Michael E. Dunn

R&D Staff
Nuclear Analysis Methods and Applications Group
Nuclear Science and Technology Division
Oak Ridge National Laboratory

EDUCATION

University of Tennessee, Knoxville TN
Ph. D. Nuclear Engineering, Nuclear Criticality Safety, December 1996

University of Tennessee, Knoxville TN
M.S. Nuclear Engineering, Nuclear Criticality Safety, August 1994

University of Tennessee, Knoxville TN
B.S. Nuclear Engineering,, August 1992, Recognized as the top graduate in the College of Engineering

RELEVANT EXPERIENCE

UT-Battelle, Oak Ridge National Laboratory (ORNL), Oak Ridge, TN
12/97 - present *Development Staff Member*

- Member of development team for AMPX-2000 cross-section processing system
- Developed PUFF-III code to process ENDF/B cross-section uncertainty data for use in sensitivity analyses
- Developed and implemented new energy-meshing techniques for the POLIDENT module that is used to generate continuous energy cross sections from ENDF resonance parameters
- Developed capability to generate continuous energy MCNP cross sections from ENDF/B-V and -VI data using the AMPX code system coupled with NJOY modules
- Performed nuclear criticality safety (NCS) analyses for transport of weapons-grade MOX assemblies in support of the Fissile Material Disposition Program
- Provide NCS consulting support for various nuclear applications to facilities inside and outside the DOE complex
- Extensive experience in validation of NCS software and cross-section libraries for nuclear applications

Lockheed Martin Utility Services, Paducah Gaseous Diffusion Plant (PGDP), Paducah, KY
10/96 - 12/97 *Nuclear Criticality Safety Engineer*

- Responsible for various criticality safety evaluations and approvals for fissile material operations at PGDP
- Provided NCS support for daily production operations involved with the gaseous diffusion process
- Validated NCS software for production use
- Coordinated project for criticality accident alarm system (CAAS) detector placement in PGDP laboratory facility

- Performed engineering tasks in support of the plant transition from DOE to NRC regulatory oversight
- Performed 10 CFR 76.68 plant change reviews (PCR)
- Coordinated development of training modules for software validation and KENO V.a calculations

University of Tennessee, Knoxville, Department of Nuclear Engineering, Knoxville, TN

8/92 - 10/96 *DOE Fellow/Graduate Research Assistant*

- Dissertation topic involved the development of a continuous energy version of the criticality safety code KENO V.a using point MCNP cross sections
- Performed code and cross-section validations for NCS analyses
- Performed NCS study of the stored ^{233}U inventory at ORNL
- Performed gamma heating and shielding analysis of the spent fuel storage pool of the proposed Advance Neutron Source Reactor

Martin Marietta Energy Systems (MMES), Y-12 Plant, Oak Ridge, TN

6/92 - 8/92 *Environmental Assistant*

- Assisted in environmental monitoring study of ground water systems at the Y-12 Plant
- Developed operational procedures for monitoring the Y-12 sewage systems for environmental impact studies

Oak Ridge National Laboratory, High Flux Isotope Reactor (HFIR), Oak Ridge, TN

5/91 - 8/91 *Practicum Assignment for ER/WM Scholarship; Engineering Assistant*

- Performed various engineering tasks in support of operations at HFIR.
- Performed shielding calculations for packaging, transportation and final storage of radioactive material from the HFIR storage pool
- Addressed piping problems at the HFIR facility and proposed modifications to existing reactor pool surge tank overflow system

A. G. Technical Associates (Subcontractor), Oak Ridge, TN

5/90 - 8/90 *Mechanical Engineering Assistant at* ORNL

5/89 - 8/89

- Performed drafting work with Autocad software

ADDITIONAL TRAINING

Possess L-security clearance
Completed FORTRAN95 workshop training
Attended and completed NCS short-course at University New Mexico

PUBLICATIONS

Primary author or co-author of more than 20 publications in the field of Nuclear Criticality Safety and Nuclear Engineering