RAS 13381

NRC STAFF EXHIBIT 54

U.S. NUCLEAR REGULATORY COMMISSION
In the Matter of LES, Inc.
Docket No. 70-3103-ML Official Exhibit No. S-NRC-54
OFFERED by: Applicant/Licensee Intervenor NRC Staff Other
IDENTIFIED on 3/13/07 Witness/Panel
Action Taken: ADMITTED REJECTED WITHDRAWN
Reporter/Clerk

NAME: **Mr. Matthew D. Blevins**

EDUCATION:

University of Idaho, Restoration Ecology Certificate, 2006
Clemson University, Clemson, SC, M.S. Environmental Systems Engineering, 1995
West Virginia University, Morgantown, WV, B.S. Chemistry, 1993

WORK HISTORY:

U.S. Nuclear Regulatory Commission
Washington, D.C.

Senior Project Manager: August 2004 - present
Environmental and Performance Assessment Directorate, Division of Waste Management and Environmental Protection, Office of Federal and State Materials and Environmental Management Programs.

Responsible for completion of the American Centrifuge Plant Environmental Impact Statement (NUREG-1834), including cultural resource reviews under Section 106 of the National Historic Preservation Act (NHPA).

Provided "NMSS Environmental Review" training at the NRC's Professional Development Center.

Responsible for completion of the Mixed Oxide Fuel Fabrication Facility Environmental Impact Statement (NUREG-1767).

Project Manager - January 2000 - August 2004
Environmental and Performance Assessment Branch, Division of Waste Management, Office of Nuclear Materials Safety and Safeguards

Responsible for preparation and completion of the "Idaho Spent Fuel Facility Environmental Impact Statement" (NUREG-1773), including cultural resources review under Section 106 of the NHPA.

Provided environmental review assistance in completion of the "National Enrichment Facility Environmental Impact Statement" (NUREG-1790) including cultural resources review under Section 106 of the NHPA.

Responsible for overall completion of "NMSS Environmental Review Guidance" (NUREG-1748), as well as specific responsibility for developing a procedure for NMSS staff to follow in Section 106 consultations.

Provided environmental review assistance in the review of various environmental impact statements, including a Department of Energy Draft Supplement EIS for Yucca Mountain and Disposition of Highly Enriched Uranium for adequacy and applicability to NRC licensing actions. Provided environmental review assistance in completion of the "Generic Environmental Impact Statement on Decommissioning of Nuclear Facilities" (NUREG-0586, Supplement 1).

Developed and reviewed the preparation of numerous environmental assessments related to NMSS licensing activities such as operating and decommissioning fuel cycle facilities, research and development activities, rulemaking activities, and decommissioning nuclear power reactors.

TEMPLATE = SECY-027

SECY-02

Developed and provided "NMSS Environmental Review Training" to the NRC's Regional Offices, the Spent Fuel Project Office in NMSS, the Rulemaking and Guidance Branch in NMSS, and to NMSS Development Program participants.

Marine Corps Air Station Cherry Point
Cherry Point, NC

Environmental Engineer - March 1999 - January 2000
Environmental Compliance Division, Environmental Affairs Department, Facilities Directorate

Responsible for compliance with the Safe Drinking Water Act and North Carolina implementing regulations.

Responsible for compliance with North Carolina regulations for solid waste disposal.relating to an inert debris landfill, municipal solid waste transfer station, and disposal and recycle of coal ash from the Air Station power plant.

Responsible for providing quarterly Air Station Environmental Awareness training for all incoming Marines in the topical areas of chemical compatibility and hazardous waste identification.

Assigned to the Cherry Point Open Water Spill Response Team with responsibilities in implementing Oil Pollution Act of 1990 requirements

Dames & Moore
Orchard Park, NY

Project Engineer - October 1996 - March 1999

Provided technical assistance to the West Valley Demonstration Project (WVDP) in the characterization and classification of 500 containers of miscellaneous low-level and hazardous waste including roofing material, asphalt, ion-exchange resin, floor sweepings, and assorted solid waste.

Assisted in the development of a contaminated soil management program at the WVDP which provided a basis for future management of contaminated soil. Provided technical assistance in the characterization and classification of 1,500 containers of contaminated soil.

Provided health physics/chemistry field support and RCRA waste categorization for the glass holes and chemical/animal pits remediation at Brookhaven National Laboratory. Authored various sections of the Site Safety and Health Plan and reviewed various work plans.

Provided various industrial hygiene tasks for multiple clients. Successfully completed Core CIH examination in October 1998 and certified as an Industrial Hygienist in Training (IHIT).

Provided radiochemistry support to foreign client in site closure/disposition. Provided radiochemistry/engineering support to domestic client in CERCLA/FUSRAP litigation.

U.S. Army Ordnance Center and School
Aberdeen Proving Ground, MD

Environmental Engineer - January 1996 - October 1996

Responsible for a RCRA remedial action at the Ordnance Center and School Museum. Prepared the health and safety plan, environmental assessment, and worked closely with the installation's historical preservation staff and the Maryland Historical Trust.

Assisted with the development and delivery of an Army pollution prevention education course and associated training materials.

Reviewed environmental assessments and categorical exclusion determinations for all school projects.

RELEVANT JOB-RELATED TRAINING COURSES:

2006
Air Quality Modeling with AERMOD
Advanced Topics in Section 106 Compliance
University of Idaho: Restoration Ecology Field Practicum (2 credits)
University of Idaho: Human Dimension of Restoration Ecology (1 credits)

2005
University of Idaho: Fire Ecology (2 credits)
Project Manager Refresher
National Preservation Institute: Integrating Cultural Resources in NEPA Compliance

2004
University of Idaho: Wetland Restoration (3 credits)
University of Idaho: Restoration Ecology (3 credits)
GoldSim Modeling (16 hours)

2003
University of Idaho: Fundamentals of Ecology (3 credits)
George Mason University: Special Uses Management on Federal Land (3 credits)
USDA Graduate School: Introduction to Meteorology (3 credits)

2002
Probability and Statistics for PRA (60 hours)
George Mason University: Foundations of Federal Land Management (1 credit)
University of Maryland: General Forestry (3 credits)

2001
Applied Statistics (36 hours)
Media Training Workshop (8 hours)
Risk Communication (8 hours)
American Indians and Cultural and Natural Resource Management: The Law and Practice Regarding Public Lands (36 hours)

Government Acquisition Series:
Preparing Statements of Work (6 hours)
Developing Independent Government Cost Estimates (3 hours)
Developing Proposal Evaluation Criteria (3 hours)
Contract Administration (6 hours)
Source Evaluation Panel Procedures (6 hours)
Organizational Conflicts of Interest (3 hours)

2000
Environmental Impact Assessment of Projects (36 hours)
Natural and Cultural Resources Management (16 hours)
NEPA and Cumulative Effects Assessment (24 hours)
Communicating with the Public (4 hours)
Conducting Public Meetings (16 hours)
Mutli-Agency Radiation Survey and Site Investigation Manual Training (24 hours)

1999
National Environmental Policy Act: Department of Defense Implementation Course (36 hours)
Oil Pollution Act Regulatory Review (16 hours)

1998
Data Quality Objectives Facilitator Training (16 hours)
Statistics for Environmental Sampling (24 hours)
NRC Waste Classification (8 hours)

1997
DOE Radiological Worker II Training (16 hours)

1996
RCRA/CERCLA Project Management (16 hours)
Site Supervisor Training (8 hours)
Hazardous Material Technician Training (24 hours)
Maryland Certified Visual Air Emissions Observer (16 hours)
EPA Level I Air Pollution Inspector Training (80 hours)
RCRA Compliance Auditing (16 hours)
Complying with EPA's RCRA Waste Minimization Requirements (8 hours)
Army Environmental Managers Introduction to the National Environmental Policy Act (8 hours)

3/07

James P. Bongarra, Jr.

U.S. Nuclear Regulatory Commission

Mr. Bongarra is a Senior Engineering Psychologist in the NRC's Office of New Reactors, Division of Construction Inspection & Operational Programs. Prior to this assignment in 2007, he had been with the NRC's Office of Nuclear Reactor Regulation since 1984.

Mr. Bongarra is the lead human factors engineering (HFE) reviewer for GE's Economic Simplified Boiling Water Reactor (ESBWR), AREVA's US European Pressurized Water Reactor (US EPR) design certifications, and the NuStart/Westinghouse AP1000 Combined License Project. He is also responsible for the HFE portions of pre-design certification reviews for Mitusbishi's US APWR and the South Texas /NRG Energy's combined license applications. He was the NRC's principal HFE reviewer for the Westinghouse AP600 and AP1000 Advanced PWR Reactor design certifications. He has provided HFE support to numerous NRC safety evaluations for license amendment requests, served as technical lead for several research efforts related to human performance, participated in several NRC inspections of licensee facilities, and prepared and presented numerous HFE-related technical papers to professional organizations in the US and aboard.

Mr. Bongarra began his professional career spending six years with Bechtel as a construction field engineer and training and organizational development specialist. He has been a human factors engineering consultant to government and private industry clients including the military, US Bureau of Mines, the Electric Power Research Institute, the Institute of Nuclear Power Operations, and electric utility clients in the U.S. and Taiwan.

His undergraduate degree is in Psychology from Boston College and he has a Masters degree in Experimental Psychology from Connecticut College. He also has completed several NRC-sponsored training courses in nuclear power plant engineering as well as risk and reliability methods.

He is a member of the American Psychological Association, the Institute of Electrical and Electronics Engineers, and the Human Factors and Ergonomics Society.

Statement of Professional Qualifications of Frederick H. Burrows

Experience:

U.S. Nuclear Regulatory Commission (USNRC)

Electrical Engineer, Division of Fuel Cycle Safety and Safeguards, Office of Nuclear Material Safety and Safeguards
February 2000 to present

- Review and evaluate electrical power and instrumentation and control (I&C) systems needed for the safe operation of fuel cycle facilities per the NRC regulatory program. Perform engineering reviews which include conditions arising from normal operation and postulated events/accidents, including surveillance and maintenance.

Electrical Engineer, Division of Engineering, Office of Nuclear Reactor Regulation
July 1988 to February 2000

- Reviewed and evaluated electrical power systems and associated instrumentation and controls needed for the safe operation and shutdown of nuclear power plants per the NRC regulatory program. Performed engineering reviews which included conditions arising from normal operation and postulated accidents, including surveillance and maintenance issues and operating reactor problems/events.

Electrical Engineer, Division of Engineering, Office of Nuclear Reactor Regulation
May 1981 to July 1988

- Reviewed and evaluated (per NRC the regulatory program) instrumentation and control systems which provide automatic protection and control against unsafe reactor operation during steady-state and transient power operations and which provide initiating signals and proper control of safety systems to mitigate the consequences of accident conditions.

Other Experience:

- Electrical/Electronics/General Engineer, Naval Sea Systems Command, Department of the Navy
- Electrical Engineer, Northern Indiana Public Service Company

EDUCATION:

- B.S.E.E. - Valparaiso University - 1968
- M.S.E.E. - University of Notre Dame - 1971

MILITARY SERVICE:

- Electronics Technician, U.S. Navy, 1960-1964

AWARDS:

- Senior Honors---Valparaiso University, 1968
- High Quality Performance---1987, 1993, 1995 (NRC)
- Special Performance---1997, 1998, 2005 (NRC)
- Special Act---1998, 1999, 2005 (NRC)
- Instant Cash---1996, 2000, 2004 (NRC)

CRAIG M. DEAN
ICF INTERNATIONAL

EDUCATION

1984-85	Graduate Study, Economics and Statistics, American University
1976-1979	J.D., Georgetown University Law Center
1964-1969	M.A., (Ph.D. less dissertation), Russian Studies, Columbia University
1960-1964	B.A., cum laude, History, Carleton College

EXPERIENCE

Mr. Dean joined ICF in January 1984, and is a Project Manager. He is an attorney and regulatory analyst, with an extensive background in financial assurance. His experience includes development and implementation of financial assurance requirements for the Environmental Protection Agency, the Nuclear Regulatory Commission, and several states. Since 1986, Mr. Dean has provided support to the NRC for the development of financial assurance regulations, program implementation, case work, training, and special projects involving financial assurance.

Financial Assurance Regulations of 10 CFR Parts 30, 40, 50, 70, and 72

Since 1986, Mr. Dean has been providing support to the NRC in analysis of financial assurance submissions, evaluation of financial assurance issues, development of guidance documents and delivery of training on financial assurance, licensing reviews, and enforcement. Projects have included the following:

- Review of Financial Assurance Submissions from NMSS Licensees.
  Since promulgation of the NRC regulations on financial assurance for decommissioning of materials licensees in 1988, Mr. Dean has provided support to NRC in the review and evaluation of non-standard financial assurance submissions from licensees for costs of decommissioning licensed nuclear materials facilities. The submissions have included both decommissioning cost estimates and financial instruments. Mr. Dean has participated directly in the reviews, and has also supervised other ICF staff performing reviews and provided quality assurance.

- Review of Decommissioning Cost Estimates and Financial Assurance Mechanisms for Proposed Fuel Enrichment Facilities.
  Mr Dean managed the review of cost estimates and financial mechanisms submitted by Louisiana Energy Services (LES) and provided expert testimony in the ASLB hearings on the licensing of the LES enrichment facility. He has managed the review of the cost estimates and financial mechanisms submitted by the U.S. Enrichment Company (USEC) in support of their license application.

- Financial Assurance Program Assessment.
  Mr. Dean managed major components of a multi-year analysis in 1986-1987 of financial assurance requirements of the NRC for low-level radioactive waste, mixed low-level and RCRA waste, uranium mill tailings, and source, special nuclear, and

byproduct licensees, including financial mechanisms, decommissioning cost estimates, reporting and recordkeeping requirements, bankruptcy problems, financial test issues, overall regulatory structure, and guidance. The assessment compared the NRC regulatory framework with financial assurance requirements of other federal agencies, particularly the EPA. Mr. Dean is currently managing a two-year contract to provide technical assistance to NMSS related to financial assurance for decommissioning and subsurface soil and groundwater monitoring of materials and non-power reactor facilities.

- Analysis of the Implications of Electric Utility Deregulation on Nuclear Reactor Decommissioning Financial Assurance.

  Mr. Dean prepared a detailed study of the development of NRC policy on decommissioning financial assurance for nuclear power reactors to assess the implications of utility deregulation. He prepared a detailed chronological analysis of the development of NRC's policy concerning whether financial assurance should be required, the level of assurance (e.g., "reasonable assurance") required, the amounts of such assurance, the types of financial instruments to be allowed to provide assurance, the respective responsibilities of the NRC and other regulatory bodies, such as state PUCs and FERC, with respect to financial assurance, and related topics.

- Financial Assurance Training for NRC Regional and Headquarters Staff, and Agreement State Staff.

  Mr. Dean prepared and presented training in July-August 1989 to four NRC Regions on financial assurance for decommissioning, including overview of financial mechanisms, review of cost estimates, implementation procedures, and data sources. He also presented training to NRC Headquarters staff from Office of Research, Office of Nuclear Materials Safety and Safeguards, Office of General Counsel, and Commission staff. The training was repeated in September 1992 to five NRC Regions and Headquarters staff, in August 1995 to three Regions and Headquarters staff, and in 1998 to three Regions (one by teleconference), Headquarters staff, and staff from three Agreement States.

- Financial Assurance Workshops for NRC Agreement States Staff.

  Mr. Dean developed and presented a workshop on design and implementation of financial assurance for decommissioning to representatives of 28 States at the NRC annual meeting of Agreement States in October 1991. He also developed and presented a two-day training program in July 1993 sponsored by NRC's Agreement States Office for staff from 14 Agreement States. Training consisted of overview of financial assurance concepts and procedures for technical review of financial assurance submissions, including cost estimates and financial mechanisms, from nuclear materials licensees.

- Financial Assurance Compliance Support to NMSS.

  Mr. Dean has managed or participated in support to NMSS and to NRC's Office of General Counsel in special enforcement situations involving the financial ability of materials licensees to carry out necessary decommissioning activities. Topics evaluated have included corporate ownership and piercing the corporate veil of a holding company involved in bankruptcy to determine if associated companies could be sources of financial assurance for decommissioning, evaluation of the financial condition of several firms in bankruptcy or reporting financial distress and assessments of their ability to pay

financial assurance if needed, review of financial mechanisms either proposed or in use by licensees, and other topics.

- Financial Assurance Compliance Support to NRR.
  Mr. Dean has provided support to NRR for the review of the terms and conditions of trust funds submitted by reactors, including a review in 2005 of proposed amendments to non-qualified decommissioning trust agreements for Turkey Point and St. Lucie nuclear plants. He has also reviewed tax issues pertaining to decommissioning trust funds established for nuclear power reactors, including evaluation of a private letter ruling addressing the tax liability of a licensee for reactor decommissioning financial assurance.

Analysis of Bankruptcy Issues Affecting Financial Assurance

- Evaluation of Vulnerability of Financial Assurance Mechanisms in Bankruptcy.
  In support of the Environmental Protection Agency's evaluation of various financial mechanisms for use to provide financial assurance for closure and post-closure care of hazardous waste management facilities, Mr. Dean prepared a comprehensive analysis of the vulnerability of financial tests, letters of credit, trust funds, and surety bonds in reorganization and liquidation. In particular, he evaluated the effects of the automatic stay provision, legal decisions allowing environmental claims and/or administrative cost claims to avoid the automatic stay; the likelihood of government claims that are subject to the automatic stay to later be given preference over other claims; and the effects of the cram down provision on the likelihood of recovery if government claims are not given priority. He also evaluated the law pertaining to the bankruptcy or reorganization of parent and subsidiary corporations and the law of parent to subsidiary ("downstream"), subsidiary to parent ("upstream") and subsidiary to subsidiary ("cross-stream") corporate guarantees.

- Bankruptcy Analysis Support to NRC.
  Mr. Dean has provided support to both NRR and NMSS staff for the analysis of bankruptcy issues. For NRR, he prepared an evaluation of nuclear power reactor ownership structures and their effects on NRC's reactor decommissioning financial assurance requirements that included an examination of the bankruptcy vulnerabilities of different forms of business organization, including corporations and partnerships as well as new forms of organization such as limited partnerships, limited liability partnerships (LLPs), limited liability limited partherships (LLLPs), and limited liability companies (LLCs). For NMSS, he supervised the preparation of a summary of bankruptcy law as it was likely to affect NMSS financial assurance; identified sources of information on the likelihood that a firm that emerges from reorganization will reenter bankruptcy and the time periods in which their reentry is most likely to occur; and evaluated financial assurance submissions by the Fansteel corporation that involved bankruptcy issues.

Analysis of Business Organization Issues Affecting Financial Assurance

- Corporate Guarantees.

  For the EPA, Mr. Dean researched the law on corporate guarantees and developed the terms and conditions of the corporate guarantee used in 40 CFR Parts 264 and 265 for financial assurance for closure and post-closure care of hazardous waste facilities. These corporate guarantee terms and conditions were subsequently adopted for financial assurance for underground storage tanks, and, by the NRC, for decommissioning financial assurance of facilities licensed by NMSS. For the EPA, Mr. Dean also reviewed the impacts of state insurance law on corporate guarantees for liability coverage.

- Evaluation of Power Reactor Ownership Structures.

  For NRC/NRR, in response to a critical study released by the STAR Foundation of the increasing use of limited liability companies and multi-tiered holding companies to own nuclear power plants, Mr. Dean prepared a comprehensive working paper describing the basic attributes of corporations, partnerships (including limited liability partnerships and limited liability limited partnerships), and limited liability companies in terms of their organic statutes (Uniform Partnership Act, Uniform Limited Partnership Act, Uniform Limited Liability Company Act, etc.) as well as other governing law. The paper compared their key organizational attributes in terms of characteristics or actions most likely to affect financial assurance (e.g., limited liability, property ownership and distribution, and dissolution of the entity). The paper evaluated whether complex holding companies or other forms of organization that include limited liability subsidiaries pose a risk to the NRC of failing to provide reasonable financial assurance for decommissioning. The paper also reviewed the use of organizational terms in 10 CFR Part 50 and recommended changes to reflect the increased variety of business organizational structures in current use by reactor owners.

- Evaluation of Licensee's Use of Limited Liability Companies.

  Mr. Dean prepared a detailed set of draft Requests for Additional Information submitted by the Office of Nuclear Reactor Regulation to Exelon Energy Corporation dealing with Exelon's use of numerous limited liability companies (LLCs) to hold trust funds for nuclear reactor decommissioning. Mr. Dean also participated in numerous teleconferences with Exelon staff, accountants, and attorneys, and NRC staff to receive Exelon's verbal explanations and determine if additional information was required. Mr. Dean then prepared a written analysis that formed the basis for a part of the Safety Evaluation Report on the licensee's proposed transactions, which involved license transfers and changes in control of the decommissioning trust funds.

Decommissioning Technology

- Evaluation of Institutional Controls for Decommissioning Facilities.
  Mr. Dean has provided support to several federal agencies, including EPA and the Department of Energy, for the evaluation of potential institutional controls for decommissioning facilities. For the DOE, he managed a study of potential long-term controls for weapons-program sites contaminated with high-level radioactive materials and evaluated studies of institutional controls at particular DOE sites prepared by the Environmental Defense Fund. For EPA, he prepared analyses of such institutional controls as deed notices, covenants, easements, and similar restrictions for use at hazardous waste management facilities and brownfields sites.

- Review of Restricted Release Decommissioning Scenarios at Selected NRC Sites.
  Mr. Dean prepared a comparison of restricted release scenarios, including site setting, constituents of concern, release criteria (DCGLs), sludges, structures, soils, groundwater, drummed wastes and solid wastes on site, disposal cell design, institutional controls and land use restrictions, offsite disposal alternatives, estimated costs, and expected duration of restrictions, for several sites, including Sequoyah Fuels, Shieldalloy Metallurgical Corporation, Molycorp, Inc., and Fansteel, Inc., as input to the remedial design for the SafetyLight site.

- Development of Independent Decommissioning Cost Estimate for NMSS Licensee Site.
  Mr. Dean participated in the evaluation of decommissioning alternatives for the SafetyLight (SLC) site located in Bloomsburg, PA. In particular, he prepared the component of the revised cost estimate developed by ICF for the site that addressed institutional controls for the site, he participated in the review and evaluation of alternative scenarios for restricted and unrestricted release, and he reviewed the final report prepared by ICF.

Preparation of Draft NRC Rulemaking and Guidance Documents on Financial Assurance

- Rulemaking Support for Financial Assurance Requirements for NMSS Licensee Decommissioning.
  Mr. Dean managed support to NMSS for the review of a petition for rulemaking by Westinghouse and General Electric requesting revised financial assurance requirements for large firms. The project involved quantification of the degree of assurance provided by all financial assurance mechanisms currently authorized by NRC and comparison to the degree of assurance provided by proposed financial test mechanism. (Cited as an example in NUREG/BR-0184, "Regulatory Analysis Technical Evaluation Handbook.") The project culminated in development of the financial test for financial assurance currently used by the NRC. Support for the rulemaking included development of draft text for the Federal Register notice, preparation of a Regulatory Analysis, OMB clearance document, and comment summary and analysis. Mr. Dean also managed a related project to address decommissioning by licensees that are not-for-profit entities, such as hospitals and universities, or that cannot qualify for the bond component of the financial test because they do not issue bonds. The report was published as NUREG/CR-6514, *Analysis of Potential Self-Guarantee Tests for Demonstrating Financial Assurance by Non-Profit Colleges, Universities, and Hospitals, and by Business Firms That Do Not Issue Bonds,* June 1997, and formed the basis for

rulemaking action by NMSS. Support for that rulemaking also included development of draft text for the Federal Register notice, preparation of a Regulatory Analysis, OMB clearance document, and comment summary and analysis.

- Rulemaking Support for Financial Assurance Requirements for Power Reactor Decommissioning.

  Mr. Dean participated in a review of public comments on an NRC proposal to revise the financial assurance requirements for power reactors, proposed revisions to the trust fund requirements in 10 CFR Part 50, provided support for the preparation of a rule amending the requirements for nuclear power reactor decommissioning trust funds, and assisted NRC in a review of existing guidance.

- Financial Assurance Guidance.

  Mr. Dean provided support for the development of guidance materials implementing NRC requirements for financial assurance for decommissioning of licensed facilities, including NUREG-1336, Rev. 1, *Standard Format and Content Guide for Financial Assurance Mechanisms Required for Decommissioning Under 10 CFR Parts 30, 40, 70, and 72*, July 1989 and NUREG-1337, Rev. 1, *Standard Review Plan for the Review of Financial Assurance Mechanisms for Decommissioning Under 10 CFR Parts 30, 40, 70, and 72*, August 1989, Regulatory Guide 3.66, *Standard Format and Content Guide for Financial Assurance Mechanisms Required for Decommissioning Under 10 CFR Parts 30, 40, 70, and 72*, September 1998, and NUREG-1727, NMSS Decommissioning Standard Review Plan, September 2000.

Support for Financial Assurance Requirements of the Environmental Protection Agency

- Financial Assurance for Hazardous Waste Treatment, Storage, and Disposal Facilities (TSDFs).

  Between 1980 and 1983, while employed by the Government Research Corporation, Mr. Dean supported the development of financial assurance requirements by the Environmental Protection Agency under the Resource Conservation and Recovery Act (RCRA) for hazardous waste TSDFs. He participated in meetings with private attorneys and experts from the American Bankers Association and other trade organizations on trust funds, surety bonds, letters of credit and other financial instruments. He also participated in the development of a financial test for financial assurance. Mr. Dean also participated in the development of guidance on the preparation of decommissioning cost estimates for TSDFs.

- Financial Assurance for Underground Storage Tanks and Municipal Waste Disposal Facilities.

  Beginning in 1984, at ICF, Mr. Dean provided support to the EPA for the development of financial assurance requriements for leaking underground storage tanks containing petroleum and for municipal landfills. He also worked on the development of standards for limiting lender liability for environmental cleanup costs at facilities containing underground storage tanks.

PROFESSIONAL AFFILIATIONS

Member of the Bar of the District of Columbia (Admitted to Practice, 1979)

SELECTED PUBLICATIONS/PRESENTATIONS

NUREG/CR-6514, *Analysis of Potential Self-Guarantee Tests for Demonstrating Financial Assurance by Non-Profit Colleges, Universities, and Hospitals, and by Business Firms That Do Not Issue Bonds* June 1997.

"Financial Assurance for Low-Level Radioactive Waste Disposal Facilities: Factors Affecting the Type, Levels, and Duration of Requirements," presented at WASTE MANAGEMENT '89, Tucson, Arizona March 1, 1989.

"EPA Regulations: Mixed Waste, RCRA and Low-Level Waste," presented at the seminar on Liability Coverage for Low-Level Radioactive Waste Disposal Facilities at the quarterly meeting of the Low-Level Radioactive Waste Forum, April 27-29, 1987.

"RCRA Reauthorization: What It Means For Your Company," speech presented at Hazardous Materials Expo '85, Chicago, Illinois, August 1985.

"Review of Financial Responsibility Regulations," paper presented at RCRA Financial Responsibility and Closure/Post-Closure Plans Seminar, sponsored by Government Institutes, Inc., Washington, D.C., June 1981.

"The Design of Hazardous Waste Management Financial Responsibility Programs," paper presented at Third National Conference on Hazardous Materials Management, Anaheim, California, March 1981.

Student Topics Editor, "The Tax Lawyer," Journal of the American Bar Association, Tax Section (published jointly with Georgetown University Law Center), 1978-1979.

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Ira Philip Dinitz

Experience

1974 – Present:
U.S. Nuclear Regulatory Commission
Insurance/Indemnity Analyst
Office of Nuclear Reactor Regulation,
Risk Assessment and New Projects Directorate,
Division of Policy and Rulemaking,
Financial Policy and Rulemaking Branch

1967-1974:
U.S. Atomic Energy Commission
Senior Contract Administrator

Education

City College of New York, B.A., 1966
Syracuse University, MPA, 1967

STATEMENT OF PROFESSIONAL QUALIFICATIONS
FRANCIS STANLEY ECHOLS

Current Position

Senior Project Manager
Office of Nuclear Material Safety and Safeguards (NMSS)
Division of Fuel Cycle Safety and Safeguards (FCSS)
Fuel Cycle Licensing Directorate
Enrichment & Conversion Branch

Education

B.S.	Nuclear Engineering	University of Florida	1969
M.B.A.	Management	University of Florida	1970
Ph.D.	Environmental Engineering	University of Florida	1973
J.D.	Law	Georgetown University	1978

Qualifications

Since returning the NRC in 2004, Dr. Echols has served as liaison between FCSS and the Office of State Materials and Environmental Management Programs (FSME), Division of Waste Management and Environmental Protection, coordinating the staff review of license submittals and the staff preparation of environmental evaluations. He is currently acting as the project manager for the USEC ACP.

Before returning to the NRC, Dr. Echols was an associate and then partner in a law firm, focusing on nuclear facility licensing and related environmental matters. Before that, he was a staff attorney for the Department of Energy, Office of General Counsel.

Earlier, he was an environmental project manager at the NRC and an engineer with the Bechtel Power Company.

Professional

Member - American Nuclear Society
Member - District of Columbia Bar
Member - Florida Bar

J. Keith Everly, Jr.

Title: : Senior Program Manager (Licensee Security), Information Security Branch, Division of Security Operations, Office of Nuclear Security and Incident Response.

Qualifications:
- Ten years experience administering the NRC's Facility Security Program.
- Thirteen years experience administering the Security Inspection Program for Licensee, Certificate Holder and Other Regulated Facilities.
- Established security liaison with other Federal Agencies (e.g., DOE and DOD), as well as with numerous NRC licensees and certificate holder.
- Strong written and oral communication ability.
- Works well with others and is a team player.
- Have received Annual Performance Awards, based on yearly appraisals, every year since 1998.

Education: UNIVERSITY OF MARYLAND, College Park
Bachelor of Science in Business Administration

Relevant Experience

FOCI PROGRAM MANAGER - Since September 1997, I have been responsible for implementing the NRC's Foreign Ownership, Control, or Influence Program (FOCI). During this period, I have rendered FOCI determinations in consultation with other Federal agencies, drafted security cognizance request letters to other agencies where NRC's classified interests reside, attended national level FOCI meetings with representatives from DOE and DOD, and negotiated a new FOCI agreement, including funding requirements, with DOE regarding reactor and material licensees that require access to classified information.

USEC SECURITY PROGRAM MANAGER - Since December 1993, I have been responsible for coordinating the majority of security-related activities associated with NRC's only certificate holder, the U.S. Enrichment Corporation (USEC). In this capacity, I have led and conducted security inspections, wrote inspection reports, developed policy documents, participated in rule making, drafted Commission papers, reviewed and commented on security plans, responded to exemption requests, developed and coordinated MOU's with other agencies, and provided security advice and assistance during USEC's privatization process.

FACILITIES SECURITY SPECIALIST - From February 1987 to March 1997, I assisted the Facilities Security Branch Chief in developing, coordinating, and administering the NRC Facilities Security Program. In this capacity, I was responsible for day-to-day oversight of the NRC guard force, oversaw the operations of the White Flint North access control/intrusion detection systems, coordinated security support for controversial Commission meetings and out-of-town NRC public meetings/hearings, and conducted surveys of NRC Headquarters facilities, organizational components, NRC licensees and contractors. I also conducted special inquiries and prepared written reports concerning controversial and complex subject matters such as harassing/obscene phone calls to the Chairman of the NRC and suspicious packages mailed to the Chairman's residence. Lastly, I assisted in the preparation of division budget reports.

Accomplishments:
- Developed Interagency Agreement with DOE regarding FOCI analysis for NRC licensees.
- Developed NRC's Foreign Ownership, Control or Influence program.
- Led and conducted numerous security inspections of USEC's two gaseous diffusion plants (GDPs) and other licensee facilities.
- Manages NRC's current licensee clearance program regarding FOCI.
- Developed MOU with DOE regarding security responsibilities at the GDPs.
- Managed contract with Battelle Pacific Northwest National Laboratory regarding the performance of certain security tasks related to the GDPs.
- Participated and facilitated the development of policy guidance to restrict foreign involvement in the privatization of USEC.
- Conducted self-inspection of NRC's policies and procedures to protect SCI facilities and information.

USNRC
11545 Rockville Pike
North Bethesda, MD 20852

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Yawar Faraz

Experience

As Senior Project Manager from September 2000 to present in the Division of Fuel Cycle Safety and Safeguards, and a Project Manager from October 1990 to September 2000, conducted technical reviews and inspections and managed licensing activities related to fuel facilities including large and complex projects such as the U.S. Nuclear Regulatory Commission's (NRC's) Atomic Safety Licensing Board (ASLB) hearings for Louisiana Energy Services' gas centrifuge enrichment between January 1995 to May 1998, certification activities for the Portsmouth Gaseous Diffusion Plant from December 1996 to February 2001, the licensing of USEC Inc.'s (USEC's) American Centrifuge Lead Cascade Facility (Lead Cascade) from September 2002 to May 2006 and license application review activities for USEC's American Centrifuge Plant (ACP) from August 2004 to May 2006. As Senior Project Manager from March 2001 to March 2002 was also responsible for finalizing and issuing the Standard Review Plan for the Review of a License Application for a Fuel Cycle Facility (NUREG-1520). Since December 2001, participated as the only technical expert from the United States in several International Atomic Energy Agency (IAEA) meetings in Vienna to develop several Fuel Cycle Facility requirements and guidance documents. Recently assigned as the NRC's project manager for the Global Nuclear Energy Partnership (GNEP) Advanced Fuel Cycle Facility.

Specific accomplishments

April 2006 - October 2006: managed NRC's effort to determine the feasibility of using performance indicators for fuel facilities. Drafted the framework and a set of performance indicators for fuel facilities after obtaining consensus from NRC Region II and FCSS staff in an internal workshop. Issued a status commission paper on the basis of which the Commission disapproved continuation of the project.

March 2004 - May 2006: planned, managed, and conducted NRC's technical safety and safeguards reviews of USEC's license application for the ACP. Provided guidance to and obtained input from about 20 technical experts including members of the NRC staff and contractors for the NRC's Safety Evaluation Report. Determined the adequacy of NRC's requests for additional information (RAIs) prior to their issuance and led discussions with the applicant to resolve the RAIs in meetings that were both open and closed to members of the public. Drafted Memorandum of Understanding (MOU) between NRC and DOE to address joint oversight of the ACP. Arranged and led several meetings near the site with local elected officials and interested members of the public to present NRC's roles and responsibilities concerning the project and to answer questions. Provided

numerous briefings on the project to upper management including Commissioner Merrifield, Deputy EDO, NMSS Office Director and the NRC's Advisory Committee for Reactor Safety (ACRS) and Advisory Committee for Nuclear Waste (ACNW).

February 2003 – February 2004: conducted, planned and managed NRC's technical safety and safeguards reviews of USEC's license application for the Lead Cascade. Provided guidance to and obtained input from about 10 technical experts including members of the NRC staff and contractors for the Safety Evaluation Report and Environmental Assessment. Led several closed meetings to coordinate with DOE's Headquarter and Oak Ridge (OR) offices, and an open public meeting concerning the finalization of an MOU between NRC and DOE addressing joint oversight of the Lead Cascade. The Lead Cascade license was issued within its projected 1-year schedule and the MOU was signed in February 2004.

March 2001 – March 2002: provided technical input for and managed the issuance of NUREG-1520. Prior to having NUREG-1520 issued in January 2002, resolved longstanding technical issues in public meetings between the NRC staff, Nuclear Energy Institute (NEI) and the fuel cycle industry concerning acceptance criteria related to Integrated Safety Analyses (ISAs). Briefed ACRS and ACNW concerning ISA-related guidance contained in NUREG-1520. Led technical review teams to four low-enriched and high-enriched fuel fabrication facilities to address application of ISAs to their respective operations. Conducted security vulnerability inspection at the Paducah Gaseous Diffusion Plant. Led NRC and contractor team of experts to the Westinghouse Fuel Fabrication Plant to conduct a security vulnerability inspection. Only member of the Division of Fuel Cycle Safety and Safeguards to receive meritorious service award in 2003.

Dec 1996 – Feb 2001: conducted technical reviews for and provided overall management for NRC's safety and safeguards oversight of operations at the Portsmouth Gaseous Diffusion Plant (PORTS). Conducted special health physics inspections and numerous routine and reactive nuclear criticality safety inspections at PORTS. Served several weeks as the NRC's sole resident inspector at PORTS providing day-to-day inspection of operations. Worked closely with DOE OR in transitioning regulatory oversight of PORTS from DOE to NRC in March 1997 and in ensuring completeness of regulatory oversight of the United States Enrichment Corporation and prevention of dual regulation. Briefed Congressman Strickland on two separate occasions concerning NRC's oversight activities at PORTS and the United States Enrichment Corporation's planned closure of PORTS.

2001 – 2006: instructor for the gaseous diffusion module in the fuel cycle course offered by FCSS once a year. In 2002 and 2003, also prepared and provided instruction on the requirements of Subpart H of 10 CFR Part 70.

2001 – 2005: participated in the drafting of the IAEA's requirements document (DS 316) for fuel cycle facilities including reprocessing facilities. Also participated in the drafting of IAEA TECDOCs on accident analysis and on conducting independent operational safety reviews at fuel cycle facilities. Also participated in the drafting of IAEA safety guidance documents for fuel fabrication facilities, and uranium enrichment and UF_6 conversion facilities.

1995 - 1998: LES licensing project manager and expert staff witness in the LES hearings concerning depleted uranium disposition including conversion to an oxide and disposal.

1995 – 1996: lead technical reviewer in the areas of technical safety

STATEMENT OF PROFESSIONAL QUALIFICATIONS

ALAN L. FRAZIER, Lead
Operating Reactor Security Team
Reactor Security Branch
Division of Security Policy
Office of Nuclear Security and Incident Response
U.S. Nuclear Regulatory Commission

Education

B.S., Mechanical Engineering, University of Maryland,
College Park, MD, 1992

Qualifications

Operating Reactor Security Team Lead
U.S. NRC, Office of Nuclear Security and
Incident Response, Division of Security Policy,
Reactor Security Branch
Dates: July 2006 - Present

Mr. Frazier plans, coordinates, and manages the development and implementation of security policies, regulatory guidance documents, and licensing reviews for operating commercial power reactor facilities. Conducts technical reviews of physical security programs consistent with the design basis threat for radiological sabotage. Conducts technical review of all operating commercial power reactor security plans, contingency plans, and training and qualification plans. Supports security related rulemaking activities and a range of other security related programs. Develops technical bases for proposed new security-related rules, and prepares associated regulatory guidance documents. Evaluates the use of new security technologies such as remotely operated weapons systems and the use of enhanced weapons by protective forces. Coordinates the resolution of numerous Security frequently Asked Questions (SFAQs) and provides interpretations of security policy. Coordinates with other Federal agencies as needed.

Senior Physical Protection Specialist
U.S. NRC, Office of Nuclear Security and
Incident Response, Division of Security Policy,
Fuel Cycle Safeguards and Security Branch
Dates: June 2003 – July 2006

As a senior physical protection specialist in the Fuel Cycle Safeguards and Security Branch, coordinates licensing actions and policy development studies on technical issues related to domestic and international nuclear security; coordinates and participates in activities to resolve domestic nuclear security issues involving fuel cycle facilities including Category I fuel facilities, gaseous diffusion enrichment plants, gas centrifuge enrichment plants, Uranium conversion facilities, power reactor fuel manufacturing facilities, and various research and test facilities. Participates and coordinates with interagency policy working groups including the Depart of State (DOS), Department of Energy (DOE), National Nuclear Security Administration (NNSA), and the Department of Defense (DOD) on domestic and international physical protection of nuclear material and nuclear facilities. Participates as part of U.S. delegations to the International Atomic Energy Agency (IAEA) and other international bodies in developing treaties, conventions, and guidance documents related to international physical protection of nuclear material and nuclear facilities. Participates as part of U.S. delegations in bilateral and multilateral discussions and

country visits to (1) verify the level of physical protection being afforded U.S. Government owned material in foreign countries, (2) comply with 10 CFR 110.44 for the review of export license applications, (3) participate in the technical-level exchange of international physical protection information and cooperation.

General Engineer/Security Inspector
U.S. DOE, Office of Safeguard and
Security Evaluations
Dates: July 2000 - June 2003

Conducted safeguard and security inspections at Category I Nuclear Weapons sites with principal responsibility for physical security systems. Topic lead and principal writer for physical security system evaluations. Directed and coordinated physical security team member activities. Served as deputy inspection leader responsible for planning and management of inspection team. Integrated the multi-disciplinary inspection team and interfaced with senior management. Served as the technical expert in the physical security systems topic for the Office of Safeguards and Security Evaluations. Performed safeguard and security inspections including performance reviews of access control, intrusion detection and assessment, barriers, personnel protection and tracking, closed circuit television systems (CCTV), and communications. Through a performance based review, evaluated the security infrastructure, existing systems, and protection measures including hardware and software, communications network, sensors, and static and activated barriers. Applied knowledge of related regulations, requirements, and industry best practices to identify non-compliances, potential vulnerabilities, and areas for improvement. Wrote technical reports communicating assessment results to senior management. Gave presentations and briefings to senior site and DOE management on assessment results. Reviewed and tracked corrective actions to closure.

Project Engineer
SCIENTECH, Inc., Security Services Division (now
Johnson Controls Security Services, L.L.C.),
Dates: Jan. 1990 - July 2000

Lead engineer for security network design and installation projects from initial survey to final installation. Served as technical contact for clients, fostering strong client relationships and ensures client requirements are met. Clients included U.S. Department of Treasury, U.S. Capitol Police, U.S. Department of Health and Human Services, U.S. State Department, U.S. Department of Energy, and various high-security commercial facilities including commercial nuclear power plants. Managed all phases of security system design, from concept through detailed design and installation, for multi-site government clients. Produced design and installation documentation for systems networked interface boards, workstations and controlled devices including magnetic and electric locks, turnstiles, roll doors, high security vaults, CCTV cameras and monitors. Designed bullet and impact resistant barriers including vehicle barriers, bullet resistant doors and enclosures. Interfaced barriers and enclosures with security systems.

requirements, accident analysis and radiation protection for Portsmouth and Paducah Gaseous Diffusion Plant certification applications.

1990 - 1994: as project manager for five source material licensees, managed NRC's licensing technical reviews primarily in the area of decommissioning.

1984 - 1990: as an environmental analyst at the NUS Corporation, conducted atmospheric, surface water and groundwater transport and dose assessments primarily for operating nuclear power reactors and Department of Energy facilities.

Education

1982 to1984 - Earned 26 credits in the Nuclear Engineering Graduate Program at the University of Maryland in College Park, Maryland.

1982 - Bachelor of Science degree in Nuclear/Mechanical Engineering from the University of Maryland in college Park, Maryland.

1976 - GCE "O" Levels Senior Cambridge from Karachi Grammar School in Karachi, Pakistan.

Professional certification

1991 - Certified in the comprehensive practice of Health Physics by the American Board of Health Physics. Passed 2-part exam on first attempt. Recertified in 1995.

Awards received

1993 - Meritorious Service Award

1992 - present, over ten awards including Special Achievement and High Performance awards

STATEMENT OF PROFESSIONAL QUALIFICATIONS

Norma García Santos, Chemical Engineer
Enrichment and Conversion Facilities Branch
Fuel Facility Licensing Directorate
Division of Fuel Cycle Safety and Safeguards (FCSS)
Office of Nuclear Materials Safety and Safeguards (NMSS)
U.S. Nuclear Regulatory Commission (NRC), Washington DC

Education

2004	Qualified Chemical Safety Licensing Reviewer (Fuel Cycle Facilities)
1998-2002	University of Puerto Rico, Mayagüez Campus MS Chemical Engineering
1992-1997	University of Puerto Rico, Mayagüez Campus BS Chemical Engineering

Training

Courses I have taken that are pertinent to my present discipline are in the areas of risk assessment, consequence analysis [e.g., Areal Location Of Hazardous Atmospheres (ALOHA) software], process hazards analysis and integrated safety analysis, fuel cycle processes, health physics, engineering design, chemistry and chemical safety, environmental engineering, mechanical integrity, reactor theory, and project management.

Qualifications

Mrs. Garcia joined the NRC in 2001 and has been in the Division of Fuel Cycle Safety and Safeguards since then. During this time, she has performed a variety of technical reviews and worked on licensing actions related to fuel cycle facilities. She has performed technical reviews of the lead cascade facility and gas centrifuge license application (USEC ACP) and Integrated Safety Analyses (ISAs). She served as the secondary chemical safety reviewer for the lead cascade facility and the primary chemical safety reviewer for the USEC ACP.

For the past few years, approximately, she has been performing reviews of AREVA-NP, Westinghouse (WEC), Global Energy, NFS, and BWXT ISA Summaries ensuring that the documentation submitted by the licensees complies with the applicable portions of 10 CFR part 70 regulations. She also performed chemical safety reviews of two of the three Blended Low Enriched Uranium (BLEU) NFS license amendments and collaborated on technical safety reviews of the Mixed Oxide Fuel Fabrication Facility (MFFF) Construction Authorization Request (CAR). As part of these efforts, she participated in multiple visits to the facilities as well as telephone conference calls with the licensee to resolve request for additional information or to clarify questions submitted to the licensees. She is a contributor of the technical evaluation reports (TERs) and safety evaluation reports (SERs) in which these reviews were or will be documented.

Mrs. Garcia has performed various rotational assignments in the NRC including Region I (King of Prussia, PA), the Decommissioning Branch, and the Division of New Reactors Licensing. In Region I, she performed inspections accompaniments to industrial, construction, university, and

medical sites. She also performed regulatory activities including drafting an Environmental Assessment (ER) for a decommissioning site. While in the Decommissioning Branch, Mrs. Garcia was responsible of coordinating the logistics of a public meeting at the site in West Valley, New York and visited some decommissioning sites. In 2006, she performed a rotational assignment in the Division of New Reactors Licensing as a project manager in which she contributed to the development of new guidance for licensees or applicants who will be submitting combined license (COLs) applications for new reactors.

Prior to joining the NRC, Mrs. Garcia finished a master's degree in chemical engineering from University of Puerto Rico, Mayagüez Campus. Her thesis was focused on biotechnology techniques to determine the growth parameters of kluyveromyces marxianus yeast, the correspondent mass transfer coefficient (k_La) for the system, and the empirical equation for the k_La for this process. The project also involved the testing of the process controller to determine the best response mode of the controller. She also served as a teaching assistant in the chemical engineering department for two years, approximately, in the areas of Process Design II, Material and Energy Balances, Process Control, and Unit Operations Laboratory.

Prior to performing her master's degree, Mrs. Garcia worked as a chemical engineer contractor in SmithKline Beecham Pharmaceuticals, Co. She performed experiments at the Wastewater Treatment Plant to improve the operation and efficiency of the process by using laboratory equipment to perform periodic tests. She also worked as part of a troubleshooting team and performed analyses of wastewater using EPA methods.

Professional Organizations and Memberships

College of Engineers and Surveyors - PR (1998-2003); American Institute of Chemical Engineers (AIChE-college); and Institute of Chemical Engineers of Puerto Rico (I.I.Q.P.R.-Student Chapter).

Publications and Presentations

N. Garcia Santos, A.P. Murray, S.A. Steele, "NRC Involvement with the Proposed Mixed Oxide Fuel fabrication Facility," American Institute of Chemical Engineers, Spring National Meeting 2005.

N. Garcia Santos, "Dissolved Oxygen Control in a Bioprocess Using Kluyveromyces Marxianus NRRLy1196 Yeast Strain in Lactose," MS Thesis, University of Puerto Rico, Mayagüez, July 2001.

March 2, 2007

Herman L. Graves, III, is a Senior Structural Engineer at the U. S. Nuclear Regulatory Commission, Washington, D. C., where he is responsible for the development and management of civil/structural research programs. He has been involved with concrete structural aging, anchorage to concrete, and soil-structural interaction research programs and has written several USNRC regulatory guides.

An ACI member for over 24 years, he is a member of ACI Committees 349, Concrete Nuclear Structures, and 355, Anchorage to Concrete. He is also a member of ASME Section XI, Working Group on Containment. He has participated in the development of design standards for anchorage to concrete and has been involved in research, particularly in the seismic performance of anchorages and in the inspection and evaluation of aged structures. The findings of research programs managed by Mr. Graves are extensively referenced in ACI 349, Appendix B, Anchoring to Concrete, 349.3R, Evaluation of Existing Nuclear Safety-Related Concrete Structures, and ACI 355.2, Evaluating the Performance of Post Installed Mechanical Anchors in Concrete.

Mr. Graves assisted in the review of the USEC assessments of seismic, tornado, and high-wind hazards and of the structural design of the American Centrifuge Lead Cascade Facility.

Graves received his BSCE and Master of Engineering (structural) from Howard University, Washington, DC. He is a licensed Professional Engineer in Washington, DC.

NAME: **Mr. Donald T. Hammer**
Principal, ICF International

EDUCATION:

B.S., Geology, Colorado State University, 1983
OSHA 40-hour Hazardous Site Worker Training (Yearly Refresher), 1990
General Employee Radiation Training (GERT), 2000
FERC Regulatory Overview and Compliance Training, 2007
FERC Environmental Compliance Training, 2007

EXPERIENCE OVERVIEW:

Mr. Hammer, a Principal for ICF International, has over 23 years experience directing or supporting energy and environmental projects for public and private clients. He has managed a wide range of projects in the area of radioactive materials and waste management for the Nuclear Regulatory Commission, Department of Energy, Environmental Protection Agency, and Federal Energy Regulatory Commission, including Environmental Impact Statements, Programmatic Environmental Impact Statements, Regulatory and Cost/Benefit Analyses, and Environmental Assessments. Mr. Hammer has managed public participation and comment response processes for numerous NRC licensing and NRC and EPA rulemaking actions, including proposed changes to EPA land disposal restriction regulations and NRC radioactive material storage, transport, and disposal regulations.

SELECTED PROJECT EXPERIENCE:

Environmental Impact Statement for the Proposed American Centrifuge Plant in Piketon, Ohio, U.S. NRC. Mr. Hammer is Deputy Task Leader for preparation of the EIS for the proposed construction and operation of a plant to enrich uranium for use in commercial nuclear fuel for power reactors. Mr. Hammer is responsible for ensuring timely, high-quality, cost-effective performance in compliance with NRC contract management standards. Current tasks include assisting NRC staff in preparing for the upcoming Atomic Safety Licensing Board hearing for the proposed project.

Environmental Impact Statement for the Proposed Nevada Rail Alignment, U.S. DOE.
Mr. Hammer is task manager for preparation of an EIS for a proposed rail line to transport spent nuclear reactor fuel and naval reactor fuel to the proposed Yucca Mountain Repository site in Nevada. Mr. Hammer is the Task Leader responsible for the preparation of the Affected Environment, Environmental Impacts, and Mitigation sections related to Public and Occupational Health and Safety (radiological and non-radiological) of the Draft EIS.

Environmental Impact Statement for the Rockies Express – Eastern Phase Pipeline, U.S. Federal Energy Regulatory Commission (FERC). Mr. Hammer is the Project Manager for ICF's third-party contract to support FERC in preparing an EIS for the Rockies Express – Eastern Phase pipeline project. The pipeline will include approximately 622 miles of 42-inch natural gas pipeline in Missouri, Illinois, Indiana, and Ohio. The pipeline will be one of the largest natural gas pipelines ever constructed in North America. Within two days of being notified that we were selected for this project, ICF fielded teams to accompany FERC and the project applicant – Rockies Express Pipeline LLC, which is a joint development of Kinder Morgan Energy Partners,

L.P. and Sempra Pipelines & Storage – in a series of 18 open houses scheduled along the proposed pipeline route to introduce the project to the public. ICF has since supported FERC in preparing the Notice of Intent (NOI) for the project, arranging for and participating in nine FERC public scoping meetings and interagency meetings, and interacting with the applicant during pre-filing activities, and is currently reviewing the initial round of draft environmental resource reports filed by the applicant.

Generic Environmental Impact Statement (GEIS), U.S. NRC. Mr. Hammer managed the preparation of a GEIS for a proposed NRC regulation concerning the control of solid materials, including scrap metal and concrete, generated from decommissioning of NRC licensee facilities. Alternatives included clearance of the materials into general commerce, including recycling; disposal of materials in EPA-regulated landfills; and disposal of materials in NRC licensed disposal facilities. Mr. Hammer was responsible for managing all aspects of the project. The GEIS analyzed a number of alternatives in terms of impacts on public health and safety, water quality, air quality, waste management, and transportation, among others. As part of this effort, he managed the development of several technical support documents, including a comparative analysis of EPA landfill design criteria and their affect on dose modeling. He also managed the of numerous technical documents prepared by NRC's technical support contractor. He managed the scoping process for the GEIS, including public scoping meetings, analysis of scoping comments, and development of scope, and the preparation of the draft GEIS. Mr. Hammer worked closely with NRC staff from several departments and coordinated work with another NRC contractor in developing the GEIS scope and environmental impact and cost analyses for the draft GEIS and cost-benefit analysis.

Environmental Analysis for Proposed Changes to 10 CFR Part 72, ISFSIs, U.S. NRC. Mr. Hammer managed ICF's support to NRC for proposed changes to 10 CFR Part 72 for a rule to provide new Part 72 licensees flexibility in evaluating geological and seismological factors in siting and design of ISFSIs. Tasks included conducting an environmental assessment of the proposed changes and the potential increase or decrease in risk to public health and the environment associated with the proposed revisions.

Environmental Analysis for Changes to 10 CFR Part 71, U.S. NRC. Mr. Hammer managed ICF's development of an environmental assessment to support NRC's rulemaking to implement major revisions to 10 CFR Part 71 including, among other changes, to (1) conform to the International Atomic Energy Agency's (IAEA's) latest revision to its transportation safety standards (ST-1 published in December 1996); (2) expand Part 71 to include cask certificate holders and owners; (3) adopt double containment requirements for plutonium shipments; (4) reduce information collection requirements; (5) adopt the recent ASME code for spent fuel casks; (6) change the deep immersion test requirements in §71.61; and (7) change the fissile material exemptions and general license provisions.

Environmental Analysis for Proposed Changes to 10 CFR Part 72, U.S. NRC. Mr. Hammer managed ICF's support to NRC for proposed changes to 10 CFR Part 72 to allow for the interim storage of Greater-than-Class-C waste at away from reactor ISFSIs. This support included identifying the universe of generators and types of wastes, and developing an environmental analysis describing possible risks associated with storing Greater-than-Class-C wastes in ISFSIs.

Environmental Analysis for Proposed Changes to 10 CFR Part 39, U.S. NRC. Mr. Hammer managed ICF's support to NRC for a proposed rule addressing changes to the radiation and

safety requirements in 10 CFR Part 39 for oilfield well logging sources. This support included the development of an environmental assessment to determine the increase or decrease in potential risk to public health and the environment associated with the proposed changes.

EIS for Application from Private Fuels Storage to Build and Operate an Interim Spent Nuclear Fuel Storage Facility on the Goshute Reservation in Utah, U.S. NRC. Mr. Hammer assisted in managing public comments and preparing comment responses as part of ICF's support to the NRC for the Draft EIS for the Application from Private Fuel Storage L.L.C. Mr. Hammer worked closely with NRC staff and subject matter experts in reviewing, summarizing, excerpting, and drafting responses to the public comments.

NARM Rulemaking Support (NRC). Mr. Hammer is managing ICF's support to NMSS for a rulemaking to amend its regulations to include certain radium sources, certain naturally occurring radioactive material, and accelerator-produced radioactive materials as required by Section 651(e) of the Energy Policy Act of 2005 (EPAct), which was signed into law on August 8, 2005. The EPAct expanded the definition of byproduct material in Section 11e. of the Atomic Energy Act of 1954 (AEA) to include certain naturally occurring and accelerator-produced radioactive materials (hereafter referred to as NARM). The EPAct also required the NRC to provide a regulatory framework for licensing and regulating the additional byproduct material. To support NRC under an extremely tight schedule, Mr. Hammer is responsible for preparing a regulatory analysis, paperwork reduction act statements, comment resolution, among other tasks. The project is complicated by the fact that by-product material is regulated under a number of parts of Title 10, and the analyses must address impacts for each part – including Parts 19, 20, 30, 31, 32, 35, 40, 150, 170, and 171.

Regulatory Analysis and Cost/Benefit Analysis to Support Rulemaking on Controlling the Disposition of Solid Materials, U.S. NRC. Mr. Hammer is currently managing ICF's support to NMSS on a proposed rulemaking for controlling the disposition of solid materials, including the development of a draft regulatory analysis and a separate cost/benefit analysis describing the values/impacts and costs/benefits of alternatives for the disposition of solid materials for all NRC licensees.

Regulatory Analysis for Proposed Changes to 10 CFR Part 72, U.S. NRC. Mr. Hammer managed ICF's support to NRC for proposed changes to 10 CFR Part 72 to allow for the interim storage of Greater-than-Class-C waste at away from reactor ISFSIs. This support included identifying the universe of generators and types of wastes, and developing a regulatory analysis describing options available to generators for storing Greater-than-Class-C wastes under current regulations (i.e., Part 30 licenses).

Regulatory Analysis for Proposed Changes to 10 CFR Part 39, U.S. NRC. Mr. Hammer managed ICF's support to NRC for a proposed rule addressing changes to the radiation and safety requirements in 10 CFR Part 39 for oilfield well logging sources. This support included the development of a regulatory analysis to determine the values and impacts of the proposed changes on licensees, other government agencies, and NRC.

Regulatory Analysis for Proposed Changes to 10 CFR Part 72, ISFSIs, U.S. NRC. Mr. Hammer managed ICF's support to NRC for proposed changes to 10 CFR Part 72 for a proposed rule to provide new Part 72 licensees flexibility in evaluating geological and seismological factors in siting and design of ISFSIs. Tasks included conducting a regulatory analysis of the proposed changes and the values and impacts associated with the proposed revisions.

Regulatory Analysis for Proposed Changes to 10 CFR Part 71, U.S. NRC. Mr. Hammer managed ICF's development of a regulatory analysis to support NRC's rulemaking to implement major revisions to 10 CFR Part 71 including, among other changes, to (1) conform to the International Atomic Energy Agency's (IAEA's) latest revision to its transportation safety standards (ST-1 published in December 1996); (2) expand Part 71 to include cask certificate holders and owners; (3) adopt double containment requirements for plutonium shipments; (4) reduce information collection requirements; (5) adopt the recent ASME code for spent fuel casks; (6) change the deep immersion test requirements in §71.61; and (7) change the fissile material exemptions and general license provisions. This analysis was published as NUREG/CR-6713, "Regulatory Analysis of Major Revision of 10 CFR Part 71."

Regulatory Analysis of Generic Safety Issue GS-189, U.S. NRC. Mr. Hammer managed the preparation of a Regulatory Analysis [Cost Benefit Analysis] of an NRC proposed action to address "Generic Safety Issue 189: Susceptibility of Ice Condenser and Mark III Reactor Containments to Early Failure from Hydrogen Combustion During a Severe Accident." The Regulatory Analysis addresses the costs and benefits of reactor operators providing backup electric power generation capacity to power hydrogen igniters during station blackout (SBO) conditions.

Review of License Termination Plan, Maine Yankee Plant, U.S. EPA. Mr. Hammer supported the U.S. Environmental Protection Agency's technical review of the Maine Yankee Atomic Power Company plant's license termination plan. This review included a technical evaluation of general plant information, site characterization, identification of remaining dismantling activities, site remediation, final status survey, compliance with radiological dose criteria, site-specific decommissioning costs, and the supplement to the Environmental Report.

Programmatic Environmental Impact Statement (PEIS), U.S. DOE. Mr. Hammer supported the DOE in the development of a PEIS for the DOE complex. For this project, Mr. Hammer was responsible for ensuring input data quality for data collected from 20 DOE sites. ICF input all data into a database system and prepared numerous reports to validate data accuracy. The database includes hydrologic, geologic, environmental monitoring information, and contaminant source term data and will be used by DOE to facilitate environmental restoration and waste management decision-making.

Technical Review of Performance Assessment for the Advanced Mixed Waste Treatment Facility, U.S. EPA. Mr. Hammer supported the U.S. Environmental Protection Agency in reviewing the effects of supercompacted wastes on the performance of the Waste Isolation Pilot Plant. The possible effects of these waste types on repository performance were evaluated by the U.S. Department of Energy in a special Advanced Mixed Waste (AMW) performance assessment. The review considered the differences in waste inventory, the effects of changes in waste mechanical characteristics, the heterogeneity in waste placement in the repository, the effects on chemical conditions in the repository, the ability of the DOE to adequately predict waste room closure, and the adequacy of the DOE's analysis of features, events, and processes to be considered in performance assessment.

Waste Isolation Pilot Plant Waste Characterization Program, U.S. EPA. For eight years, Mr. Hammer supported U.S. EPA's evaluation of DOE's overall Transuranic waste characterization program for both radionuclides and RCRA hazardous constituents proposed for disposal at the Waste Isolation Pilot Plant. He also assessed whether DOE will be able to meet the waste

characterization requirements associated with 40 CFR 191/194 and SW-846. Other tasks included development of NDE/NDA and QA/QC checklists and participation in waste certification audits, site visits, and quality assurance audits at the major DOE production facilities. Mr. Hammer also assisted in the review of numerous new or revised Transuranic Waste (TRU) documents; participating in software QA and NDE/NDA instrumentation reviews, testing of the WIPP Waste Inventory System, qualification of acceptable knowledge, and other general DOE waste characterization related activities.

Jay L. Henson
Chief, Fuel Facility Inspection Branch 2
Division of Fuel Facility Safety
US NRC, Region II

Jay L. Henson has been a federal employee for over 28 years, and has spent the majority of his career in the area of health physics and radiation safety. Mr. Henson has been employed by the Nuclear Regulatory Commission (NRC) for over 16 years, and has been the Chief of the Fuel Facility Inspection Branch 2 in the Division of Fuel Facility Safety in the NRC's Region II office since October, 2003. This branch is responsible for the implementation of the NRC's fuel facility inspection program at uranium conversion, uranium enrichment and fuel pellet manufacturing and fuel rod assembly facilities.

Prior to October, 2003, Mr. Henson worked in the NRC's Region II Division of Nuclear Materials Safety. Mr. Henson performed the duties of a materials inspector and license reviewer and was Chief of the Materials Licensing/Inspection Branch 2 for three years. This branch was responsible for the implementation of the NRC's licensing and inspection programs for industrial, government and medical users of NRC regulated radioactive materials within the assigned geographical area.

Before he began his career with the NRC, Mr. Henson worked as a Health Physicist and Safety and Occupational Health Specialist with the U.S. Army for 12 years. He performed these duties at several military installations including an ammunition manufacturing facility, a missile and weapons research and development facility, a chemical agent and munitions storage and weapons system repair facility, and the headquarters command responsible for the active and reserve duty staff and facilities within the Continental United States.

Mr. Henson received a Bachelor of Science degree, with a major in biology, from Mercer University in Macon, Georgia, in 1976.

TIMOTHY C. JOHNSON

Professional Qualifications

I am currently the Licensing Project Manager of the Louisiana Energy Services (LES) uranium enrichment plant project in the Enrichment and Conversion Branch, Division of Fuel Cycle Safety and Safeguards, Office of Nuclear Material Safety and Safeguards, U.S. Nuclear Regulatory Commission.

I received a Bachelor of Science degree in Mechanical Engineering from Worcester Polytechnic Institute in Worcester, Massachusetts, in 1971 and a Master of Science degree in Nuclear Engineering from Ohio State University, in Columbus, Ohio, in 1973.

Courses I have taken that are pertinent to my present discipline are in the areas of advanced mathematics, engineering design, mass and heat transport, thermodynamics, reactor theory, nuclear physics, nuclear power plant engineering, and health physics. I was elected to membership in Pi Mu Epsilon, the mathematics honorary society.

From January 1973 to August 1977, I was employed by Stone & Webster Engineering Corporation in Boston, Massachusetts. As the offgas and ventilation filter system specialist, I was responsible for the technical adequacy of offgas and ventilation filter systems for pressurized water reactor, boiling water reactor, high temperature gas cooled reactor, and liquid metal fast breeder reactor projects. My responsibilities included ensuring that equipment met both applicable regulatory and equipment code requirements. I prepared master specifications for offgas and ventilation filter systems for use by project staff. I reviewed project specifications and performed technical reviews of vendor proposals. I also reviewed vendor procedures for qualification and testing of offgas and ventilation system components.

Since September 1977, I have been employed by the U.S. Nuclear Regulatory Commission in the areas of radioactive waste management, decommissioning, and fuel cycle facility licensing.

From September 1977 to April 1984, I had lead responsibility for the waste form performance aspects of low-level radioactive wastes to include radwaste processing, solidification, high integrity containers, and volume reduction systems. In this capacity, I developed programs for analyzing, evaluating, coordinating, and recommending licensing actions related to the waste form and waste classification areas of 10 CFR Part 61. These responsibilities have specifically included coordinating the development of the waste form and waste classification requirements and preparing the appropriate sections for: (1) the low-level waste management regulation, 10 CFR Part 61; (2) the draft and final environmental impact statements that support 10 CFR Part 61; and (3) the technical positions on waste form and waste classification that provide guidance to waste generators for complying with the 10 CFR Part 61 requirements. I also acted as lead for an intra-agency task group for implementation for the 10 CFR Part 61 requirements at nuclear power plants.

During this time, I also participated on a Task Force responsible for Three Mile Island Unit 2 (TMI-2) waste disposal issue resolution to include the evaluation of EPICOR-II, Submerged Demineralizer System, and decontamination solution wastes. I also prepared and coordinated waste disposal section for the TMI-2 Programmatic Environmental Impact Statement. For other nuclear power facilities, I prepared and coordinated waste disposal sections for the Dresden Unit 1 Decontamination and the Turkey Point Steam Generator Replacement Environmental Impact Statements.

As Project Officer, I coordinated with contractors and managed the following technical assistance studies:

1. Alternative Methods for the Disposal of Low-Level Waste;
2. Chemical Toxicity of Low-Level Waste;
3. Volume Reduction Techniques for Low-Level Wastes;
4. TMI Resin Solidification Test Program; and
5. Assay of Long-Lived Radionuclides in Low-Level Waste from Power Reactors.

From April 1984 to April 1987, I was Section Leader of the Materials Engineering Section in the Division of Waste Management. In this capacity, I supervised a section that performed technical and engineering evaluations of low-level and high-level radioactive waste packages. This included planning and executing section programs, providing technical direction and integration of materials concerns into NRC low-level and high-level waste licensing activities, and supervising the management of technical assistance programs.

In the low-level waste area, my responsibilities included planning and supervising: (1) the reviews of topical reports on solidification agents, high integrity containers, and waste classification computer codes; and (2) the reviews of licensee specific requests for packaging unique waste materials.

In the high-level waste area, my responsibilities included planning and supervising: (1) the reviews of DOE waste package programs; (2) the reviews of draft and final Repository Site Environmental Assessments in the materials and waste package areas; (3) the direct interactions with DOE in formal waste package and waste glass program meetings; (4) the development of five-year plans for waste package activities; (5) the development of a capability to review the DOE Site Characterization Plans; and (6) the development of technical positions in the areas of waste package reliability and extrapolation of test data to long time frames.

From April 1987 to October 1990, I was Section Leader of the Special Projects Section in the Division of Waste Management. In this capacity, I supervised a section responsible for mixed wastes, decommissioning of materials licensee facilities and power reactors, financial assurance for decommissioning materials licensees and low-level waste disposal facilities, greater than Class C wastes, low-level waste disposal site quality assurance, and the low-level waste data base.

In these areas, the Special Projects Section issued three joint NRC/U.S. Environmental Protection Agency guidance documents on mixed wastes, a Standard Review Plan and a Standard Format and Content Guide on financial assurance mechanisms for materials licensee decommissioning , and a guidance document on quality assurance for low-level waste disposal facilities. The section was also responsible for coordinating the storage and disposal of greater than Class C wastes with DOE, reviewing decommissioning plans for the Pathfinder and Fort St. Vrain nuclear power facilities, and developing a financial assurance program for materials licensees.

From October 1990 to November 1999, I was Section Chief of decommissioning sections in the Division of Waste Management responsible for developing and executing the Site Decommissioning Management Plan (SDMP), an agency effort to ensure that decommissioning policy issues were resolved and problem decommissioning sites would be properly decommissioned. During this time, I acted as Project Manager for the decommissioning of the

Chemetron site in Cleveland, Ohio, a controversial contaminated site located in a residential neighborhood. The site was remediated and the license terminated in 1998.

From November 1999 to the present, I was a Senior Mechanical Systems Engineer in the Division of Fuel Cycle Safety and Safeguards. In this position, I acted as deputy project manager for the Mixed Oxide Fuel Fabrication Facility licensing and project manager for the licensing of gas centrifuge uranium enrichment facilities. I am currently Project Manager for the Louisiana Energy Services gas centrifuge enrichment plant.

At the NRC, I have participated as the NRC and Division of Waste Management representative on the following industry, government, and international committees:

1. American Nuclear Society Subcommittee 16.1, Leach Testing Standard;
2. American Nuclear Society Subcommittee 40.35, Volume Reduction Systems Standard;
3. American National Standards Institute Subcommittee N14.9.2, Packaging for Transportation Standard;
4. American Society of Mechanical Engineers Radwaste Committee;
5. American Society for Testing and Materials Subcommittee C26.07, Waste Management Committee;
6. International Atomic Energy Agency Committee to prepare a Code of Practice for Low-Level Waste Management at Nuclear Power Plants;
7. International Atomic Energy Agency Committee to prepare a document "National Policies and Regulations for Decommissioning Nuclear Facilities;"
8. Interagency Review Board for the Chemical Waste Incinerator Ship Program;
9. Interagency Review Group for Disposal of Low-Level Wastes at Sea;
10. American Society of Mechanical Engineers Mixed Waste Committee.

I also served as a member of the Nuclear Engineering Program Advisory Board at Worcester Polytechnic Institute.

I am a member of the following professional societies:

American Nuclear Society
American Society of Mechanical Engineers
American Society for Testing and Materials

Publications and Presentations

T.C. Johnson, M.J. Bell, "Volume Reduction of Low-Level Wastes," Ninth Biennial Conference of Reactor Operating Experience, Arlington, Texas, August 1979.

T.C. Johnson, P.H. Lohaus, R.D. Smith, "10 CFR 61 Waste Form Requirements," Atomic Industrial Forum Conference on NEPA and Nuclear Regulation, Washington, DC, October 1981.

T.C. Johnson, P.H. Lohaus, R.D. Smith, "10 CFR Part 61 Waste Classification Requirements," Electric Power Research Institute Radwaste Workshop, Charlotte, NC, October 1981.

T.C. Johnson, P.H. Lohaus, R.D. Smith, "10 CFR Part 61 Requirements," American Society of Mechanical Engineers/Electric Power Research Institute Radwaste Workshop, Augusta, GA, February 1982.

T.C. Johnson, H. Lowenberg, "Classification of TMI Wastes," Waste Management '82, Tucson, AZ, March 1982.

T.C. Johnson, P.H. Lohaus, R.D. Smith, "10 CFR 61 Waste Form Requirements," American Nuclear Society Topical Meeting on Radioactive Waste Management, Richland, WA, April 1982.

T.C. Johnson, P.H. Lohaus, G.W. Roles, "Implementation of 10 CFR 61 Part Waste Classification and Waste Form Requirements," Waste Management '83, Tucson, AZ, March 1983.

R.E. Browning, Et al.,"Status Report on NRC Regulation for Land Disposal of Low-Level Radioactive Wastes and Geologic Disposal of High-Level Wastes," International Atomic Energy Agency Radioactive Waste Management Conference, Seattle, WA, May 1983.

P.H. Lohaus, T.C. Johnson, "NRC Approach to Dealing with Hazardous Substances in Low-Level Radioactive Wastes," American Nuclear Society Summer Meeting, Detroit, MI, June 1983.

T.C. Johnson, P.H. Lohaus, G.W. Roles, "Implementation of 10 CFR 61 Part Waste Classification and Waste Form Requirements," ERM-Midwest Workshop, Columbus, OH, June 1983.

T.C. Johnson, P.H. Lohaus, G.W. Roles, "Implementation of 10 CFR 61 Part Waste Classification and Waste Form Requirements," Electric Power Research Institute Radwaste Workshop, Washington, DC, July 1983.

T.C. Johnson, P.H. Lohaus, G.W. Roles, "Implementation of 10 CFR 61 Part Waste Classification and Waste Form Requirements," Test, Research, and Training Reactor Conference, Boston, MA, October 1983.

T.C. Johnson, P.H. Lohaus, G.W. Roles, "Implementation of 10 CFR 61 Part Waste Classification and Waste Form Requirements," Pennsylvania Low-Level Radioactive Waste Symposium, Harrisburg, PA, October 1983.

T.C. Johnson, et al., "Economics of 10 CFR Part 61," Waste Management '84, Tucson, AZ, March 1984.

M. Tokar, et al., "NRC Licensing Requirements for High-Level Radioactive Waste Packages," Waste Management '85, Tucson, AZ, March 1985.

T.C. Johnson, et al., "Current Regulatory Issues," American Society of Mechanical Engineers/Electric Power Research Institute Radwaste Workshop, Savannah, GA, February 1986.

T.C. Johnson, et al., "High-Level Waste Package Licensing Considerations for Extrapolating Test Data," Materials Research Society Symposium, Boston, MA, December 1986.

T.C. Johnson, et al., "Update on LLW Regulatory Guides and Topical Reports," Waste Management '87, Tucson, AZ, March 1987.

E.A. Wick, et al., "NRC Staff Perspective on Performance of Vitrified HLW and How It Relates to Other Components," Waste Management '87, Tucson, AZ, March 1987.

T.C. Johnson, G.W. Roles, "Data Requirements for Waste Classification and Manifesting," Department of Energy Low-Level Waste Management Conference, Denver, CO, August 1988.

T.C. Johnson, D.E. Martin, "Decommissioning Rule Overview," NRC Region III State Liaison Meeting, Glen Ellyn, IL, September, 1988.

T.C. Johnson, D.E. Martin, "Decommissioning Rule Overview," NRC All Agreement States Meeting, Potomac, MD, October 1988.

T.C. Johnson, D.E, Martin, "NRC Perspective on Mixed Wastes," California Mixed Waste Workshop, Davis, CA, October 1988.

T.C. Johnson, "NRC Regulatory Initiatives," DOE Low-Level Waste Management Conference, Pittsburgh, PA, August 1989.

T.C. Johnson, "NRC Residual Contamination Criteria," Environmental Protection Agency/Japanese Atomic Energy Research Institute Residual Contamination Workshop, St. Michaels, MD, September 1989.

T.C. Johnson, G.W. Roles, "Decommissioning Waste Characteristics," Environmental Protection Agency/Japanese Atomic Energy Research Institute Residual Contamination Workshop, St. Michaels, MD, September 1989.

T.C. Johnson, "Status Report on the Nuclear Regulatory Commission Process to Review MOX Facility License Applications and the Amendments Necessary to Burn MOX Fuel in the Commercial Reactors," 8th Annual International Nuclear Materials Policy Forum - The Disposition, Stewardship & Utilization of Pu, HEU, & Other Fissile Materials, Washington, DC, September 2001.

T.C. Johnson, "Air Treatment Issues Associated with a Mixed Oxide Fuel Fabrication Facility," 27th Nuclear Air Cleaning and Treatment Conference, Nashville, TN, September 2002.

Instructor: American Society of Mechanical Engineers Radwaste Course, 1982, 1984 - 1989;
NRC Transportation and Low-Level Waste Course, NRC Technical Training Center, Chattanooga, TN, 1988, 1989.

MICHAEL FRANCIS KELLY

EDUCATION

State University of New York, Buffalo, New York February 1978
Master of Arts Degree in Statistics 30 credits - semester program

Clarkson University, Potsdam, New York May 1976
Bachelor of Science Degree in Mathematics 120 credits - semester program

WORK EXPERIENCE

U.S. Nuclear Regulatory Commission, April 1992 - Present (November 2005)
Headquarters, Washington, DC 20555

Duties and Accomplishments:

- Performed as a Material Control and Accounting (MC&A) inspector during April - September 1992, and on occasion in 2004 - 2005.

- Served as a Project Manager for NRC's MC&A and Physical Protection support program to the regulatory agencies of Russia, Ukraine, and Kazakhstan during 1993 - 2004. Participated in U.S. Government negotiations, along with the Department of Energy, with Russian officials to plan and refine assistance efforts to Russia's regulatory agency. Conducted numerous meetings and training sessions with Russian officials, regulatory staff, and industry representatives. Participated in meetings and training sessions with Ukrainian and Kazakh officials and regulatory staff.

- Participated as NRC's representative during 1997 - 2001 in the U.S. Government effort with Russia and the International Atomic Energy Agency (IAEA) under the Trilateral Initiative, developed to determine an acceptable approach for the verification of special nuclear materials declared excess to the Russian and U.S. nuclear weapons programs. Activities included participation in negotiations and workshops in the U.S. and Russia.

- Participates as NRC's representative on the Subgroup for Safeguards Technical Support (SSTS) to the IAEA from September 1997 until the present. The SSTS is a U.S. Government interagency group that considers funding safeguards-related requests from the IAEA using extra-budgetary funds provided by the U.S. Department of State. SSTS members conduct monthly/bimonthly meetings to consider the IAEA support requests, visit U.S. Government laboratories serving as contractors for much of the support effort to stay current on safeguards projects and developments, and participate in related meetings and workshops with IAEA staff and other contractors.

- Participates in special internal and external training efforts, including annual presentations on NRC's MC&A requirements in NRC Fuel Cycle Course, an MC&A presentation to Chinese officials during 1997, and a presentation to international audiences on the NRC's MC&A program during the biennial State System of Accounting and Control Course (1997, 1999, 2001, 2003, 2005)

- Participates as a key staff member in the effort, begun in 2003, to review NRC's MC&A

program, including regulations and inspections, and propose changes. This included managing contractor efforts to undertake an independent review of NRC's MC&A program and provide recommendations.

UNC Naval Products, June 1978 - February 1992
Uncasville, CT (facility no longer in business)

Served in two concurrent positions from 1978 - 1988

1) Statistical Specialist, Nuclear Material Control 1978 - 1992

Duties and Accomplishments:

- Overall responsibility for meeting NRC's statistical requirements as specified in 10 CFR 74.

- Designed and implemented bulk and item monitoring tests for special nuclear material.

- Prepared procedures, calculated control limits, and computed measurement errors for use in the bimonthly calculation of the Limit of Error of Inventory Difference.

- Frequently audited by NRC inspectors, and experienced annual internal and external program reviews.

- Coauthored UNC's Fundamental Nuclear Material Control Plan that demonstrated compliance with the 10 CFR 74 Accountability Upgrade for Category I licensees, and previously maintained and met statistical requirements for the superseded 10 CFR 70 Plan.

2) Statistical Specialist, Quality Assurance Design Statistics 1978-1988

Duties and Accomplishments:

- Responsibility to meet the statistical requirements of, and served as consultant to, the Materials Department, the Chemistry Laboratory, and Engineering for nondestructive tests of manufactured components.

OTHER QUALIFICATIONS

- Received NRC Performance Awards in 1995, 1998, 2005, and 2006
- Certified as an NRC MC&A inspector in 1992
- Member of the Institute of Nuclear Materials Management (1979 - present) and presented papers in 1981, 1994, 1997, and 2003

James E. Kennedy
301-415-6668

Current Position: Senior Project Manager, Low-Level Waste Branch, Division of Waste Management and Environmental Protection, Office of Federal and State Materials and Environmental Management Programs

Education: Cornell University
Ithaca, NY
Bachelor of Science, Materials Science, June 1968

February 2005 to present Senior Project Manager, Low-Level Waste Branch, Division of Waste Management and Environmental Protection, FSME

- Responsible for all aspects of NRC's low-level radioactive waste regulatory program, including major role in conducting the strategic assessment of NRC's LLW program.
- Provide expert advice to staff and Commission on a wide variety of LLW regulatory issues, including risk-informed disposal practices, potential improvements in NRC's regulatory framework for LLW management and disposal, disposal of low-activity radioactive waste, and potential improvements to the national program for disposal of LLW.
- Interact extensively with external stakeholders, ncluding industry, the public, public interest groups, States, the Government Accountability Office, the National Academies on virtually all LLW regulatory issues. Provide bases for NRC's regulatory program, and improvements that are underway

February 2002-February 2005: Technical Assistant, Division of Waste Management and Environmental Protection, NMSS

- Provided expert advice to the Division Director on the full spectrum of technical issues and problems encountered by the Division staff in implementing the decommissioning, environmental protection, low-level waste and high-level waste (HLW) repository programs (HLW program through March 2004).
- Provided expert technical advice support to other offices and Divisions on behalf of DWMEP, on the management and disposal of radioactive waste and decommissioning. Support often consists of inputs for Commission papers, and NRC responses by EDO or Chairman to letters (Congressional letters, e.g.),
- Provided expert advice to line staff in DWMEP on management and disposal of radioactive waste, especially regarding Commission and management views on policy.
- Provided high quality, timely responses on quick turnaround tasks such as support for budget and Congressional Qs and As.

March 1999-

February 2002: Technical Assistant and Senior Project Manager, Environmental Protection and LLW Branch, Division of Waste Management, NMSS

- Managed and coordinated the preparation of products related to the technical, programmatic, and licensing aspects of projects involving uranium recovery and low-level waste facilities. These included a wide variety of tasks related to many different areas of NRC waste regulation or involvement–disposal of "unimportant quantities" of source material, decommissioning, FUSRAP and LLW treatment and storage.

- As senior staff for LLW, acted as agency lead for LLW issues, including the handling of approximately 100 inquiries a year from environmental groups, States, LLW generators, utilities, private citizens and others.

- As technical assistant for the branch, handled quick-turn around, high-visibility policy letters and issues, such as FUSRAP, review of EPA TENORM report for Congress (responding to NAS report), and responding to EPA comments on NRC's proposed improvements to the uranium recovery program.

- Was member of U.S. delegation for IAEA meeting in Vienna to develop protocols for implementing the Nuclear Waste Convention.

July 1995-March 1999,
April 1994-February 1995:

Senior Project Manager, Low-Level Waste and Regulatory Issues Sections, LLW and Decommissioning Projects Branch, Division of Waste Management, NMSS

- Responsible for most aspects of NRC LLW program, and for decommissioning of Shieldalloy facility in Cambridge, Ohio, especially the preparation of an Environmental Impact Statement for that action. Also member of ISCORS Risk Harmonization Subcommittee.

- As staff lead for the LLW program, performed wide variety of LLW activities, including making approximately 100 presentations to LLW Forum on topics that included uranium mill tailings, HLW, reactor licensing, and various rulemakings, and petitions; participated in several IMPEP reviews of States; prepared letter reports to States and others under the Chairman's signature on various issues related to controversial LLW topics, such as Ward Valley and Assured Isolation; reviewed all import applications to NRC for LLW; wrote the LLW paper for the Strategic Assessment Initiative (as a member of that special team), participated in public meetings with stakeholders on the Strategic Assessment, and analyzed stakeholder comments for the Commission; personally briefed Commissioner McGaffigan on Ward Valley; prepared letter report for National Academy of Sciences on Ward Valley and plutonium; made presentation to National Academy of Sciences Board on Radioactive Waste Management on radioactive waste classification (all types–HLW, LLW, mill tailings, NORM); participated in meetings with National Academy of Science as one of 17 LLW experts from around the country on developing a prospectus for an NAS study; plus many other specific tasks that are described in my annual NRC appraisals.

- Performed wide range of decommissioning activities, including project manager for Shieldalloy in which I managed preparation of a draft EIS, arranged public meetings,

including a NEPA EIS scoping meeting, with the local community and made presentations in these meetings.

February 1984-March 1994: Section Leader, Divisions of Waste Management, High-Level Waste Management, and Low-Level Waste Management, NMSS

- Supervised typically 4-6 technical staff in the performance of their duties related to LLW project management (1990-1994), HLW quality assurance (1986-1990), and HLW project management (Basalt Waste Isolation Project, 1984-86).

- Developed numerous Commission papers on controversial and high visibility issues. These included an analysis of the "take title" provision in the LLW legislation (that required States to take ownership an possession of LLW if requested to do so by licensees), an analysis of public comments on the "take title" provisions, papers forwarding draft and final rules, such as the onsite storage rule, and the receipt of waste back rule, and a paper forwarding revised LLW storage guidance with an analysis of the changes needed. Many of these were controversial and high visibility issues that required extensive coordination in the agency.

- Continuous interacted with State, public, and industry officials in more than 30 meetings and presentations over the five years that I was section leader. Represented the agency at State organization meetings such as the LLW Forum, at public meetings on LLW, and at industry conferences (EPRI and DOE LLW conference, e.g.).

March 1980-February 1984: Various positions, U.S. NRC

- Three different positions in the agency, two in NRR as technical staff review in the Materials Engineering Branch (Grade 13), and Equipment Qualification Branch, (Grade 14) and as a Sr. Policy Analyst in the Office of Inspection and Enforcement (Grade 15)

- In NRR, responsible for licensing reviews of detailed technical documents in materials and environmental qualification programs at nuclear power plants. In 1&E, responsible for development of portions of the report on nuclear power plant QA problems in the 1970s and early 1980s. This was a major report prepared by NRC for Senator Wendell Ford.

- Completed license reviews for six new nuclear plants in equipment qualification (environmental portion).

- Testified as an expert witness in equipment qualification in the adjudicatory hearings for Shoreham and Allens Creek.

August 1972-March 1980:

Baxter Labs, 1972-1980

Duties and Accomplishments:

- Various jobs in the medical products, manufacturing industries, including materials engineer, QA manager, and assistant to a VP for American Instrument Co.

- Diverse experience in supervising and managing, in manufacturing, in procurement, and heading a test and inspection laboratory.

May 1970-August 1972

Fansteel, Inc. Baltimore, MD.

Development engineer responsible for dispersion strengthened superalloys used in the NASA space shuttle and jet engines.

June 1968-April 1970

Fairchild Industries, Germantown MD

Provided materials engineering input for various aerospace projects.

Michael A. Lamastra

Professional Qualifications

Fuel Manufacturing Branch

Division of Fuel Cycle Safety and Safeguards

I am a Senior Project Manager (Health Physics) in the Fuel Manufacturing Branch, Division of Fuel Cycle Safety and Safeguards, Office of Nuclear Material Safety and Safeguards.

My formal education consists of an A.A. degree in Radiation Science from Montgomery Community College in 1972, a B.S. degree in Physics from Towson State College in 1974, and an M.S. degree in Radiological Health from the University of Pittsburgh in 1975.

Before joining the U. S. Nuclear Regulatory Commission (NRC), I served three years as a full-time/part-time employee of the Radiation Protection Department of the National Institutes of Health in Bethesda, Maryland. My duties included collecting air samples to determine the level of radioactivity for specific isotopes, radiation contamination surveys of research labs, and advising research personnel in safety procedures involving the use of radioactive isotopes.

I joined the NRC in June 1976 as a health physicist in the Radioisotopes Licensing Branch, Office of Nuclear Material Safety and Safeguards. My principal function was to review applications from medical and academic institutions for byproduct, source, and special nuclear material to determine the adequacy of their proposed radiation safety program and related efforts proposed to assure that occupational radiation exposure and release of radioactive material to the general public are as low as is reasonably achievable.

From February 1981 to July 1987, I served as a Senior Radiological Engineer in the Radiation Protection Section of the Radiological Assessment Branch, Office of Nuclear Reactor Regulations. My principal function was to review power reactor applications, both at the construction permit and operating license stage, to determine the adequacy of proposed occupational radiation protection programs and the related efforts proposed to assure that occupational radiation exposures will be maintained as low as it reasonable achievable.

From July 1987 to February 1993, I served as the Section Leader of the Commercial Section, Medical, Academic and Commercial Use Safety Branch. The principal function of the Commercial Section was to provide program management oversite for the NRC five regional offices, in the licensing, inspection, and enforcement of the commercial use of byproduct, source, and special nuclear material. The Commercial Section also had lead responsibility for issuing licenses that authorized the commercial distribution of radioactive material to persons exempt from licensing in accordance with 10 CFR Part 32.

Since February 1993, I have served as a senior project manager (Health Physics) in the Licensing Branch, Division of Fuel Cycle Safety and Safeguards, now known as the Fuel Manufacturing Branch. My principal functions are: 1) To manage all licensing requests for the fuel cycle facilities I am currently assigned; 2) to provide expert technical assistance in the radiation protection area for other project managers withing the Division of Fuel Cycle Safety and Safeguards; 3) to provide expert technical assistance in the emergency planning area for other project managers within the Division of Fuel Cycle Safety and Safeguards; and 4) participate in the Integrated Safety Assessment team reviews in the area of radiation protection and emergency planning.

RESUME - February 2007

THOMAS NGA PHAM

EDUCATION

University of Pittsburgh, Pittsburgh, Pennsylvania — April 1985
Master of Science degree in Chemistry

University of South Carolina, Columbia, South Carolina — April 1989
Master of Business Administration program - 12 credits

University of Dalat, Dalat, Vietnam — July 1974
Bachelor of Science degree in Chemistry

WORK EXPERIENCE

U.S. Nuclear Regulatory Commission, August 1990 - Present
Headquarters, Rockville, Maryland 20852

Duties and Accomplishments:

Currently, serve as Material Control and Accounting (MC&A) lead staff in the MC&A Branch, Fuel Facility Licensing Directorate, Division of Fuel Cycle Safety and Safeguards, Office of Nuclear Material Safety and Safeguards. Since 2002, serve as MC&A Team Leader in the Fuel Cycle Safeguards and Security Branch, Division of Security Policy, Office of Nuclear Security and Incident Response. Act as project manager for safeguards license amendments for MC&A, specifying the conditions to be incorporated in licenses with respect to safeguarding special nuclear materials. Develop and generate appropriate licensing actions related to safeguarding fuel cycle facilities.

Since 1996 until present, serve as principal Senior Safeguards Technical Analyst and Licensing Reviewer for the Fuel Cycle Safeguards and Security Branch in both Offices of Nuclear Security and Incident Response and Nuclear Material Safety and Safeguards. Perform the review, evaluation, and determination of the adequacy of applicants' and licensees' safeguards programs for special nuclear materials and complex fuel cycle facilities, including plant and equipment design, material accountability, measurement systems, measurement quality control programs, inventory practices, internal material control systems, information flow and data evaluation systems, and management control and assessment programs. Make authoritative recommendations relative to difficult and complex concerns for approval and disapproval, and prepare additional conditions or requirements to be incorporated in licenses and the approval of the facility's MC&A Plans and modifications thereto. Conduct in-depth safeguards studies to provide technical bases for the evaluation of new processes and operations, and for the determination of the effectiveness of existing MC&A regulations and license conditions. Participate in a lead role in the development of licensing policies and procedures to implement safeguards regulations.

Served as Senior MC&A Inspector during 1990 - 1996 in the Inspection Section, Operations and Domestic Safeguards Branches, Division of Fuel Cycle Safety and Safeguards, Office of Nuclear Material Safety and Safeguards. Conducted MC&A inspections at all NRC-licensed fuel cycle facilities. Served as Lead Inspector and primary safeguards spokesperson for

assigned facilities and special safeguards tasks. Coordinated with licensing reviewers pertaining to licensing actions. Participated in the development of policies and regulations relative to the safeguarding of nuclear materials.

Performance Awards in 2000, 2003, 2005, and 2006

Special Act Awards in 1997, 1999, and 2005

High Quality Increase Awards in 1992 and 1995

Certified NRC MC&A Inspector in 1991

Certified NRC MC&A Licensing Reviewer in 1996

Current Task Lead for Part 74 MC&A rulemaking (SECY-05-0143) and the Yucca Mountain Geologic Repository Operations Area MC&A rulemaking.

Project Manager of the NRC's comprehensive MC&A Program Review, including proposed changes to regulations and inspection programs. This included managing Oak Ridge National Laboratory contractor efforts to undertake an independent review of NRC's MC&A programs and provide recommendations, August 2004 - October 2005.

Task Lead for the MC&A review of four new fuel facility and enrichment applications: Duke Cogema & Stone Webster Mixed Oxide Fuel Fabrication Facility, 2001 - 2003; Louisiana Energy Services National Enrichment Facility, 2004; USEC Inc. Centrifuge Pilot Plant, 2004; and USEC Inc. American Centrifuge Plant, 2004 - 2005.

Task Lead of the rulemaking for Category II Fuel Cycle Facilities: MC&A Regulations for Special Nuclear Material of Moderate Strategic Significance - Subpart D of 10 CFR Part 74, December 2002 - September 2000.

Team Leader of the DOE External Regulation Pilot Program at REDC, Oak Ridge National Laboratory, April 1998.

Team Leader of the MC&A review for the certification of Paducah & Portsmouth Gaseous Diffusion Plants, 1995 - 1996.

Team Leader for Special Safeguards Inspections (safeguards reported events) at Framatome-Cogema, Lynchburg, VA, November 1996; Westinghouse Commercial Nuclear Fuel Division, Columbia, SC, May 1997; and Nuclear Fuel Services, Erwin, TN, August 2000.

Member of the Institute of Nuclear Materials Management (1990 - present) and its 5.1 Committee on Analytical Laboratory Measurement Control, and presented technical papers in 1994, 1995, 1997, 1998, 2001, and 2003.

Gave annual presentations of Safeguards Sampling and Measurements in NRC Fuel Cycle Course F-201 since 2003.

Gave presentations of NRC's MC&A inspection program at the 9th and 10th Department of Energy/International Atomic Energy Agency State System and Accounting for and Control of Nuclear Materials training courses in 1993, and 1995.

Gave presentations of NRC Inspection training course in Moscow and Novosibirsk, Russia, in 1997 and 1998.

Westinghouse Commercial Nuclear Fuel Division
Columbia Fuel Manufacturing Plant, May 1985- July 1990
Columbia, South Carolina 29250
Senior Chemist, Analytical Services Laboratory
Past Supervisor: G. Dennis Workman (retired)

Duties and Accomplishments:

Served as Senior Chemist in the Analytical Services Laboratory, Product Assurance Department. Developed analytical analysis procedures, measurement techniques, and instrument modifications in support to the facility's full range of nuclear material measurements. Provided technical direction and training to laboratory technicians and other professionals in analysis methods, instrumentation, and technical problems.

Modernized mass spectrometry isotopic analyses and wet chemical element analyses, including quality improvement and cost savings of more than $200,000 during employment (1985 -1990).

Designed computer applications for analysis calculations, database management, statistical process control, and measurement controls.

Attended Westinghouse management development program, and completed 12 credits of the MBA degree program at the University of South Carolina.

Past member of the American Chemical Society and Mass Spectrometry Society.

Westinghouse Research and Development (R&D) Center
Beulah Road, Pittsburgh, Pennsylvania 15235
September 1979 - February 1985
Research Technician, Chemical Sciences Division
Past Supervisor: Edward Croop (retired)

Duties and Accomplishments:

Served as Research Technician in the Insulation Section, Polymer Science Department, Chemical Sciences Division. Prepared polymeric high solids and UV-curable resins. Assisted in formulating organic resins for the application of electrical insulating varnishes and protective coatings. Conducted properties testing on insulating materials and supervised the operation of UV and thermal coating instruments.

Published two joint patents in high solids and UV-curable polymeric resins used for wire insulation.

Earned a Master's degree in Chemistry through university evening programs. Thesis dissertation for the MS degree was on solid-phase synthesis of oglionucleotides.

Clayton L. Pittiglio Jr.

Position Title: Senior Financial Analyst

Education: Masters of Science in Engineering, June 1982
Master Degree in Engineering Administration - Construction Management and Economics
George Washington University
Washington, D.C.

Bachelor of Science, Civil/Structural Engineering, June 1969
The University of Maryland
College Park, Maryland

Registered Professional Civil/Structural Engineer: State of Maryland, and District of Columbia

Professional Association: ASME Quality Assurance Subcommittee for Codes and Standards for Waste Management, 1987-current

Citizenship: USA

Current Employer: U. S. Nuclear Regulatory Commission, August 1978 to present

Current Job Title: Senior Analyst

Recent Awards, Accomplishments:

Meritorious Service Award, NRC May 1995 (Recognition for significant contributions in the EEO area),
Performance Award March 1998
Special Act Award May 1998
Certificate of Appreciation, NRC April 1995,
Chairman of the Joint-Labor Management EEO Committee
Board of Directors/Treasurer, NRC Child Care Center
Member, NRC Agency Labor-Management Partnership Committee

Summary of Recent Principal Responsibilities:

I currently function as a project manager and senior technical expert for many unique and first-of-a-kind projects for the Agency. This included the guidance for:

- Regulatory Guide,1.186, "Standard Format and Content of Decommissioning Cost Estimates for Nuclear reactors,"
- NUREG-1713, "Standard Review Plan for decommissioning Cost estimates for Nuclear Power reactors,"
- Regulatory Guide 1.179, "Standard Format and Content of License Termination Plans for Evaluating Power Reactor License Termination Plans,"
- NUREG-1700, "Standard Review Plan for Evaluating Power Reactor License Termination Plan."
- NUREG-1574, Rev. 2, "Standard Review Plan on Transfer and Amendment of Antitrust License Conditions and Antitrust Enforcement"
- LIC-205, "Procedures for NRC's Independent Analysis of Decommissioning Funding Assurance for Operating Nuclear Power Reactors"
- NUREG-1293, "Quality Assurance Guidance for Low-Level Radioactive Waste Disposal facility,"
- NUREG-1383, "Guidance on the Application of Quality Assurance for Characterizing a Low-Level Radioactive Waste Disposal Site,"
- NUREG-1199, Standard Format and Content of a License Application for a Low-Level Waste Disposal Facility," Chapter 9, "Quality Assurance,"
- NUREG-1200, "Standard Review Plan for the Review of a License Application for a Low-Level Radioactive Waste Disposal Facility, Chapter 9, "Quality Assurance.

As the one of the lead financial reviewers over the past 29 years (1978 -2007), I have been involved with all aspects of review of financial mechanisms, developed cost estimates, evaluated many bankruptcies actions related to material licensees, evaluated several reactor cost estimates for decommissioning and made determinations regarding if the amount of funding available was sufficient to complete decommissioning, and developed financial guidance to support the financial evaluations of both material facilities and reactor facilities.

I also developed SECY-00-0041, "Use of Rubblized Dismantlement to Address 10 CFR Part 20, Subpart E, Radiological Criteria for License Termination" which addresses a new disposal option. The paper involved coordination and discussions with all level of NRC management for all major Offices, a workshop to solicit input from stakeholders, and incorporation of stakeholders' paper and addressing their concerns. In support of all of these LTP reviews, I conducted "public" meetings and "outreach" programs to provide the public the opportunity to comment on the LTP as well as gain a better understanding of the issues and review process. The requests for additional information for each of the MY and CY LTPs consisted of more than 200 RAIs. I also functioned as a technical reviewer for the Trojan and Saxton LTPs.

I was lead technical/financial staff responsible for developing a proposed approach to address the impact of bankruptcy on Advanced Medial Systems (AMS) in Ohio. To support this review I developed a detailed cost estimate based on the level of contamination that remained, examined various remote techniques since some areas were so heavily contaminated that remote techniques were the only mechanisms available to decontaminate, examined various construction/decommission techniques, estimated volumes of waste and talked with low-level disposal facilities to establish the cost to dispose of the contaminated material, conducted a detail inspection with support of RIII, and issued a report that was used by ICF (financial contractor) to support NRC in this analysis. A similar case occurred at Neutron Products in Dickerson, MD and the State of Maryland requested assistance in developing a cost estimate based on the approach developed for AMS.

I managed the decommissioning of the Shoreham Nuclear Power Station (SNPS) and the Fort St. Vrain Nuclear Generating Station (FSV). SNPS and FSV are the only two reactors licensed under 10 CFR Part 50 that have been decommissioned and released for unrestricted use. These are the first two reactors to be decommissioned and the sites released for unrestricted use. Because SNPS's fuel was stored at the plant while it was being dismantled and because these were the first two plants to be decommissioned and released for unrestricted use, both projects required extensive interactions with the public, many different offices within NRC, and the licensees and their specialty subcontractors.

Statement of Professional Qualifications
Roman A. Shaffer

WORK EXPERIENCE

June 2000 - Present
Instrumentation & Control Engineer, GG-14
United States Nuclear Regulatory Commission/Office of Nuclear Regulatory Research

- Research Project Manager in the areas of cyber security, fault-tolerant design, and software safety and risk
- Technical reviewer for the safety assessment of the instrumentation and controls systems for both the Louisiana Energy Services National Enrichment Facility planned for construction at Eunice, New Mexico, and the USEC, Inc., American Centrifuge Plant planned for construction at Piketon, Ohio

September 1997 - May 2000
Research Assistant, Teaching Assistant
The Pennsylvania State University, State College, PA

February 1988 - February 1994
Nuclear Reactor Operator; Electronics Technician; Reactor Technician
United States Navy, U.S.S. Abraham Lincoln, CVN-72

EDUCATION

May 2000
Master of Science in Nuclear Engineering
The Pennsylvania State University
State College, PA

September 1997
Bachelor of Science in Electrical Engineering
Bachelor of Science in Computer Engineering
Colorado Technical University
Colorado Springs, CO

AWARDS

- Pennsylvania State University: Institute of Nuclear Plant Operators Fellowship, Dean's Fellowship
- Colorado Technical University: Dean's Honor Roll, Dean's Academic Achievement Award, Colorado Merit Scholarship Award

STATEMENT OF PROFESSIONAL QUALIFICATIONS

BRIAN W. SMITH, Chief
Enrichment and Conversion Branch
Fuel Facility Licensing Directorate
Division of Fuel Cycle Safety and Safeguards
Office of Nuclear Material Safety and Safeguards

Education

B.S. in Nuclear Engineering, North Carolina State University, 1992

Qualifications

Mr. Smith joined the NRC in 1996 and has been the Chief of the Enrichment and Conversion Branch since September 2003. During this time, he has overseen the licensing reviews and ultimate license issuance for the USEC Inc. Lead Cascade and Louisiana Energy Services National Enrichment Facility as well as the current licensing review for the USEC Inc. American Centrifuge Plant. He is also currently responsible for the licensing actions associated with the two United States Enrichment Corporation gaseous diffusion uranium enrichment plants and the Honeywell uranium conversion plant. In his first year in this position, he also had the licensing responsibility for the Duke Cogema Stone and Webster construction authorization request for a mixed oxide fuel fabrication facility. He is responsible for the development of the budgets for each of these projects and obtaining the staff with the appropriate technical expertise to perform these reviews.

Prior to his current position, for a year and a half Mr. Smith served as a Senior Assistant in the Office of the Executive Director for Operations (OEDO). In this position, he functioned as OEDO liaison with NRC Program Offices, Commission staff, Regional Offices, and Commissioner's technical assistants; identified major issues requiring senior management's attention to improve office effectiveness in completing assigned work; reviewed Program Office Commission papers and correspondence; and assisted in the preparation of reports, correspondence, testimony, and public remarks.

Prior to moving to OEDO, Mr. Smith spent nearly six years in two positions within the Office of Nuclear Material Safety and Safeguards (NMSS). As an NMSS Regional Program Coordinator (Regional Coordinator), he performed several primary duties: 1) communicated with the Regions concerning materials events and other significant inspection and enforcement issues and briefed the NMSS/IMNS Division Director on a daily basis; 2) represented NMSS in the EDO's daily event briefings; and 3) performed enforcement activities, which include representing NMSS in enforcement panels with the Office of Enforcement, reviewing final enforcement packages, recommending concurrence by the IMNS Division Director, participating as the NMSS representative in Regional enforcement conferences with licensees, as necessary, and serving as the NMSS enforcement coordinator. As a Health Physicist, his duties involved participating in event response functions, performing technical reviews, and drafting various types of documents, such as Information Notices, Policy and Guidance Directives, and a Commission Memorandum.

Prior to joining NRC, Mr. Smith served as an engineer for Program Management, Inc. for four years. His primary responsibility was to provide technical support in the development of occupational radiation protection policies, standards, and guidance for the Department of

Energy, performed under a prime contract with DOE EH-52, Office of Worker Protection Programs and Hazards Management.

Professional

Member - Baltimore/Washington Chapter of the Health Physics Society

NAME: **Mr. Todd E. Stribley**
Senior Associate, ICF International

EDUCATION:

B.S., Biology, St. Lawrence University, 1992
M.S., Environmental Science and Public Policy, George Mason University, In Progress

EXPERIENCE OVERVIEW:

Mr. Stribley is a Senior Associate at ICF International with over 13 years of environmental consulting experience focusing on environmental impact assessment and natural resource management. Mr. Stribley has led and supported numerous Environmental Impact Statements (EISs) and Environmental Assessments (EAs) under the National Environmental Policy Act (NEPA), has led and supported resource specific investigations including surveys and consultations under the Endangered Species Act (ESA), wetland delineations under the Clean Water Act (CWA), and cultural resource surveys under the National Historic Preservation Act (NHPA). In accordance with those Acts, Mr. Stribley has completed threatened and endangered species surveys and informal and formal consultations, wetlands delineations and function and value assessments, and has documented the area of potential effect (APE), performed eligibility determinations, and has prepared memorandums of agreement (MOA) under Section 106 of the NHPA. In addition, Mr. Stribley has completed numerous hazardous waste site investigations and ecological risk assessments in accordance with the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) and the Resource Conservation and Recovery Act (RCRA).

SELECTED PROJECT EXPERIENCE:

EIS for the Proposed American Centrifuge Plant in Piketon, Ohio. Served as the resource lead for Historic and Cultural Resources, Visual and Scenic Resources, Geology, Minerals, and Soils, Water Resources, Ecological Resources, and the Cumulative Impact Analysis for the preparation of the EIS for the United States Enrichment Corporation Inc.'s proposed gas centrifuge uranium enrichment facility in Piketon, Ohio. Responsible for coordinating with technical experts to ensure a timely, legally defensible, and comprehensive analysis was completed for each resource. Mr. Stribley review the applicant's Environmental Report, developed requests for additional information, participated in a public scoping meeting near the proposed site, personally drafted several sections of the Final EIS (NUREG-1834 published in April 2006), and coordinated the ICF team of technical reviewers.

EIS for Expanding the Strategic Petroleum Reserve. Mr. Stribley is the deputy project manager and the lead biologist for the preparation of the EIS. Mr. Stribley works with a team of technical specialists to complete a comprehensive analysis of the potential impacts of expanding the strategic petroleum reserve, which includes eight proposed petroleum reserve sites, hundreds of miles of pipeline rights-of-way, and three different states. Mr. Stribley and the management team developed a streamlined approach, including clear lines of communication, concurrent analyses and continuous data exchange, and an aggressive agency and public outreach program, to meet the congressionally imposed timeline of completing the EIS within a year. Mr. Stribley is coordinating and consulting with the state and federal agencies in the three states and is completing the impact analyses for the EIS in combination with the required analyses

associated with the Endangered Species Act, Marine Mammal Protection Act, the Clean Water Act, and the Magnuson-Stevens Fishery Conservation and Management Act. In addition to collecting raw data, Mr. Stribley and a team of biologists prepared and implemented a biological survey plan that provided the baseline information for affected environment and the foundation for performing the impact analysis for each proposed petroleum reserve site and its associated pipeline rights-of-way.

EIS for a Rail-Line Connecting the Yucca Mountain Repository to the Union Pacific Main Line. Mr. Stribley was part of the project team supporting DOE (the lead agency) and the Bureau of Land Management (cooperating agency) in the preparation of an EIS. The EIS analyzed a proposed 300-mile rail line from the Union Pacific Rail line in Caliente around the Nevada Test Site to the Yucca Mountain Repository. For this challenging and controversial project, Mr. Stribley has prepared an approach to survey the flora, fauna, and wetlands along the proposed 300-mile corridor. In addition to collecting raw data, Mr. Stribley and a team of biologists prepared and implemented a biological survey plan that provided the baseline information for affected environment and the foundation for performing the impact analysis along the proposed 300-mile rail line.

EA for Issuing Experimental Permits in Support of the X Prize Cup. Mr. Stribley is the project manager for the development of the Environmental Assessment. Under the direction of Mr. Stribley, natural resources and policy specialists completed a comprehensive analysis of the activities associated with the development of launch related infrastructure and the launch and operation of several types of experimental suborbital rockets. The project team consulted with appropriate state and federal agencies including the State Historic Preservation Office and the U.S. Fish and Wildlife Service, and evaluated the impacts associated with the emissions, and public health and safety, as the X Prize Cup would be attended by over 25,000 public spectators. The EA provided a comprehensive analysis of the impacts associated with FAA permits, approval of the revised airport layout plan, and airspace restrictions.

EA for the Use of Mobile Land-based and Airborne Sensors. Mr. Stribley was the project manager for completing the environmental assessment (EA) for the use of various land-based mobile sensors (telemetry equipment, radar systems, laser radar systems, communication systems and transceivers) and airborne sensors from various test-beds across the nation and overseas. In his role, Mr. Stribley provided technical guidance and outlined the environmental review process in accordance with NEPA. Activities and resource areas addressed in the EA include generator emissions and ambient air quality standards, electromagnetic radiation and microwave emissions and its effects on health and safety and migratory birds, and land use impacts associated with limited site development activities. Mr. Stribley implemented a programmatic approach that addressed cumulative impacts, analyzed a range of testing scenarios, and facilitates tiering of subsequent documents prepared under NEPA.

EA for Laser Engagement Tests at the High Energy Laser Test Facility (HELSTF). Mr. Stribley was the project manager for completing the environmental assessment (EA) for the test activities occurring at HELSTF. In his role, Mr. Stribley provided technical guidance and outlined the environmental review process in accordance with NEPA. Mr. Stribley coordinates the activities of team of technical specialists to complete a comprehensive review of the environmental impacts, while at the same time meeting specific project schedules of the overall testing programs. Mr. Stribley and his team were able to complete a comprehensive review to

include regulatory agency consultations and ensured that such reviews did not affect the overall testing schedule of MDA's program.

EA for the development of a new railway spur, new track, and transfer facility. Mr. Stribley was part of the project team, and provided insight and guidance for evaluating the impacts associated with the development of a new rail-spur, track, and a transfer facility at a Brownfields. The specific issues involved with the project included the contaminated condition of the Brownfields site, the hazardous material handling procedures and health and safety issues at the proposed transfer facility, impacts on wetlands, new traffic patterns, and noise related issues.

Department of Transportation, Federal Highway Administration, Interagency Work Group Support for Environmental Streamlining and Stewardship: Executive Order 13274. Mr. Stribley provided technical support by identifying impediments and effective procedures in preparing purpose and need statements and for completing a review of relevant indirect and cumulative impacts. To support the interagency workgroups, FHWA, FTA, FAA, CEQ, EPA, USFWS, NOAA, USFS, and USACE, Mr. Stribley reviewed relevant laws and regulations including the Endangered Species Act, National Historic Preservation Act, and the Clean Water Act to identify specific requirements in the Acts related to purpose and need statements, e.g. project purpose statement under the CWA and cumulative effects under the NHPA. Mr. Stribley reviewed NEPA documents prepared by the various DOT offices to identify trends, compliance with DOT guidance, and to note potential regulatory and legal deficiencies. He also completed a series of interviews with DOT and resource agency personnel and documented the process for developing purpose and need statements and completing indirect and cumulative impacts analyses, as well as the perspective and consultation process with the regulatory agencies. Mr. Stribley provided a comprehensive analysis of the findings and aided in developing recommendations of future activities for the interagency work groups.

Section 106 Process under the Nation Historic Preservation Act (NHPA). Mr. Stribley was the project manager for assisting GSA in the disposal of the Sunflower AAP. Mr. Stribley coordinated and directed the activities of resource specialists to include cultural resource experts, community involvement specialists, and geographic information system (GIS) experts to assist GSA in complying with Section 106 of the NHPA. In completing those tasks, the project team has identified and coordinated efforts with the local community and Indian Tribes, established the area of potential effect (APE), performed several eligibility analyses for inclusion of facilities and Sunflower AAP as a whole in the National Register of Historic Places, and actively worked with the Kansas State Historic Preservation Office and the Advisory Council on Historic Preservation to determine the type and location of cultural resource surveys, develop preservation covenants, and prepare an executable memorandum of agreement (MOA). The project team extensively used a GIS project to review current and historical aerial photographs to define potential cultural resource survey areas, and to develop a viewshed, ambient light, and noise diffusion cone models to determine and document the APE. Mr. Stribley presented the findings and results of the Section 106 process at the public meetings and authored and facilitated the development of the executed MOA.

Biological Assessment and Wetland Delineation. Mr. Stribley was the project manager for a Biological Assessment and Wetland Delineation for the widening of County State Aid Highway (CSAH) 22 through the Chippewa National Forest in Beltrami County, Minnesota. Mr. Stribley ensured that the biological assessment addressed the regulations and requirements of the U.S.

Forest Service, the U.S. Fish and Wildlife Service, the Minnesota Department of Natural Resources, and the FHWA. The biological assessment addressed federally- and state-listed and proposed threatened and endangered species, sensitive species, designated critical habitat, and Regional Forester Sensitive Species. The biological assessment addressed two species of reptiles, one amphibian, two species of fish, one insect, three species of mussels, 20 species of birds, three species of mammals, and 21 species of plants. The document was used to support an environmental assessment that was prepared by FHWA. The wetland delineation was used to document the wetlands along the existing and proposed alignments of CSAH 22. The results of the delineation survey were incorporated into a GIS project which showed the boundaries of the wetlands and the location of the survey data points. The wetlands map was submitted to the U.S. Army Corps of Engineers, and was used as the basis for wetland impact assessment and mitigation planning.

Biological Assessment. Mr. Stribley was the project manager for the preparation of a biological assessment and a draft sediment and erosion control plan (schematics and report). The assessment and sediment and erosion control report were prepared to address concerns of the U.S. Fish and Wildlife Service (FWS) and the U.S. Army Corps of Engineers, Nashville District on the slack water darter. The biological assessment and the sediment and erosion control plan identified and described appropriate corrective measures to address the existing deficiencies at Cypress Creek (mile 28.7) and Cooper Branch (mile 0.2), located in Natchez Trace in Wayne County, Tennessee.

Supplemental EIS, Lower Meramec Basin Wastewater Management Plan. Mr. Stribley was the project manager for a supplemental Environmental Impact Statement (EIS) for a new regional wastewater treatment plant (WWTP) located in St. Louis County, Missouri. Major elements that were analyzed in the supplemental EIS included a bedrock sewer conveyance tunnel, a new regional WWTP, a 1.5-mile discharge pipeline through forested and emergent wetlands, and water quality issues in the Meramec and Mississippi rivers. The project team was able to provide EPA with resource specific staff from both local and national offices to identify the impacts and develop mitigation measures to address the complex water quality and construction issues associated with the project. Mr. Stribley supported EPA Region 7 by attending the pubic meeting and responding to technical questions regarding the analysis performed in the supplemental EIS.

Biological Assessment. Mr. Stribley was the project manager and field biologist for the completion of a Biological Assessment (BA) for the proposed development of a new regional wastewater treatment plant and discharge pipeline. In consultation with the U.S. Fish and Wildlife Service and the Missouri Department of Natural Resources, Mr. Stribley identified the potentially impacted threatened and endangered species including the bald eagle, the Indiana bat, running buffalo clover, and the American bittern. The BA was completed to support an EIS to provide adequate information to complete an impact assessment and to develop appropriate mitigation measures. The BA was included with the final Supplemental Environmental Impact Statement, Lower Meramec Basin Wastewater Management Plan.

Statement of Professional Qualifications
Dr. Christopher S. Tripp

Work Experience

Nuclear Criticality Safety License Reviewer 1998-2007
USNRC, Division of Fuel Cycle Safety and Safeguards, Office of Nuclear Material Safety and Safeguards

Responsibilities as a Senior Nuclear Process Engineer (GG-15) include technical review of license applications, amendment requests, and integrated safety analyses; policy and guidance development; event response; and inspection and enforcement activities. This also involved an eighteen-month period as Acting Team Leader for the Criticality Team and a six-month rotation to the Spent Fuel Project Office.

Major work assignments include being the senior nuclear criticality safety reviewer for the following: USEC American Centrifuge Plant, Mixed-Oxide Fuel Fabrication Facility, Paducah Gaseous Diffusion Higher Assay Upgrade Project, and Nuclear Fuel Services KAST Project. Assignments also include numerous license renewals and amendments, including technical support on the license application for Louisiana Energy Services, the Atomic Vapor Laser Isotope Separation review, and the external regulation pilot for Oak Ridge's Radiochemical Engineering and Development Center. Reviewed the Integrated Safety Analyses for Nuclear Fuel Services, the Mixed-Oxide Fuel Fabrication Facility, and USEC American Centrifuge Plant. Prepared Chapter 6 and Appendix A of the Mixed-Oxide Standard Review Plan (NUREG-1718), which is based on the Part 70 Standard Review Plan (NUREG-1520). Authored or co-authored interim staff guides FCSS-ISG-01, FCSS-ISG-03, and FCSS-ISG-10.

Nuclear Criticality Safety Inspector 1996-1998
USNRC, Division of Fuel Cycle Safety and Safeguards, Office of Nuclear Material Safety and Safeguards

Responsibilities included conducting inspections at enrichment and fuel fabrication facilities (including both low- and high-enriched uranium facilities), as well as associated event response and enforcement activities.

Research and Teaching Assistant 1990-1995
Rensselaer Polytechnic Institute, Department of Physics

Responsibilities included participating in a multi-disciplinary team on two experiments at the DOE-MIT Bates Linear Accelerator Center, including analysis of the experimental results and preparing a doctoral thesis based thereon, as well as teaching undergraduates in the Physics Department.

Education

B.S. in Physics, Rensselaer Polytechnic Institute	1989
M.S. in Physics, Rensselaer Polytechnic Institute	1994
Ph.D. in Physics, Rensselaer Polytechnic Institute	1995
Nuclear Criticality Safety Inspector Qualification, USNRC	1997
Nuclear Criticality Safety License Reviewer Qualification, USNRC	1999

Awards

Sigma Pi Sigma National Physics Honor Society	1988
Performance Award (NFS KAST Amendment)	1999
Annual Performance Awards	2004-2006
Arthur S. Flemming Award	2006

RONALD BEN ULECK - PERSONAL INFORMATION

I. PROFESSIONAL EXPERIENCE

1) COST ANALYST, 1/11/04 to present.
U.S.NRC/NRR/DPR/PFPB.

FINANCIAL ANALYST, 8/03/01 to present.
U.S.NRC/NRR/DRIP/RPRP/FRAS.

Duties: Primarily responsible for the review of financial qualifications and decommissioning trust funding assurance associated with nuclear power plants and other nuclear facilities, including operating licenses, license transfers, and ownership and control issues. Perform a wide range of analytical functions on casework and policy issues related to financial qualifications, decommissioning funding assurance, decommissioning and spent fuel management cost estimates, insurance, and antitrust programs in accordance with NRC regulations.

Accomplishments: (1) Prepared the financial qualifications and decommissioning funding assurance portions of safety evaluation reports (SERs) for direct (ownership) and indirect (management) license transfers for numerous power reactors at the Oconee, McGuire, Catawba, Cook, Beaver Valley, Perry, Davis-Besse, Hope Creek, Salem, and Peach Bottom nuclear stations, and for the ISFSI at Oconee. To complete the SERs, I initiated discussions on potential issues with the licensing PMs and OGC early in the review process. To resolve financial issues, I participated in numerous telephone calls and meetings with DORL management, OGC, the licensing PMs, other financial analysts in PFPB, and licensees. Some of the significant issues which we resolved with licensees were: signators to the operation and maintenance (O&M) agreement between Duke Energy Corporation and Duke Energy Nuclear, the new non-owner operator; the financial qualifications of the co-owners of the Catawba units; the allocation of O&M costs among the co-owners of Catawba; how site specific Oconee ISFSI O&M costs are covered by Duke Energy Corporation; and foreign ownership and control of intermediary companies having control over the operator. I also worked with the licensing PM and OGC to timely complete the orders authorizing the license transfers. I was also involved in the early stages of SERs for two first-of-a-kind financial qualifications reviews, the Peach Bottom license renewal application and a license application by the Foster Wheeler Environmental Corporation to establish an ISFSI at the DOE INEL facility.

(2) Authored a Commission paper summarizing decommissioning trust funding status reports for power reactors for the biennial reporting period ending December 31, 2000, as required by 10 CFR 50.75(f)(1). Analyzed detailed financial data submitted by licensees and developed conclusions about the adequacy of licensees' decommissioning trust funds. Worked closely with the NRC licensing project managers (PMs) and licensees to obtain additional data where deficiencies existed. To make the staff's review of licensees' submittals more efficient and conclusive, I made improvements in the analyses and formulated recommendations on how future submittals may be reviewed. I participated in the NRC reviews of the 2002 and 2004 biennial reports, and am also a member of the PFPB task group to review the 2006 biennial reports.

(3) Technical Monitor (TM) for Technical Assistance Contracts - As TM for the ORNL TA contract for financial qualifications, antitrust, indemnity, and decommissioning funding assurance programs, completed and published two NUREG/CRs on power plant owners and operating costs. As TM for the ICF Consulting contract on rulemaking and policy issues, I provide oversight of task orders on financial qualifications and financial assurance studies. As TM/Project Manager, worked closely with ICF to develop reports on use of insurance for decommissioning financial assurance (DFA), the Commission's history, basis and assumptions related to DFA, the roles and responsibilities of PUCs in DFA, and a plan to study the effect of licensees' organizational structures on DFA.

(4) Lead staff to coordinate PFPB meetings and discussions with industry representative proposing to use insurance for DFA.

2) TECHNICAL ASSISTANCE PROJECT MANAGER, 1/03 to 4/03.
U.S.NRC/NRR/DRIP.

Duties and Accomplishments: Acting TAPM for four months. Division representative and Project Officer for multidisciplinary, technical assistance contracts assigned to DRIP. Successfully processed funding requests for about 30 contracts totaling over 5.6 million dollars. Required considerable contacts with TMs, other TAPMs, and DRIP management.

3) PROJECT MANAGER, 7/00 to 7/01.
NRC/NMSS/DWM/DCB/Facilities Decomm Sect.

Duties: Backup Project Manager for the technical review of license termination plans (LTPs) for the Maine Yankee and Connecticut Yankee nuclear power plants. Assisted the PM and assumed some of the responsibilities of the PM on many tasks as part of regulating the decommissioning of the two sites.

Accomplishments: Successfully planned and coordinated the reviews of the two LTPs, which resulted in three requests for additional information (RAIs). The reviews focused on meeting the requirements of 10 CFR 50.82(a)(9) for content of LTP, Part 20 Subpart E for radiological release criteria, and 51.53(d) for supplementary information to the licensee's environmental report. Managed the inputs of review teams, which included the PM, 3 contractors (ORISE, ANL, SNL), 2 staff health physicists (HPs), and a ground water hydrologist. Coordination efforts included site visits and extensive telephone calls and meetings with reviewers and the licensees. Provided technical support for RAI resolution meetings with the licensees. Developed draft SERs for both sites. In these reviews, I included evaluations of the plants' decommissioning cost estimates and funding programs, in addition to safety and environmental aspects of decommissioning the plants. As the Backup PM, I assisted the PM in every aspect of the reviews to complete all project milestones on time or ahead of schedule.

4) FINANCIAL ANALYSIS, Rotational Detail, 1/3/00 to 3/30/00; assignment of partial responsibilities of the detail extended to 6/30/00.
USNRC/NMSS/DWM.

Duties: Acting Project Manager for NMSS financial assurance activities associated with decommissioning materials and fuel cycle sites, and uranium recovery and low-level

radioactive waste disposal facilities. Reviewed decommissioning financial assurance (FA) instruments and decommissioning project cost estimates, prepared guidance for decommissioning and uranium recovery facilities, and managed a technical assistance contract on financial assurance.

Accomplishments: Implemented a new 5-year technical assistance contract on financial assurance. I reviewed the ratified technical and cost proposals, developed statements of work (SOWs) for several of the contract tasks, and coordinated closely with PMDA and the Division of Contracts in evaluating and approving contractor responses to the SOWs. I met with the contractor to establish working protocols for contractor technical assistance. I effectively tracked progress on the contract and reported said progress to DWM management; this included biweekly status reports on financial assurance documents ticketed for review by NRC and/or contractor, and monthly cost and project summary reports. Set up a standing, interoffice bankruptcy response team. Coordinated FA instrument reviews with licensing project managers, Regional financial assurance instrument custodians (FAICs), and OGC.

I reviewed various FA instruments, including self guarantees, parent guarantees, bankruptcies, letters of credit, standby trusts, and license transfer documents for materials, fuel cycle, and uranium recovery licensees. Financial analyses of licensees/parent companies were performed to ensure that licensees had adequate qualifications. To facilitate documenting the review process, I developed a review tracking system for each review. I also reviewed the decommissioning funding plan cost estimates for two fuel cycle facilities.

I reviewed contractor revisions to R.G. 3.66, which is the principal financial assurance guidance document for licensees. As the NMSS FAIC, I managed the NMSS FA instrument security program, where I maintained for safekeeping copies of original FA instruments in a safe, and completed an annual inventory of instruments contained in the safe.

5) PROJECT MANAGER/PROJECT SCIENTIST, 4/1/94 to 1/02/00.
NRC/NMSS/DWM/DCB/Facilities Decomm Sect.

Duties: Project Manager for activities associated with the review, analysis, and evaluation of projects related to the decommissioning of commercial nuclear power plants, SDMP sites and other materials licensee sites. Conducted environmental and safety reviews of SDMP and materials licensee decommissioning cases. Assisted in developing NRC policies, standards, guides, and criteria pertinent to licensing activities related to the NRC decommissioning regulatory program. Reviewed and evaluated financial assurance submittals and decommissioning project cost estimates.

Accomplishments: (1) Licensing PM for approx 5 years for RMI Titanium Company, an Ohio SDMP and RCRA site with radiological contamination in buildings, soil, groundwater, and surface waters onsite and offsite; costs to decommission estimated at $150 million over 10-year period. Developed NRC review program, organized review team, and set project priorities and schedules; reviewed RMI's decommissioning cost estimate and its FA instrument US DOE; performed reviews of numerous licensee decommissioning documents as part of the regulatory process to decommission the site; prepared a license amendment for changing the RSO. Prepared an EA, an SER, and a license amendment approving RMI's decommissioning plan; performed and evaluated

dose assessments for uranium, thorium, and technetium-99 using RESRAD/other environmental pathway computer models; participated in team inspections of the licensee's facilities; and held numerous meetings and discussions with the licensee, US DOE, US EPA, US Congressional staff, State of Ohio officials, and NRC staff technical experts involved in the RMI decommissioning program. Under my PM direction, all reviews were performed successfully, within reasonable time and cost conditions.

(2) Decommissioning PM for Fansteel, Inc, an Oklahoma SDMP site with radiological contamination in buildings, soil and groundwater. Formulated NRC review program of Fansteel's Decommissioning Plan, organized an interdisciplinary review team and reviewed the DP. Review ultimately resulted in approval of the DP for the unrestricted use portion of the site; I initiated another separate review of the DP for the restricted use portion of the site, which included evaluation of institutional controls. Reviewed fansteel's DFP and updated decommissioning cost estimate against the guidance in RG 3.66, and provided comments on deficiecies to the licensee.

(3) As the NMSS Technical Monitor for Survey Contracts for several years, reviewed NRC staff requests (processed approximately 50-75 requests annually) for radiation survey assistance by ORISE/ESSAP, an NRC contractor, to ensure that requests for survey work are clear and technically sound and meet NRC audit objectives. My work on many projects involved reviewing licensee cost estimates for various aspects of decommissioning, especially radiological surveys, resolution of technical issues on environmental pathway analyses for specific radionuclides, compliance of licensees' final survey programs with NRC guidance, and special field procedures and laboratory analyses for site-specific needs. This responsibility involved extensive, ongoing coordination with Regional, IMNS, FCSS, and DWM PMs, technical monitors, and inspectors.

(4) As the DWM team member for the Region I IMPEP in 1998, I performed a comprehensive review of the Region's decommissioning program, including a detailed evaluation of the Region's financial assurance program.

(5) Developed a new, first-of-a-kind NRC Inspection Manual Chapter 2602 and inspection procedures IP87104 and IP88104 for decommissioning materials licensees and fule cycle facilities. I reviewed facility operations and decommissioning by type of facility; maintained close coordination with the Regions, IMNS, and FCSS; and prepared detailed texts and fieldnotes for the new procedures, including a section on financial assurance.

6) PROJECT MANAGER, TECHNICAL SPECIALIST, PROFESSOR. NRC/LLWM (1991-94), RBUleck Associates, Gaithersburg MD (198-90), Giegerich & Assoc., Rockville MD (1984-86), NRC/HLWM (1980-83), NUS Corporation, Rockville, MD (1976-80), Erie-Niagara Reg. Plng. Bd., Buffalo NY (1973-76), Univ. of Illinois, Urbana IL (1971-73).

Duties and Accomplishments: Provided technical assistance to Non-Agreement and Agreement States, which included review of financial assurance funding plans and cost estimates for proposed LLW disposal facilities; developed cost-benefit analyses for several Corps of Engineers water use projects; drafted environmental and cost-benefit analyses for commercial nuclear power plants; developed project costs for commercial real estate developments and industrial facilities; prepared financial pro formas for

Washington DC area office buildings; taught upper level university courses in economics.

II. EDUCATION AND OTHER QUALIFICATIONS

Ph.D. in Economics, Syracuse University.
PhD. in Environmental and Resource Management, SUNY at Syracuse.
M.S. in Economics, Southern Illinois University.
B.S. in Forest Resources, Southern Illinois University.

NRC/NRR qualified as a Reactor Technical Reviewer.

NRC/NMSS Certified Decommissioning Project Manager and Technical Reviewer under provisions of Section 11.01 of Inspection Manual Chapter 1246.

Received award for performance as Acting DRIP TAPM. Received 2 Special Achievement Awards for work on NRC's LLW and HLW projects. Recognized in performance appraisals for "outstanding" project management skills and ability to work independently with little supervision.

Currently (since September 2001) an active member of the NRR Labor-Management Partnership Committee, and NTEU Vice President and Steward. Served on NRC's EEO Committee for about four years.

Rex G. Wescott

RELEVANT PROFESSIONAL EXPERIENCE

U.S. NUCLEAR REGULATORY COMMISSION (NRC) ROCKVILLE, MD

Senior Fire Protection Engineer (FCSS/NMSS) November 1996 - present

- Responsible for fire protection reviews and establishment of review criteria for Tank Waste Remediation Systems (TWRS) project.
- Responsible for fire protection inspections of Gaseous Diffusion Plants following Certification by NRC.
- Participated in Augmented Inspection Team review of the December 9, 1998 fire at the Portsmouth Gaseous Diffusion Plant as a fire safety inspector.
- Responsible for integrated safety analysis (ISA) methodology review of Mixed Oxide Fuel Fabrication Facility Construction Authorization Request.
- Responsible for fire protection review of LES National Enrichment Facility License Application and ISA.
- Responsible for fire protection and ISA methodology review of USEC American Centrifuge Plant License Application and ISA.
- Responsible for fire protection reviews of ISA for Westinghouse, Global and Nuclear Fuel Services Facilities.

Senior Hydrologist (DWM/NMSS) December 1989 - November 1996

- Responsible for totals system performance calculations, guidance and reviews for proposed Yuca Mountain spent fuel repository.
- Served as special employee for the Office of Commission Appellate Adjudication in regard to fire protection aspects of a materials license for University of Missouri.
- Participated in a Team inspection as fire safety inspector at B&W Navy fuel Facility for FCSS/NMSS.

Plant Systems Engineer (Office of Special Projects) April 1987 - December 1989

- Responsible for 10 CFR 50 Appendix R reviews of Sequoyah NPP Unit 1 & 2 and Browns Ferry NPP Unit 2.
- Participated in team inspection in response to Browns Ferry Unit 2 drywell fire in July 1987.
- Performed other plant systems calculations and reviews in regard to pumps, chiller systems, and radiological dose.

Plant Systems Engineer (BWRP/NRR) November 1985 - April 1987

- Responsible for hydrologic and coastal engineering reviews for Limerick NPP, Pilgrim NPP, Oyster Creek, and Pilgrim NPP.
- Responsible for review of 10 CFR 50 Appendix R exemption request for Hatch NPP.

Hydraulic Engineer (NRR) March 1981 - November 1985

- Responsible for hydrology and coastal engineering reviews for preparation of Safety Evaluation Reports for 8 nuclear power plants.
- Represented NRC on Interagency Committee on Dam Safety - Working Group on Inflow Design Floods
- Testified as an expert witness in three hearings before The Atomic Safety and Licensing Board on Three water related issues concerning Limerick NPP.

Hydrologist (Office of Standards Development) December 1978 - March 1981

- NRC representative to ANS 2.8 Working Group (Determination of Design Basis Flooding for Power reactor Sites)
- Participated in working group for development of 10 CFR 70.61 regarding disposal of low level radioactive wastes.

Rex G. Wescott

EDUCATION

CLARKSON COLLEGE B.S. Physics	POTSDAM , NY September 1966 - May 1970
CLARKSON COLLEGE M.S. Engineering Science	POTSDAM , NY December 1974
POLYTECHNIC INSTITUTE OF NY Graduate studies in Fluid Mechanics & Coastal Eng	BROOKLYN, NY 1974 - 1978
UNIVERSITY OF MARYLAND B.S. Fire Protection Engineering	COLLEGE PARK, MD 1985 - 1988

PROFESSIONAL REGISTRATION

Licensed Professional Engineer, State of Maryland	1983 - present

NAME: **Dr. Raymond P. Wood, PE**
President, Trinity Engineering Associates, Inc.

EDUCATION:

Ph.D., Nuclear Engineering, University of Cincinnati, 1994
B.S., Nuclear Engineering, University of Cincinnati, 1980

EXPERIENCE OVERVIEW:

Dr. Wood has been a practicing engineer and consultant for over 25 years. For 10 years he was an engineer for Duke Power Company where he was responsible for reactor testing, plant instrumentation design and development, fuel management, and emergency management support. From 1898-1993 he completed a doctoral degree in nuclear engineering under an INPO fellowship and various DOE and ANS awards. Since 1993 Dr. Wood has been managing projects and providing technical support Federal, State, and local clients as President of Trinity Engineering Associates. His experience at TEA includes radiological assessment, emergency response, technology development, regulatory compliance, and quality assurance. He has served as an expert witness on radiation hazards posed by thorium for the US Department of Justice, managed and supported emergency response activities, performed quality and technical reviews of WIPP program activities, and been a part of dozens of dose and risk assessment projects. He also holds an adjunct appointment in the University Of Cincinnati College Of Engineering where he teaches graduate courses in radiological sciences and has been a principal investigator for research projects.

SELECTED PROJECT EXPERIENCE:

NESHAPS Air Modeling Support to USEPA Dr. Wood since 2000 has been the lead scientist for upgrading the CAP88-PC code set, USEPA's model for assessing radiation dose from airborne releases of radiological material. He has developed transport and uptake algorithms, validated model data, performed coding modifications, and provided training on the model to a national and international community of users.

ACP Radiological Impacts Analysis Dr. Wood has since 2004 supported the US Nuclear Regulatory Commission as the lead radiological hazards evaluator for the American Centrifuge Plant Environmental Impact Statement. The analyses included dose and risk assessments for air, water, soil, and direct radiation exposure pathways to workers and the public during all life phases of the centrifuge enrichment facility. Dr. Wood also analyzed the impacts from waste generated by the facility.

USDOJ Expert Witness Support Dr. Wood was in 2003 an Expert Witness for the US Department of Justice Environmental Torts Division in their case settling a lawsuit over thorium contamination of a scrap yard. The scrap yard owner claimed loss of value caused by potential health effects from thorium contained in magnesium-thorium alloy that had inadvertently been sold to him by the Air Force. Dr. Wood was asked to review the case and present an expert opinion, and then supported that opinion during testimony in the case. As part of the case review, Dr. Wood examined the site characteristics, the efficacy of the Air Force remediation job, the applicability of the sampling and survey work done by the remediation contractor, and the residual risk posed by left over thorium in the site soil. The case was judged in favor of the Department of Justice.

EPA Low Activity Mixed Waste Rule Technical Support Dr. Wood supported EPA's Low Activity Mixed Waste rule development by performing the worker inhalation dose modeling, and advising on the external dose modeling. He has examined studies performed at waste treatment facilities to develop exposure scenario data, researched protection factors for respirators, and written a stochastic inhalation model in EXCEL using functions that incorporate Monte-Carlo sampling methods. The analysis included coupling the uptake model results to dose factors from Federal Guidance Report 13 to generate cumulative dose curves and dose values at various probabilities. The work was incorporated into the Technical Support Document for EPA's proposed Low Activity Mixed Waste Rule.

WIPP Technical Program Support Dr. Wood has for over 9 years supported EPA's and DOE's transuranic waste regulation process for the WIPP by analyzing non-destructive assay methods used by DOE to quantify radionuclide content of waste being disposed of at the WIPP. He has reviewed a wide variety of methods including gamma spectroscopy, passive-active neutron counting, tomographic gamma scanning, and calorimetry. The reviews examined many aspects of the assay process for adequacy, including assessing calculations of isotopic quantities, measurement uncertainty, equipment calibration, procedural control, and personnel qualification. Dr. Wood has participated in testing of various systems, reviewed software algorithms, and inspected DOE implementation of the assay system management and quality control programs. He has evaluated DOE's Performance Demonstration Program for EPA, and has also been supporting EPA's decision process regarding disposal of Remote Handled waste at the WIPP by providing technical analysis of DOE's proposed characterization methods. During the course of this support, Dr. Wood has performed over 50 technical inspections at many DOE locations involved with the WIPP program, including Carlsbad NM, Sandia, Los Alamos, Hanford, Argonne National Lab, Savannah River, Idaho National Lab, Battelle Columbus, and Nevada Test Site. He has authored Technical Support Documents supporting EPA decisions on DOE waste characterization methods, in addition to many technical inspection reports. He has developed technical inspection procedures and checklists for TEA's inspection teams for a variety of methods.

WIPP Quality and Peer Review Program Support Dr. Wood has performed over 25 quality assurance audits of many DOE WIPP programs as both a lead auditor and audit team member. The programs he has audited include the DOE Carlsbad Field Office, Sandia and Los Alamos National Laboratories, the WIPP site, and many waste generator sites and programs associated with the WIPP project. These audits were performed to determine compliance with EPA requirements and American Society of Mechanical Engineers (ASME) Nuclear Quality Assurance standards. Dr. Wood has developed many of the audit procedures and checklists used by TEA in support of EPA, and ha has been the lead author for many of the audit reports. He has trained many of the TEA audit staff personnel in the requirements for software quality assurance under ASME NQA-2 Part 2.7 (1990). From 1998-2004 Dr. Wood was also TEA's lead evaluator of DOE Peer Review activities performed for the WIPP. He has evaluated whether DOE peer reviews were conducted in accordance with NRC NUREG 1297, and examined DOE's procedures for compliance with the NUREG 1297 requirements. He has recently evaluated peer reviews for the Spallings Conceptual Model and the Sealed Source characterization program, and previously had performed audits of the peer reviews done by DOE to support the WIPP Compliance Certification Application.

Phosphogypsum Risk Evaluations Supporting USEPA Dr. Wood has supported EPA decisions regarding alternative uses for phosphogypsum by examining applications for alternative use.

This work involves reviewing the application for completeness, verifying the modeling methods and assumptions in the supporting risk assessment, and generating independent risk calculations using codes such as RESRAD to validate those in the application.

ISCORS Support Dr. Wood managed TEA work in support of the Interagency Steering Committee on Radiation Standards (ISCORS) interagency group on radiological dose and risk modeling. This project developed risk scenarios, pathway transport and uptake factors, and dose/risk results for various population groups as a result of various sewage sludge disposal options. The project used uncertainty-based risk analysis to develop guidance to operators of treatment works for limitations on radionuclide concentrations in sewage sludge as a function of the disposal technique. Dr. Wood assisted in scenario development and data generation for the scenarios.

WIPP Remote Handled Waste Support Dr. Wood participated in developing the Technical Support Document supporting EPA's decision on Remote Handled waste disposal at the WIPP. Dr. Wood examined DOE's proposed characterization methods for Remote Handled waste against EPA's waste characterization requirements and DOE's previous program commitments in the Compliance Application Certification in order to recommend if the proposed DOE methods were compliant with EPA's requirements. Dr. Wood was a co-author of EPA's paper for the Waste Management 2004 Conference on regulation of Remote Handled waste.

RCRA Support to State of New Mexico Dr. Wood has supported the New Mexico Environment Department reviews of WIPP RCRA permit modifications submitted by DOE. This support has been ongoing for 6 years, during which time Dr. Wood has participated in evaluating 3 major and many minor permit modification requests.

Dr. Wood performed a detailed review of the radiological hazards assessment for the operable unit 1 remediation effort at the Fernald site in 1995. He analyzed the excavation plan for ALARA, determined the applicability of air transport and dust resuspension models such as ISC-3 and PM-10, and calculated potential exposures from airborne particulates containing over 50 radionuclides.

Fernald Risk Assessment Support Dr. Wood was the lead modeler for the University of Cincinnati site wide radiation exposure and contamination problem assessment of the DOE Fernald site. This assessment included source term assessment, transport modeling, and dose/risk analysis for many hazard sources present at the facility. These studies assessed dose and risk to the local and regional public in addition to occupational exposures using a variety of models, including RESRAD, GENII, CAP88, and pyrophoric release mechanisms for thorium. Dr. Wood performed dose/risk analysis of complex building and storage locations containing many radiological sources and potential transport and uptake paths.

NTS Soil Cleanup Support Dr. Wood calculated dose reduction factors to multiple critical population groups for various remediation technologies in support of the Nevada Test Site (NTS) Plutonium in Soils remediation technology demonstration. This work involved first performing a baseline risk assessment for exposure to various population groups from the existing state of contamination at Area 11 and the Tonopah Test Range. A second assessment was then performed after examining the chemical state, particle size, and environmental availability of the plutonium remaining in the soil following cleanup. These assessments required modeling resuspension mechanisms in the desert environment, air transport through complex terrain, deposition, uptake pathways, and dose to the selected receptors, and then

performing a cost/benefit analysis to identify those technologies that provided the greatest dose reduction per unit cost. Locations of key receptors and the corresponding pathways were developed by performing lifestyle surveys of local populations surrounding the Nevada Test Site in conjunction with the Desert Research Institute in Las Vegas, NV.

Paddy's Run Road Site CERCLA Analysis Dr. Wood performed a comprehensive review of media sampling techniques, laboratory analysis protocols, quality assurance program adherence, and statistical data analysis techniques used by remediation contractors at the Paddy's Run Road site near Cincinnati, OH. This review was requested to provide expert assistance during CERCLA remediation negotiations. Dr. Wood used statistical fit methods to identify outlying data points for detailed review, and then examined the sampling techniques, chain of custody, radiological lab methods, and data validation processes used to produce the data for each of the suspect data points. Dr. Wood's analysis led to the State of Ohio dropping their radiological risk concern for the site, saving millions of dollars in unnecessary cleanup costs.

NAME: **Mr. Stephen D. Wyngarden**
Senior Vice President, ICF International

EDUCATION:

M.S., Environmental Management, Duke University, 1982
B.S., with Honors, Applied Biology, Georgia Institute of Technology, 1980

EXPERIENCE OVERVIEW:

Mr. Wyngarden is an ICF International (ICF) Senior Vice President with 24 years of experience reviewing and preparing EAs and EISs under NEPA and international guidelines, many for NRC. He also has experience supporting a variety of Federal agencies in conducting regulatory analyses and technical studies, including human health and ecological risk assessments related to radioactive waste management, solid and hazardous waste management, hazardous air pollutants, underground injection control, indoor radon, and other topics. Prior to joining ICF in 1985, he was an environmental scientist for three years with the NRC (Uranium Fuel Licensing Branch, Division of Fuel Cycle and Material Safety within NMSS). In that position, he was responsible for preparing and reviewing EAs of existing and proposed operations at nuclear fuel cycle facilities and inactive low-level radioactive waste disposal/storage sites.

SELECTED PROJECT EXPERIENCE:

EIS for the Proposed American Centrifuge Plant in Piketon, Ohio. Served as the Program Manager for a contract with NRC to prepare the EIS for the United States Enrichment Corporation Inc.'s proposed gas centrifuge uranium enrichment facility in Piketon, Ohio. Responsible for ensuring timely, high-quality, cost-effective performance in compliance with NRC contract management standards. Coordinated the review of the applicant's Environmental Report, developed requests for additional information, participated in a public scoping meeting near the proposed site, personally drafted several sections of the Final EIS (NUREG-1834 published in April 2006), and coordinated the ICF team of technical reviewers.

EA of Sequoyah Fuels Corporation. Conducted an EA supporting a license amendment allowing the Sequoyah Fuels UF_6 conversion plant near Gore, Oklahoma to dispose of liquid raffinate by deep-well injection. Visited the plant site, examined UF_6 conversion and handling practices, assessed the quantity and character of liquid waste streams, and analyzed the potential environmental consequences of the proposed underground injection. Prepared the EA document and wrote license conditions to ensure environmental protection.

Environmental Liability Cost Estimation to Support Bankruptcy Proceedings. Managed a project to provide technical services to support the Department of Justice (DOJ) in bankruptcy proceedings against an NRC licensee (Shieldalloy) that generates large-volume thorium slag tailings. This entailed preparing estimates of the costs to decontaminate and decommission the facilities in support of a Proof of Claim filed by DOJ in bankruptcy court on behalf of the NRC and EPA.

EA of Allied Chemical. Conducted the EA supporting the renewal of Source Material License No. SUB-526 held by the Allied uranium hexafluoride (UF_6) conversion plant in Metropolis, Illinois. Visited the site, examined UF_6 conversion and handling practices, and examined

potential health and environmental impacts associated with routine operations and plausible accident scenarios. Documented the study in an appropriate NEPA report and wrote license conditions to ensure environmental protection.

EA of Uranium Fuel Fabrication Plants. Conducted the EA supporting the renewal of special nuclear material licenses held by three uranium fuel fabrication plants: General Electric in Wilmington, North Carolina; Westinghouse in Columbia, South Carolina; and Nuclear Fuel Services in Erwin, Tennessee. As part of each of these studies, examined the potential impacts of routine operations and accident scenarios involving the processing of enriched uranium.

EAs of Radioactive Waste Management Proposals. Evaluated proposed actions at licensed nuclear facilities to determine compliance with NRC regulations, potential environmental impacts, and appropriate responses. For example: assessed the environmental consequences of continued rare earth processing operations and radioactive waste management practices at the Cabot Corporation sites in Pennsylvania; evaluated remedial action alternatives for radioactive ground-water contamination at the West Lake Landfill in Bridgeton, Missouri; examined decommissioning alternatives for unlined liquid waste holding ponds at the Nuclear Fuel Services Facility in Erwin, Tennessee; and examined remedial action alternatives for a ground-water contaminant plume containing radionuclides at the United Nuclear Corporation Uranium Scrap Recovery Plant in Rhode Island.

EA of Cabot Corporation Rare Earth Processing Facilities. Prepared the EA supporting the renewal of Source Material License No. SMB-920 held by Cabot Corporation to prepare tantalum and columbium (niobium) products at a facility in Boyertown, Pennsylvania. Visited the site to gather first-hand information, conducted and directed all technical analyses, prepared the final NEPA report, and wrote license conditions to ensure environmental protection.

EAs of "Storage Only" Licenses for Nuclear Reactors. Performed the NEPA EAs supporting decisions to issue NRC licenses that allowed nuclear power stations to receive shipments of fresh nuclear fuel for storage purposes only. As part of these studies, examined potential radionuclide releases and exposures to members of the general public, during both routine operations and postulated accident conditions.

Review of NRC Cost Estimating Procedures. For the NRC's Division of Low-Level Waste Management and Decommissioning, conducted an analysis of the adequacy of existing procedures for estimating the costs of site reclamation, decommissioning, long-term maintenance, and cleaning up accidental releases at NRC-licensed facilities. This work included a detailed review of NRC regulations, Regulatory Guides, Branch Technical Positions, and other forms of guidance relating to cost estimation procedures at non-reactor licensees, and served as the basis for changes to the NRC's financial responsibility requirements.

NEPA Support to DOE Headquarters. Provided technical and policy support for the NEPA program implemented by DOE Headquarters by reviewing the technical adequacy of radiation sections of draft EISs. Also supported DOE in defining decontamination and decommissioning activities that could qualify for categorical exclusions under NEPA.

Rulemaking Plan on Environmental Reports for Uranium Mills. For the NRC's Office of Research, prepared a rulemaking plan addressing a possible revision to eliminate a 10 CFR Part 51 requirement for uranium mills to submit an Environmental Report at license termination.

Evaluated background information and the pros and cons of different rulemaking approaches. Examined requirements in 10 CFR Part 40, Appendix A for the disposition of uranium mill tailings to determine the need for additional environmental analyses after a mill tailings pile has been closed.

EPA Radiation Site Cleanup Regulations. For EPA's Office of Radiation and Indoor Air (ORIA), identified and evaluated issues, including cost tradeoffs, for a proposed rulemaking to establish soil and ground-water cleanup levels for radioactively contaminated sites. Collected information on the universe of radioactively contaminated sites that may need to be cleaned up, as well as the nature and extent of existing contamination. Also evaluated the pros and cons of alternate statutory authorities for the cleanup regulation (including AEA, UMTRCA, CERCLA, RCRA, TSCA) and alternate forms for the regulation (including a dose or risk limit, a table of radionuclide concentrations, and a technology-based approach). Documented these analyses in an issues paper used for discussion by an interagency work group.

Management Strategy for Radioactive Scrap Metal. For EPA's ORIA, managed a project to collect and summarize background information that the Agency used in a comprehensive cost-benefit and risk analysis of decontaminating and recycling radioactive scrap metal. Identified all domestic regulatory requirements and policies that must be taken into account in developing a decontamination and recycling strategy, including DOE Orders, NRC regulations, EPA regulations, and standards and recommendations from professional and scientific organizations such as the National Council on Radiation Protection and Measurements, the Institute of Scrap Recycling Industries, the International Atomic Energy Agency, and the Commission of European Communities.