MICHAELE C. BRADY RAAP, Ph.D.
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SUMMARY

Engineering professional with 25 years experience in the area of nuclear criticality safety and nuclear waste management. Strong technical expertise in nuclear criticality safety and spent fuel characterization as well as general systems analysis and performance assessment, in combination with solid general management experience. Experience in technical project management and implementation to meet a broad range of customer needs. Excellent budgeting/cost containment skills, negotiation skills, and project planning and implementation skills. Proficient technical writing and presentation skills and experience.

EXPERIENCE

Battelle Northwest Division Richland, Washington
Chief Engineer Dec 1999 to present
Pacific Northwest National Laboratory. Primary responsibility is the Lead Discipline Engineer for Nuclear Criticality Safety supporting the design of the PDCF, Pit Disassembly and Conversion Facility, (part of a system to convert weapons materials into commercial-grade fuel) by performing criticality evaluations and developing design requirements and nuclear criticality safety limits and controls. Provided support to the US Nuclear Regulatory Commission (NRC) as a member of the Phenomena Identification and Ranking Tables (PIRT) panel for the integration of burnup credit in the transport and storage of spent nuclear fuel. Provided independent criticality safety reviews for Lawrence Livermore National Laboratories and the Y-12 National Security Complex.

Lockheed Martin Hanford Company Richland, Washington
Engineering Consultant Sept 1999 to Dec 1999
Senior technical consultant to Process Engineering manager for the River Protection Project (Hanford Tank Farms) and Interpretive Authority/Facility Expert for S/RID requirements related to nuclear criticality safety. Primary responsibility is to manage, maintain and implement the River Protection Project Nuclear Criticality Safety Program. Other activities include integrating ISMS concepts into practice through Process Engineering work procedures and desk instructions and the review and update of Operating Specifications Documents for Tank Farm operations.

Duke Engineering & Services, Inc. Richland, Washington
Technical Systems Manager II Sept 1997 to Sept 1999
Manager within the Nuclear Safety & Licensing Department at the Tank Waste Remediation System (TWRS) [now the River Protection Project, RPP] in Hanford, WA. Functional responsibilities included: maintaining/administering the Unreviewed Safety Question process; managing/maintaining configuration control of the TWRS Authorization Basis; and full responsibility for the Nuclear Criticality Safety program. Knowledgeable of DOE Orders and requirements for each functional area. Responsible for multi-year planning, schedule/budget tracking, alignment of technical staff, developing and managing Performance Agreements with customer/client

Sandia National Laboratories Albuquerque, New Mexico
Manager, Technical Staff May 1994 Sept 1997
Project manager for SNL activities in support of the Department of Energy Office of Civilian Radioactive Waste Management, primarily the Yucca Mountain Site Characterization Project. Achievements include: effective oversight of project schedule/budget tracking and implementation; negotiation during the proposal/contract process; appropriate alignment of technical staff with project requirements; direct supervision of both technical and administrative staff; and program development and strategic planning. Recipient of a 1996 Employee Recognition Award for "exemplary service to Sandia on the Yucca Mountain Project."

Sandia National Laboratories Albuquerque, New Mexico
Senior Member Technical Staff May 1992 to May 1994
Project manager for criticality safety in the storage and transportation of nuclear materials, primary focus on burnup credit issue for commercial spent fuel. Developed an in-house capability for performing radiation shielding analyses, focus on Defense High-Level Waste. Project manager for risk-based decision analysis and econometric modeling for US Coast Guard inspection and boarding practices.

Oak Ridge National Laboratory Oak Ridge, Tennessee
Technical Staff Oct 1987 to May 1992
Performed nuclear criticality safety analyses and radiation shielding analyses to evaluate proposed container and facility design concepts for the transportation and storage of nuclear materials. Performed analyses to characterize the composition of spent nuclear fuels. Combined concepts of criticality and spent fuel composition to establish early technical basis for burnup credit for storage/transportation packages. Collaborated with researchers from other national laboratories, universities and Japan to further develop fission product yield data for actinide nuclides.

Los Alamos National Laboratory Los Alamos, New Mexico
Graduate Assistant/Collaborator Oct 1984 to Oct 1987
Performed doctoral research in the area of basic nuclear data including delayed neutron yields and energy spectra for individual precursor nuclides and fission product yields.

EDUCATION
Texas A&M University College Station, Texas
PhD Nuclear Engineering Dec 1988
MS (Dec 1982), BS (May 1981) Nuclear Engineering
Texas A&M University

Jr. Forum Scholarship Award (Seymour, Texas, 1977)
Opportunity Award (Texas A&M University, 1977)
John and Muriel Landis Scholarship (American Nuclear Society, 1984)

PROFESSIONAL SOCIETIES AND ACTIVITIES
American National Standards Institute/American Nuclear Society (ANSI/ANS) 5.1:
Working Group for the American National Standard for Decay Heat Power in Light Water Reactors, member since 1989. **Chairman 2000-2006**. Revised and approved in 2005.

ANSI/ANS 19.8; Working Group for Standard Fission Product Yields, member since 1989. Group responsible for drafting proposed national standard on fission product yields.

ANSI/ANS 19.9; Working Group for Delayed Neutron Standard, member since 1990, **Chairman 1992-1995**. **Chairman 2006-present**. Group responsible for drafting proposed standard on delayed neutron parameters.

ANSI/ANS-8.27: Working Group for standard on Burnup Credit for LWR Fuel. Member since inception. Approved 2008.

International Atomic Energy Agency:
Consultancy for the Technical Committee Meeting TCM "Implementation of Burnup Credit in Spent Fuel Management Systems", 10 to 14 July 2000, Vienna, Austria. Invited to advise the Agency on burnup credit criticality benchmarks and burnup effects in spent fuel.
Invited lecturer for the IAEA/ANL Regional Training Course on Implementation of Burnup Credit in Spent Fuel Management Systems, 15-26 October 2001, Argonne, Illinois.
Consultant for the International Atomic Energy Agency (IAEA) providing advice on the Requirements, Practices and Developments in Burnup Credit Applications, from 22 to 26 April 2002, Madrid, Spain.
Consultant for the IAEA meeting on “Advances in Applications of Burnup Credit to Enhance Spent Fuel

Transportation, Storage, Reprocessing and Disposition" from 29 August to 2 September 2005, London, United Kingdom.
Consultant for the IAEA meeting on "Advances and Benefits in Applications of Burnup Credit for Spent Fuel Storage, Transport, Reprocessing and Disposal", 27 to 30 October 2009, Cordoba, Spain

Organization for Economic Cooperation and Development (OECD)/Nuclear Energy Agency (NEA):
Working Party on Nuclear Criticality Safety, member since inception (1997), **Chairman 2011-present**
Expert Group on Burnup Credit Criticality, participant since 1991, Chairman since 1995. Currently 22 participating organizations from 13 countries: Belgium, Czech Republic, Finland, France, Germany, Hungary, Italy, Japan, Spain, Sweden, Switzerland, United Kingdom, United States.
Expert Group on Assay Data for Spent Nuclear Fuel (EGADSNF), member since inception (2006)

Participant in Japan Atomic Energy Research Institute Foreign Researcher Inviting Program 1992.
JAERI provided funding for a 30 day on-site consultation at the Fast Critical Assembly (FCA).

Institute of Nuclear Materials Management, member since 1994

American Nuclear Society:
Member since 1985; **Board of Directors: 1998-2001; 2006-2009;**
ANS Treasurer: 2011-2013
Member Professional Women in ANS 1990-1993; National Program Committee, **Vice-Chairman 2006-2009**;
National Program Committee: Vice-chairman, 2006-2009
Professional Divisions Committee: **Chairman, 2010 - present**
Member ANS-19, Physics of Reactor Design Standards Committee since 1991
Reactor Physics Division (RPD):
Chairman Program Committee, 1992-1995
Member Executive Committee, 1992-1995
Treasurer (1994-1995), Secretary (1995-1996),
Vice-chair/Chair Elect (1996-1997), **Chairman (1997-1998)**
Nuclear Criticality Safety Division (NCSD):
Member Executive Committee, 1994-1997, Vice-chair/Chair Elect (2001-2002), **Chairman (2002-2003)**
Recipient of the NCSD Distinguished Service Award, "The Division Recognizes Your Outstanding Leadership in the Division Governance, in International Studies, and Division Conferences", Washington, DC, November 17, 2009