

Burnup Credit Related Publications

Last Updated: November 4, 2004

NOTICE:

The following is a list of nearly 200 publications that are either directly or indirectly related to burnup credit and criticality safety for spent nuclear fuel. The list will hopefully provide a useful resource of previous works to those working in burnup credit. The list was compiled by the staff of the Criticality and Shielding Methods and Applications Group at Oak Ridge National Laboratory (ORNL) as a byproduct of several burnup credit research projects. While extensive, the list is not exhaustive. It is our intention to expand and maintain the list as additional relevant publications come to our attention. Suggestions for additions and/or modifications are welcome and should be directed to *burnupcredit@ornl.gov*. Finally, note that the presence or absence of a publication in this list should not be construed as an indication of approval or disapproval of the quality or technical merit of the publication.

Burnup Credit Related Publications

2004

G. A. Harms, P. H. Helmick, J. T. Ford, S. A. Walker, D. T. Berry, and P. S. Pickard, *Experimental Investigation of Burnup Credit for Safe Transport, Storage, and Disposal of Spent Nuclear Fuel, Final Report, Nuclear Energy Research Initiative Project 99-0200*, Sandia Report SAND2004-0912, Sandia National Laboratories, April 2004.

C. V. Parks and J. C. Wagner, "Current Status and Potential Benefits of Burnup Credit for Spent Fuel Transportation," *Proc. Of American Nuclear Society, 14th Pacific Basin Conf.*, Honolulu, Hawaii, March 21-25, 2004.

C. V. Parks and J. C. Wagner, "Status of Burnup Credit for Transport of SNF in the United States," *14th International Symposium on the Packaging and Transportation of Radioactive Materials*, Berlin, Germany, September 20-24, 2004.

2003

Burnup Credit—Technical Basis for Spent-Fuel Burnup Verification, EPRI, Palo Alto, CA: 2003. 1003418

I. C. Gauld, *Strategies for Application of Isotopic Uncertainties in Burnup Credit*, NUREG/CR-6811 (ORNL/TM-2001/257), U.S. Nuclear Regulatory Commission, Oak Ridge National Laboratory, June 2003.

D. B. Lancaster, "Effect of Additional Chemical Assay Data on Actinide-Only Burnup Credit," *Trans. Am. Nucl. Soc.* **88**, 524-526 (2003).

C. V. Parks and C. J. Withee, "Recommendations for PWR Storage and Transportation Casks That Use Burnup Credit," pp. 500–507 in *Proc. of American Nuclear Society 2003 10th International High-Level Radioactive Waste Management (IHLRWM) Conference, "Progress Through Cooperation,"* March 30 – April 2, 2003, Las Vegas, NV (2003).

C. E. Sanders and I. C. Gauld, *Isotopic Analysis of High-Burnup PWR Spent Fuel Samples From the Takahama-3 Reactor*, NUREG/CR-6798 (ORNL/TM-2001/259), U.S. Nuclear Regulatory Commission, Oak Ridge National Laboratory, January 2003.

C. E. Sanders and J. C. Wagner, *Study of the Effect of Integral Burnable Absorbers on PWR Burnup Credit*, NUREG/CR-6760 (ORNL/TM-2000/321), U.S. Nuclear Regulatory Commission, Oak Ridge National Laboratory, March 2003.

J. C. Wagner and C. V. Parks, *Recommendations for Addressing the Axial Burnup Distribution in Burnup Credit Criticality Safety Analyses for Dry Cask Storage and Transport*, NUREG/CR-6781 (ORNL/TM-2001/273), U.S. Nuclear Regulatory Commission, Oak Ridge National Laboratory, January 2003.

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J. C. Wagner and C. V. Parks, *Recommendations on the Credit for Cooling Time in PWR Burnup Credit Analyses*, NUREG/CR-6781 (ORNL/TM-2001/272), U.S. Nuclear Regulatory Commission, Oak Ridge National Laboratory, January 2003.

J. C. Wagner, M. D. DeHart, and C. V. Parks, *Recommendations for Addressing Axial Burnup in PWR Burnup Credit Analyses*, NUREG/CR-6801 (ORNL/TM-2001/273), U.S. Nuclear Regulatory Commission, Oak Ridge National Laboratory, March 2003.

J. C. Wagner and C. E. Sanders, *Assessment of Reactivity Margins and Loading Curves for PWR Burnup Credit Cask Analyses*, NUREG/CR-6800 (ORNL/TM-2002/6), U.S. Nuclear Regulatory Commission, Oak Ridge National Laboratory, March 2003.

J. C. Wagner, "Evaluation of Burnup Credit for Accommodating PWR Spent Nuclear Fuel in High-capacity Cask Designs," pp. 684-689 in *Proc. of The 7th International Conference on Nuclear Criticality Safety (ICNC2003)*", October 20-24, 2003, Tokai-mura, Japan.

J. C. Wagner, "Impact of Soluble Boron Modeling for PWR Burnup Credit Criticality Safety Analyses," in *Proc. of American Nuclear Society: International ANS/ENS 2003 Winter Meeting with cooperation from Nuclear Energy Institute on "Nuclear Technology: Achieving Global Economic Growth While Safeguarding the Environment,"* New Orleans, Louisiana, November 16-20, 2003, *Trans. Am. Nucl. Soc.* **89**, 120-122 (2003).

A. H. Wells, "Burnup Credit Isotopic Validation with Commercial Reactor Criticals," *Trans. Am. Nucl. Soc.* **88**, 181-182 (2003).

2002

Fission Product Benchmarking for Burnup Credit Applications: Progress Report, EPRI, Palo Alto, CA: December 2002. 1002879.

Japan Atomic Energy Research Institute (JAERI), *Technical Development on Burn-up Credit for Spent LWR Fuel*, (Eds.) Y. Nakahara, K. Suyama, and T. Suzaki, JAERI-Tech 2000-071, Tokai-mura, Naka-gun, Ibaraki-ken, Japan, October 2000. [ORNL/TR-2001/01 English Translation, Oak Ridge National Laboratory, January 2002]

Japan Atomic Energy Research Institute (JAERI), *OECD/NEA Burnup Credit Criticality Benchmarks Phase IIIB: Burnup Calculations of BWR Fuel Assemblies for Storage and Transport*, (Eds.) H. Okuno, Y. Naito, and K. Suyama, JAERI-Research 2002-001, NEA/NSC/DOC(2002)2, JAERI, February 2002.

D. Lancaster, "PWR Burnup Credit Using Both Belts and Suspenders," *Trans. Am. Nucl. Soc.* **86**, 102-03 (2002).

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A. LeBrun *et al.*, “Cross-Checking of the Operator Data Used for Burn Up Measurements,” in *Proc. of The International Atomic Energy Agency (IAEA) Technical Committee Meeting on Requirements, Practices, and Developments in Burnup Credit Applications*, April 22–26, 2002, Madrid, Spain.

C. V. Parks *et al.*, “Research to Support Expansion of U.S. Regulatory Position on Burnup Credit for Transport and Storage Casks,” in *Proc. of The International Atomic Energy Agency (IAEA) Technical Committee Meeting on Requirements, Practices, and Developments in Burnup Credit Applications*, April 22–26, 2002, Madrid, Spain.

C. E. Sanders and J. C. Wagner, *Parametric Study of the Effect of Control Rods for PWR Burnup Credit*, NUREG/CR-6759 (ORNL/TM-2001/69), U.S. Nuclear Regulatory Commission, Oak Ridge National Laboratory, February 2002.

C. E. Sanders and M. D. DeHart, “Computational Benchmark of the 2-D Depletion Sequence SAS2D for Characterization of Spent Nuclear Fuel,” in *Proc. of the International Youth Nuclear Congress (IYNC 2002)*, April 16–20, 2002, Daejeon, Korea.

C. E. Sanders and M. D. DeHart, “Computational Benchmark of SAS2D Against Spent Fuel Samples From the Takahama-3 Reactor,” in *Proc. of American Nuclear Society, 2002 Annual Meeting “The Revival of the Nuclear Energy Option”*, June 9–13, 2002, Hollywood, FL. *Trans. Am. Nucl. Soc.* **86**, 100–102 (June 2002).

C. E. Sanders and John C. Wagner, “Investigation of Average and Pin-Wise Burnup Modeling of PWR Fuel,” in *Proc. of American Nuclear Society, 2002 Annual Meeting “The Revival of the Nuclear Energy Option”*, June 9–13, 2002, Hollywood, FL. *Trans. Am. Nucl. Soc.* **86**, 98–100 (June 2002).

J. C. Wagner and C. V. Parks, *Parametric Study of the Effect of Burnable Poison Rods for PWR Burnup Credit*, NUREG/CR-6761 (ORNL/TM-2000/373), U.S. Nuclear Regulatory Commission, Oak Ridge National Laboratory, March 2002.

J. C. Wagner and C. E. Sanders, “Investigation of the Effect of Fixed Absorbers on the Reactivity of PWR Spent Nuclear Fuel for Burnup Credit,” *Nucl. Technol.* **139**, 1–36 (August 2002).

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J. Anno, G. Poullot, E. Girault, P. Fouillaud, D. Hynek, and H. Toubon, “Status of the joint French ISPN/COGEMA Qualification Programme of Fission Products,” 35382.pdf in *Proc. of 2001 ANS Embedded Topical Meeting on Practical Implementation of Nuclear Criticality Safety*, November 11–15, 2001, Reno, NV.

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M. C. Brady Raap, *et al.*, *Overview of the Burnup Credit Activities of the Organisation for Economic Cooperation and Development/Nuclear Energy Agency (OECD/NEA)*, RAMTRANS , Vol. 12, No. 4, 213 (2001).

K. W. Cummings and S. E. Turner, “Design of Wet Storage Racks for Spent BWR Fuel,” 35608.pdf in *Proc. of 2001 ANS Embedded Topical Meeting on Practical Implementation of Nuclear Criticality Safety*, November 11–15, 2001, Reno, NV.

M. D. DeHart, “A Stochastic Method for Estimating the Effect of Isotopic Uncertainties in Spent Nuclear Fuel,” ORNL/TM-2001/83, UT-Battelle, LLC, Oak Ridge National Laboratory, September 2001.

M. D. DeHart, “SAS2D — A Two-Dimensional Depletion Sequence for Characterization of Spent Nuclear Fuel,” 35583.pdf in *Proc. of 2001 ANS Embedded Topical Meeting on Practical Implementation of Nuclear Criticality Safety*, November 11–15, 2001, Reno, NV.

M. Doucet *et al.*, “Framatome ANP Capabilities in Nuclear Criticality Safety Studies for Transport Packages and Storage Installations,” in *Proc. of The 13th International Symposium on the Packaging and Transportation of Radioactive Material (PATRAM2001)*, September 3–7, 2001, Chicago, IL.

P. Dyck, “Overview of the Burnup Credit Activities at the IAEA,” in *Proc. of The 13th International Symposium on the Packaging and Transportation of Radioactive Material (PATRAM2001)*, September 3–7, 2001, Chicago, IL.

I. C. Gauld, *Limited Burnup Credit in Criticality Safety Analysis: A Comparison of ISG-8 and Current International Practice*, NUREG/CR-6702 (ORNL/TM-2001/83), U.S. Nuclear Regulatory Commission, Oak Ridge National Laboratory, January 2001.

I. C. Gauld and J. C. Ryman, *Nuclide Importance to Criticality Safety, Decay Heating, and Source Terms Related to Transport and Interim Storage of High-Burnup LWR Fuel*, NUREG/CR-6700 (ORNL/TM-2000/284), U.S. Nuclear Regulatory Commission, Oak Ridge National Laboratory, January 2001.

I. C. Gauld and S. M. Bowman, *STARBUCS: A Prototypic SCALE Control Module for Automated Criticality Safety Analyses Using Burnup Credit*, NUREG/CR-6748 (ORNL/TM-2001/33), U.S. Nuclear Regulatory Commission, Oak Ridge National Laboratory, October 2001.

I. C. Gauld and C. E. Sanders, “Development and Applications of a Prototypic SCALE Control Module for Automated Burnup Credit Analysis,” 35238.pdf in *Proc. of 2001 ANS Embedded Topical Meeting on Practical Implementation of Nuclear Criticality Safety*, November 11–15, 2001, Reno, NV.

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S. K. Kessler, K. N. Schwinkendorf, D. G. Erickson, and H. Toffer, "Use Burnup Credit for Criticality Safety for the Hanford Spent Nuclear Fuel Project," 35752.pdf in *Proc. of 2001 ANS Embedded Topical Meeting on Practical Implementation of Nuclear Criticality Safety*, November 11–15, 2001, Reno, NV.

D. Lancaster and C. T. Rombough, "Impact of Partially Inserted Control Rods on Actinide-Only Burnup Credit Margin," 35612.pdf in *Proc. of 2001 ANS Embedded Topical Meeting on Practical Implementation of Nuclear Criticality Safety*, November 11–15, 2001, Reno, NV.

C. Lavarenne *et al.*, "A New Method to Take Burnup into Account in Criticality Studies Considering an Axial Profile of Burn-up Plus some Fission Products," in *Proc. of 2001 ANS Embedded Topical Meeting on Practical Implementation of Nuclear Criticality Safety*, November 11–15, 2001, Reno, NV.

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A. LeBrun *et al.*, "Average Burnup and Axial Burnup Profile Measurement for Burnup Credit Application," in *Proc. of 2001 ANS Embedded Topical Meeting on Practical Implementation of Nuclear Criticality Safety*, November 11–15, 2001, Reno, NV.

I. Mitsuhashi *et al.*, "Accuracy Evaluation of Reactor Records Based on Solution Analyses Data of Spent Fuels at JNC Tokai Reprocessing Plant," in *Proc. of The 13th International Symposium on the Packaging and Transportation of Radioactive Material (PATRAM2001)*, September 3–7, 2001, Chicago, IL.

J-C. Neuber, "Effects of the Presence of Axial Blankets and Integral Burnable Absorbers on the End Effect of PWR Burnup Profiles," in *Proc. of 2001 ANS Embedded Topical Meeting on Practical Implementation of Nuclear Criticality Safety*, November 11–15, 2001, Reno, NV.

Y. Nomura *et al.*, "Development of Burnup Credit Evaluation Methods at JAERI," in *Proc. of The 13th International Symposium on the Packaging and Transportation of Radioactive Material (PATRAM2001)*, September 3–7, 2001, Chicago, IL.

P. M. O'Leary and J. M. Scaglione, "An Empirical Approach to Bounding the Axial Reactivity Effects of PWR Spent Nuclear Fuel," *Trans. Am. Nucl. Soc.* **84**, 352–353 (2001).

J. M. Paratte and P. Grimm, "Limited Burnup Credit for Increased Fuel Enrichments in a Swiss PWR Storage Pool," 35569.pdf in *Proc. of 2001 ANS Embedded Topical Meeting on Practical Implementation of Nuclear Criticality Safety*, November 11–15, 2001, Reno, NV.

C. V. Parks, I. C. Gauld, J. C. Wagner, B. L. Broadhead, M. D. DeHart, and D. D. Ebert, "Research Supporting Implementation of Burnup Credit in the Criticality Safety Assessment of Transport and Storage Casks," pp. 139–161 in *Proc. of U.S. NRC 28th Water Reactor Safety Information Meeting*, October 23–25, 2000, Bethesda, MD (May 2001).

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C. V. Parks, B. L. Broadhead, M. D. DeHart, and I. C. Gauld, "Validation Issues for Depletion and Criticality Analysis in Burnup Credit," pp. 167–179 in *Proc. of International Atomic Energy Agency (IAEA) Technical Committee Meeting on the Evaluation and Review of the Implementation of Burnup Credit in Spent Fuel Management Systems*, July 10–14, 2000, Vienna, Austria (August 2001).

C. V. Parks, M. D. DeHart, and J. C. Wagner, "Phenomena and Parameters Important to Burnup Credit," pp. 233–247 in *Proc. of International Atomic Energy Agency (IAEA) Technical Committee Meeting on the Evaluation and Review of the Implementation of Burnup Credit in Spent Fuel Management Systems*, July 10–14, 2000, Vienna, Austria (August 2001).

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C. E. Sanders and J. C. Wagner, "Parametric Study of Control Rod Exposure for PWR Burnup Credit Criticality Safety Analyses," 35281.pdf in *Proc. of 2001 ANS Embedded Topical Meeting on Practical Implementation of Nuclear Criticality Safety*, November 11–15, 2001, Reno, NV.

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K. van der Meer *et al.*, "The Burn-Up Credit Experimental Programme REBUS," 35326.pdf in *Proc. of 2001 ANS Embedded Topical Meeting on Practical Implementation of Nuclear Criticality Safety*, November 11–15, 2001, Reno, NV.

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J. C. Wagner, *Computational Benchmark for Estimation of the Reactivity Margin from Fission Products and Minor Actinides in PWR Burnup Credit*, NUREG/CR-6747 (ORNL/TM-2000/306), U.S. Nuclear Regulatory Commission, Oak Ridge National Laboratory, October 2001.

J. C. Wagner and C. V. Parks, "A Critical Review of the Practice of Equating the Reactivity of Spent Fuel to Fresh Fuel in Burnup Credit Criticality Safety Analyses for PWR Spent-Fuel Pool Storage," *Nucl. Technol.* **136**, 130–140 (October 2001).

J. C. Wagner, "Addressing the Axial Burnup Distribution in PWR Burnup Credit Criticality Safety," 35218.pdf in *Proc. of 2001 ANS Embedded Topical Meeting on Practical Implementation of Nuclear Criticality Safety*, November 11–15, 2001, Reno, NV.

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P. M. O'Leary and M. L. Pitts, "Effects of Integral Burnable Absorbers on PWR Spent Nuclear Fuel," *Trans. Am. Nucl. Soc.* **83**, 128-130 (2000).

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M. L. Pitts and P. M. O'Leary, "Modeling BWR Spent-Fuel Isotopics with SAS2H and CASMO-3," *Trans. Am. Nucl. Soc.* **83**, 136–137 (2000).

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J. C. Wagner and C. V. Parks, *A Critical Review of the Practice of Equating the Reactivity of Spent Fuel to Fresh Fuel in Burnup Credit Criticality Safety Analyses for PWR Spent Fuel Pool Storage*, NUREG/CR-6683 (ORNL/TM-2000/230), U.S. Nuclear Regulatory Commission, Oak Ridge National Laboratory, September 2000.

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