

BRADLEY T. REARDEN, Ph.D.

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EDUCATION:

1989-1999

Texas A&M University, College Station, TX

Doctor of Philosophy in Nuclear Engineering, December 1999

Dissertation title: "Development of SAMS: A Sensitivity Analysis Module for the SCALE Code System Using KENO V.a in the CSAS25 Sequence"

Master of Science in Nuclear Engineering, August 1995

Thesis title: "Engineering Analysis of a Power Upgrade for the Texas A&M Nuclear Science Center Reactor"

Bachelor of Science in Nuclear Engineering, May 1993

EXPERIENCE:

12/99-present

Oak Ridge National Laboratory – Nuclear Science and Technology Division – Nuclear Analysis Methods and Applications Group

Development Engineer

Developing state-of-the-art software for nuclear safety analysis.

1/98 – 12/99

Oak Ridge National Laboratory – Computational Physics and Engineering Division – Nuclear Engineering Applications Section – Reactor and Fuel Cycle Analysis Group

Postgraduate Research Associate – Oak Ridge Institute for Science and Education

Developed a three-dimensional sensitivity analysis package that includes enhanced versions of KENO V.a and the CSAS25 SCALE sequence. Performed sensitivity analyses for criticality safety applications using state-of-the-art evaluation tools recently developed for the SCALE code system.

8/95 – 1/98

Texas A&M University - Department of Nuclear Engineering

Graduate Research Assistant

Performed engineering analyses in conjunction with DOE's Amarillo National Resource Center for Plutonium. Projects included the design of a mixed oxide fuel experiment and analysis of mixed oxide fuel assemblies.

4/94 - 8/95

Texas A&M University - Nuclear Science Center

Graduate Research Assistant

Performed safety analysis calculations to support the conversion of the NSCR from HEU to LEU fuel and to increase the maximum steady state power level from 1.0 to 1.5 MW. Power upgrade analysis has been submitted to the NRC as part of a license amendment.

6/93 - 8/93

Savannah River Site - Scientific Computations Division - Radiation Shielding Group

Graduate Researcher – Oak Ridge Institute for Science and Education

Worked on the development of an input processor for a multi-dimensional neutron transport code.

6/91 - 8/91,

6/92 - 8/92

Texas Utilities - Reactor Engineering - Reactor Physics

Summer Internship (two consecutive summers)

Various projects included the generation of core following reports and the development of a one-dimensional neutron diffusion model to predict axial power profiles of the Commanche Peak Steam Electric Station.

PROFESSIONAL DEVELOPMENT:

International Youth Nuclear Congress 2000 – Bratislava, Slovakia

Technical Program Committee Member

International Forum - Youth and the Plutonium Challenge - Obninsk, Russia

Co-Chairman - July, 1998

American Nuclear Society - Member 1989-present

Texas A&M Student Branch - Vice President 1991-1992

Alpha Nu Sigma - Nuclear Engineering Honor Society - Inducted as Lifetime Member 1992
Texas A&M Student Branch - President 1993-1994 - Vice President 1992-1993

Tau Beta Pi - National Engineering Honor Society - Inducted as Lifetime Member 1993
Texas A&M Student Branch - Treasurer 1993-1994

Institute for Nuclear Power Operations - Graduate Fellowship Recipient - 1993-1994

PUBLICATIONS: Rearden, B.T., "Development of SAMS: A Sensitivity Analysis Module for the SCALE Code System Using KENO V.a in the CSAS25 Sequence," Ph.D. Dissertation, Texas A&M University, (December 1999)

Broadhead, B.L., Childs, R.C., Rearden, B.T., "Computational Methods for Sensitivity and Uncertainty Analysis in Criticality Safety," *Sixth International Conference of Nuclear Criticality Safety*, Versailles, France, September 20-24, 1999, To be published.

Rearden, B.T., Lichtenwalter, J.J., and Hopper, C.M., "Evaluation of Critical Experiment Parameters and Uncertainties with First-Order Sensitivity Techniques", NUREG/CR-5624, ORNL/TM-13718, Oak Ridge National Laboratory (1999). (review pending)

Broadhead, B.L., and Rearden, B.T., "Exploratory Studies for Three-Dimensional Sensitivity Methods", ORNL/M-6583, Oak Ridge National Laboratory (1998).

Rearden, B.T., Parish, T.A. and Charlton, W.S., "Generation of Two-Group Cross Sections for WG-MOX Fuel Using MCNP," *Trans. Am. Nuc. Soc.*, **77**, 323 (1997).

Rearden, B.T., O'Kelly, Sean, and Parish, Theodore A. "Potential Capability of the Texas A&M Nuclear Science Center Reactor for Mixed-Oxide Fuel Rodlet Irradiations," *Proceedings of the American Nuclear Society Topical Meeting - Advances in Nuclear Fuel Management II*, Myrtle Beach, SC, March 23-26, 1997, TR-107728-V1, EPRI, Pleasant Hill, CA (1997).

Rearden, B.T., "An Engineering Analysis of a Power Upgrade for the Texas A&M Nuclear Science Center Reactor," *Trans. Am. Nuc. Soc.*, **73**, 411 (1995).

Rearden, B.T., "Engineering Analysis of a Power Upgrade for the Texas A&M Nuclear Science Center Reactor," Master's Thesis, Texas A&M University (August 1995).