

STEPHEN M. BOWMAN
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EDUCATION

- 1980** M.S. in Nuclear Engineering, University of Tennessee. GPA: 4.0/4.0
Thesis: "The Development, Implementation, and Evaluation of Depletion Perturbation Theory in a Light Water Reactor Nodal Code."
- 1979** B.S. in Nuclear Engineering, University of Tennessee. GPA: 3.93/4.0
- 1979 - 1980** Research Assistant for computer software development, Oak Ridge National Laboratory.

SIGNIFICANT ACCOMPLISHMENTS at ORNL (1989 - Present)

- 2009 – Present** Reactor Physics Group Leader. Manage group of approximately 25 researchers, including:
- Mentoring and development of staff members
 - Recruiting new top performing researchers
 - Management and planning of research projects (applications and computational methods development) for core and spent fuel applications.
- 1995 - 2009** SCALE Project Leader for maintenance, development, and user technical support of the SCALE code system used worldwide for evaluation of criticality safety, radiation shielding, reactor physics, and source term characterization of nuclear facilities and transport/storage packages. Responsibilities included:
- Planning and directing the efforts of the SCALE code managers and the software coordinator.
 - Manage SCALE software quality assurance and configuration control updates.
 - Provide technical support to users.
 - Planning and direction of user interface enhancements to SCALE, including Windows graphical user interfaces (GUIs), and 2-D and 3-D color graphics display.
 - Publish SCALE Newsletter twice per year.
 - Coordinate all SCALE training courses (USA and international).
 - Maintenance of SCALE website.
 - Technical editor of SCALE Manual.
 - Program management of SCALE system
 - Contract management and interface with sponsors
 - Monthly progress reports
 - Completion of tasks and milestones
 - Preparation of proposals and SOWs for new funded work
- 1992 - 1996** Task Leader for development, testing and validation of the 44-group ENDF/B-V cross-section library for criticality safety analysis and spent fuel characterization of light-water-reactor (LWR) fuel. Task Leader for follow-on project to establish LWR criticality benchmark guide for NRC Spent Fuel Project Office.

- 1994 - 1995** Responsible for testing, packaging, and verification/validation of ORIGEN-ARP software system, which replaced the Characteristics Database (CDB) package previously distributed by ORNL. ORIGEN-ARP provided a more flexible and accurate method and interface for generating radiation source term data for standard LWR fuel designs.
- 1994 - 1995** Principal investigator for development and testing of the first complete personal computer (PC) version of the nuclear codes in the SCALE system, SCALE-PC, Version 4.3.
- 1992 - 1995** Configuration Management Coordinator of the SCALE system, responsible for preparation and implementation of QA and configuration management plans including packaging of versions 4.2 and 4.3 for distribution.
- 1991 - 1995** Responsible for initial validation analyses for Burnup Credit project. Developed reactor critical analysis procedure and performed analyses for Surry 1 Cycle 2, Sequoyah 2 Cycle 3, and North Anna 1 Cycle 5. Performed mixed oxide (MOX) and UO₂ critical benchmark calculations.
- 1991 - 1994** Performed nuclear applications analysis and provided technical support for numerous applications including: Millstone Unit 2 spent fuel pool analysis for NRC/NMSS, Advanced Boiling Water Reactor (ABWR) upper drywell accident analysis for NRC/NRR, and ORNL Unirradiated Shipping Container SARP criticality safety analysis for ORNL Research Reactors Division.

PRIOR SIGNIFICANT ACCOMPLISHMENTS (1980 - 1989)

- 1988 - 1989** Virginia Power, Richmond, Virginia. Team member, reactor startup physics testing in support of reload startups for four operating pressurized water reactors (PWRs).
- 1987 - 1989** Virginia Power, Richmond, Virginia. Performed reactor core fuel reload design safety analyses in support of reload licensing for four operating pressurized water reactors (PWRs). Co-authored several core reload design reports.
- 1982 - 1989** Virginia Power, Richmond, Virginia. Developed one-dimensional (1-D) axial reactor physics code NOMAD with thermal hydraulic feedback to perform 1-D axial core analyses in support of reactor startup and cycle operation. Authored topical report, *Nomad Code and Model*, VEP-NFE-1-A, approved by NRC in 1985 for licensing applications. Provided technical support to users and made periodic enhancements. Developed several auxiliary codes for use with NOMAD.
- 1984 - 1986** Virginia Power, Richmond, Virginia. Development team member for Relaxed Power Distribution Control (RPDC) Methodology for determining axial power distribution operating limits based on sampling a wide range of potential axial profiles and determining the conditions where design bases criteria are exceeded. Co-authored topical report, *Relaxed Power Distribution Control Methodology and Associated FQ Surveillance Technical Specifications*, VEP-NE-1-A, approved in 1986 by NRC for licensing applications.
- 1980 - 1981** Tennessee Valley Authority, Chattanooga, Tennessee. Performed core follow analysis and computer program development in support of two operating PWRs.