

**Material Handling Processes:** Forklift trucks, fork lift handlers including pallet, container and drum handlers, pallet jacks, hand trucks, carts and lifting devices.

**Manufacturing Procedures, Standards and Specifications:** Pressure vessels, power piping, pipe welding, structural welding, international steel specifications, sanitary manufacturing, pharmaceutical manufacturing, drawing standards, material requirements planning (MRP) and hazardous area requirements.

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**Testing Methods, Data Evaluation, and Specifications:** Hydrostatic testing, static and high speed dynamic balancing, acceptance sampling, data quality assessment, analytical laboratory quality assurance/control, material testing, mechanical and digital measurement inspection systems, and thermal mapping.

**Management Systems and Standards:** Quality and material control systems, resource loaded PRIMAVERA P5, P6 and Microsoft Project schedule development, ANSI/EIA-748 earned value management systems, and cost and schedule performance evaluation.

**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, ventilation 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 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:** Environmental Management Systems, material safety data sheets, right-to-know, permit required confined space entry, electrical hazards and energy control (lockout/tagout), training requirements, policies and procedures, inspections, OSHA requirements, nuclear materials management, radiological protection, hazardous material handling/labeling/use/storage/disposal; proper selection, use, training and maintenance of personal protective equipment. (e.g., head, eye, hearing, respirators, hands and feet, etc.).

**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, and space utilization.

**Regulatory Compliance:** Clean Water Act permitting, Resource Conservation and Recovery Act (RCRA) Permitting, RCRA closure, and air quality permitting.

**Environmental Engineering:** hazardous waste source reduction, hazardous waste treatment, waste recovery, waste minimization, and wastewater recycling.

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**Water Resources:** wastewater pretreatment, wastewater treatment facility design, wastewater treatment equipment, wastewater collection equipment, waste auditing, effluent monitoring, water statue, wastewater statue, drinking water treatment, drinking water disinfection, drinking water treatment equipment, water storage and distribution.

### PROFESSIONAL EXPERIENCE

2009 to **Robson Forensic, Inc.**

present *Associate*

Provide technical investigations, analysis, reports, and testimony towards the resolution of commercial and personal injury litigation involving machinery, processes, hazardous materials, water and wastewater treatment engineering, wastewater pretreatment, drinking water treatment, and distribution. Further expertise includes wastewater treatment equipment, wastewater collection equipment, waste auditing, effluent monitoring, wastewater statutes, and chemical waste minimization, fire and explosion, environment compliance, safe drinking water data evaluation, laboratory analysis and safety issues related thereto, and failure analysis.

2005 to **Time Solutions**

2010 *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 high hazard machining center and foundry for use in the manufacture of nuclear weapon system components. Construction management and start-up of the Chemistry and Metallurgy Research Replacement (CMRR) Project utility and laboratory facilities at the Los Alamos National Laboratory.

2004 to **X West Group**

2005 *Project Manager*

Technical consultant for the preparation of Unreviewed Safety Question Determinations (USQD), evaluated if the proposed change increased the probability and consequence of an accident previously evaluated in the facility's existing safety analysis. Performed evaluations of proposed changes increasing the probability and consequence of a malfunction of equipment important to safety previously described in the facility's existing safety analysis. Performed evaluations of proposed changes in creating the probability of an accident of a different type than any previously evaluated in the facility's existing safety analysis. Performed evaluations of proposed changes creating the probability of a malfunction of equipment important to safety of a different type than any previously evaluated in the facility's existing safety analysis. Evaluated the proposed change and impacts to the reduction the margin of safety.

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Performed annual updates to the Department of Energy (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 Nuclear Weapon Programs. Perform maintenance of the LINAC/CT/X-RAY and Mass Properties Safety Analysis Report modules based on emerging operational requirements.

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 activities associated with the performance of a large-scale, contained dynamic experiment in support of LANL Nuclear Weapons Stockpile Stewardship and Certification Mission. Performed “what if” Hazards Analysis (HA) and Hazards Control Plans (HCPs) identifying the possible accident scenarios that may occur and separating into individual work elements into a sequence of steps, identify the potential hazards, the initial risk (both consequence and probability); and failures of each step. Determined the controls and barriers required to overcome these hazards in an operational environment. Developed technical operating procedures and policies to ensure that modifications to the configuration of facilities, equipment and changes to operating procedures, and practices were documented and controlled.

Developed an operating procedure (OP) to establish a uniform method for the control of documents and the retention/maintenance of records relevant to engineering design, construction, safety, health and environmental management per ISO 9001, Quality Management Systems. Tasks included the development of processes that regularly review, revise as necessary, and obtain approval for use by authorized personnel prior to use. Ensure that versions of relevant documents were available at all locations where operations essential to the effective functioning of the systems were performed. Developed process to promptly remove from all points of issue and points of use the obsolete documents. Developed methodology for the performance of internal audits, control of nonconforming product, corrective and preventive actions.

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2001 to **Qwest Communications**

2002 *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 **GE Access**

2001 *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.

1996 **Front Range Community College Department of Environmental Science and Technology**

*Adjunct Professor*

Developed and taught the college course “*Introduction to Decommissioning and Dismantlement (D&D)*”, SCI-191-001. The curriculum was taught during the spring and fall semesters of 1996. Classroom instruction was provided on the requirements and process for Decontamination and Dismantlement (D&D) of hazardous and radioactive equipment and facilities. Instrumental topics included:

- Project preparation and planning;
- Developing a detailed decommissioning plan and strategy;
- Establishing a project baseline for costs and schedule management;
- Decommissioning and demobilization activities involving the removal and cleanup of contaminated structures, equipment and materials, for both hazardous and radiological facilities;
- Dismantling and decontamination techniques;
- Waste minimization techniques;
- Industrial hygiene and radiation safety requirements and performance;
- Fire protection and site security;
- Post commissioning and environmental survey requirements and performance;
- Solid, hazardous and radioactive waste management.

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1992 to  
2000 **Rocky Flats Plant**  
*Project Manager*

Project manager and design engineer of a mobile soil vapor extraction system per the requirements of the Comprehensive Environmental Response, Compensation and Liability Act (CERCLA) corrective action for the remediation of subsurface contamination. Engineering design responsibilities included the design of the vapor extraction wells, piping systems, vacuum systems and adsorption and thermal treatment system for extracted hazardous soil gas.

Responsible for the environmental performance of the site manufacturing, laboratory and shipping facilities designated as 559, 707, and 991. These tasks and responsibilities included the implementation of the regulatory requirements for the facility operation, review of environmental documentation affecting the facility, review of engineering design of new projects and building modifications with respect to the impact on environmental compliance. Additional duties included the coordination and oversight of environmental and waste sampling collection, coordination and preparation of data for inclusion into various environmental reports, coordination of compliance inspections and self-assessments and the provision of direction on emergency response and notification for environmental occurrences.

Facility engineering manager for building 559, 707, and 991 manufacturing, laboratory and shipping operations. Responsibilities and tasks included: the prioritization, direction, and approval of engineering designs for facilities and programs within operating in the facilities; development and implementation of all facility operability documents and facility authorization documents affected by engineered modifications; development of appropriate operational readiness reviews, readiness assessments and management reviews for newly engineered systems and processes being brought into service within the facilities; project management of decommissioning and demolition activities within the project area; and management of new facility construction.

Direction and supervision of technical staff to ensure compliance with applicable requirements leading to the certification of Transuranic (TRU) waste shipments to the Waste Isolation Pilot Plant (WIPP). Provided Quality Assurance (QA) to residue packaging activities to insure compliance with the WIPP Waste Acceptance Plan (WAP), Rocky Flats Environmental Technology Site (Site) TRU Waste Characterization Quality Assurance Project Plan, TRU Waste Management Manual and subordinate documents required for waste certification. Additional duties included the functional responsibility for project staff WIPP qualification training for project staff certification audits.

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

Provided engineering services involving the planning, analysis, design, construction, operation and maintenance of water systems and structures. Performed engineering alternatives evaluations, including CERCLA Feasibility Studies (FS), and Remedial Designs (RD) for groundwater remediation and water, wastewater, and soil treatment systems projects. The Feasibility Studies developed, screened, and evaluated in detail alternative remedial actions under CERCLA.

Designed and executed treatability studies evaluating the performance, design, and cost of a remedy for the treatment of hazardous waste using biological treatment, ion exchange, granular activated carbon, chemical precipitation, ultraviolet radiation/chemical oxidation, solidification, and thermal treatment technologies for both solids and liquids. These treatability studies were performed to determine what technologies permanently reduced the volume, toxicity, or mobility of the hazardous substances.

Developed prescreening of technologies focusing on 1) the potential for the process option to treat the estimated volume of contaminated media and to achieve the remediation goals identified in the remedial action objectives, 2) the potential impacts on human health and the environment during construction and implementation of the option, and 3) the documented performance of the option for treating similar contaminants and matrices.

Performed the evaluation of data from laboratory results to determine whether they analytical data were of sufficient quality for the intended purpose and use. Performed Data Quality Assessment (DQA) to identify and summarize any quality control problems that occurred during laboratory analysis (QC non-conformances) and determined whether or not the quality of the analytical data was sufficient for the intended purpose.

Performed remedial action alternative cost estimates for assessing capital costs, annual operations and maintenance costs, and net present value of capital and O&M costs. Performed the construction management, operation and maintenance of an ultraviolet radiation/chemical oxidation treatment facility for the treatment of high hazard liquid waste.

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

Project engineer for the design, construction management, operation and maintenance of Resource Conservation and Recovery Act (RCRA) and Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) corrective actions for private and public sectors. Engineering responsibilities included the design

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of containment structures and processes for decontaminating Polychlorinated Biphenyls (PCBs) from structures and equipment.

Designed and operated media filtration and granular activated carbon adsorption systems for the treatment of liquid waste streams containing regulated contaminants. Supervised the collection of soil and groundwater samples containing regulated substances for analysis using diverse types of electronic and/or manual field instruments, equipment, and gauges. Analyzed environmental data to define the spatial patterns and the scales of variability and created risk maps for use in decision-making.

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

Performed design engineering, cost estimating, and field servicing of commercial, industrial and municipal entities for the treatment of drinking water. Design tasks included establishing the design basis requirements, developing Process Flow Diagrams and Process Data Sheets. Prepared detailed process design including Process Flow Diagrams (PFD), Mass Balance and Piping and Instrumentation Diagrams (P&ID, Mechanical Flow Diagrams hydraulic capacity calculations for water treatment unit operations and the life cycle operating cost calculations for unit operations.

Performed engineering designs for the treatment of water using chemical flocculation and settling basins, media filtration using sand and anthracite, reverse osmosis desalination systems for the production of drinking water from both brackish and seawater sources, packed column air stripping, chemical disinfection using chlorine, ultraviolet radiation and ozonation. Designed deionization systems utilizing ion exchange media (single and dual column cation, anion exchangers, mixed beds and chelating systems). Designed granular activated carbon adsorption systems, water distribution and water storage systems.

1979 to  
1982 **Bruner Corporation**  
*Project staff member*

Performed engineering design of commercial and industrial unit operations for the treatment of industrial wastewater and drinking water, cost estimating and the start up and the training of equipment operators. Design tasks included establishing the design basis requirements, developing Process Flow Diagrams and Process Data Sheets. Prepared detailed process design including Process Flow Diagram (PFD) with Mass Balance and Piping and Instrumentation Diagrams (P&ID). Performed hydraulic flow calculations, system capacity sizing and life cycle operating cost calculations. Water treatment designs utilized ion exchange media (single and dual column cation and anion exchangers, mixed beds and chelating ion exchange systems). Designed

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pressure filtration systems using sand or woven media. Performed design of granular activated carbon adsorption systems for the treatment of drinking water.

### 1979 **Ford Motor Company**

*U.S. Merchant Marine 3<sup>rd</sup> Assistant Engineering Officer*

Various assignments as an engineer aboard vessels traversing the Great Lakes. Responsible for the supervision and work coordination of crew members who operated and maintained the ship's engines, boilers, deck machinery, and the electrical, refrigeration, and sanitary equipment.

## PROFESSIONAL CREDENTIALS

Professional Engineer: NCEES, Colorado, Kentucky, North Carolina, South Carolina, Ohio, Tennessee

Certified Hazardous Materials Manager, No. 1745, 1989

Project Management Professional (PMP), Project Management Institute (PMI), No. 06126 (1996)

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-DJI, No. 17774, Wisconsin, 1985

United States Coast Guard, 3<sup>rd</sup> Assistant Engineer, Steam and Motor Any Ocean, 1979

## SECURITY CLEARANCE

DOE "Q" (Active)

## 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

ATSDR Case Studies in Environmental Medicine: Case Studies in Environmental Medicine: Environmental Triggers of Asthma, Course WB1102

ATSDR Case Studies in Environmental Medicine: Taking An Exposure History, Course WB1109

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- University Technology Showcase Webinar Series “Biofilm Control in Industrial Settings,” Montana State University, Center for Biofilm Engineering, January 2012
- Wet Weather Disinfection: Issues and Challenges, Water and Environment Federation Internet-based Training Program, November 2011
- American Water Works Association Webcast, “Understanding EPA’s Radiation Monitoring Data (W1119)” May, 2011
- National Pollutant Discharge Elimination System (NPDES) Permit Writers' Online Training Module, Internet-based Training Program U.S. EPA Office of Waste Water Management
- Characterizing a Complex TCE Groundwater Plume, Eliminating Suspected Source Areas, and Reducing Investigation Costs for a RCRA RFI at Shaw AFB, SC, Triad Session 6: Triad Case Studies, Internet-based Training Program, U.S. EPA Technology Innovation and Field Services Division
- Using Environmental Visualization System (EVS) Modeling to Develop Remediation Alternatives, Triad Session 6: Triad Case Studies, Internet-based Training Program, U.S. EPA Technology Innovation and Field Services Division
- Vapor Intrusion Pathway: A Practical Guideline (VI-1, 2007), Internet-based Training Program, US EPA Office of Superfund Remediation and Technology Innovation
- Vapor Intrusion Pathway: Investigative Approaches for Typical Scenarios (VI-1A, 2007), Internet-based Training Program, US EPA Office of Superfund Remediation and Technology Innovation
- Vapor Intrusion, U.S. Navy, Naval Facilities Engineering Command, Environmental Restoration Technology Transfer, Multimedia Internet-based Training
- 128 hours of classroom and hands-on health and safety training for hazardous waste operations and emergency response as mandated by the 1986 reauthorization of the Superfund program
- Certificate of Training, Military Sea Lift Command (MSC) Fire Fighting School
- Total Maximum Daily Loads: The Straight Talk, sponsored by the SC Association of Storm Water Managers
- 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)

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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

## **PROFESSIONAL MEMBERSHIPS and AFFILIATIONS**

Magnolia Chapter of Hazardous Material Professionals  
Institute of Hazardous Materials Management (IHMM)  
Alliance of Hazardous Materials Professionals (AHMP)  
American Water Works Association (AWWA)  
Waste Water Federation (WWF)  
South Carolina Chamber of Commerce Environmental Technical Committee

## **PROFESSIONAL COMMITTEES**

Institute of Hazardous Materials Management (IHMM) committee member for the Job Task Analysis (JTA) to update the content outline for the Certified Hazardous Materials Manager (CHMM) Examination Program.  
South Carolina Chamber of Commerce (SCCC) Environmental Technical Committee Subgroup panel member for Air Quality Modeling.

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## **AWARDS**

Los Alamos National Laboratory Principal Associate Directorate for Weapons Programs Contractor Awards Program FY2006  
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 E1, "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

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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

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