



Nuclear Regulatory Commission
Exhibit # - NRC000011-00-BD01
Docket # - 05000293
Identified: 02/22/2011

Admitted: 02/22/2011
Rejected:

Withdrawn:
Stricken:

NRC - Dr. Bixler's Statement of Qualifications

Exhibit No. NRC000011
Pilgrim LR Proceeding
50-293-LR, 06-848-02-LR

Nathan E. Bixler
Principal Member of Technical Staff
Sandia National Laboratories

Education:

Ph. D. in Chemical Engineering 1982 University of Minnesota
BS in Chemical Engineering 1976 University of Toledo

Work Experience:

1998 – Present Principal investigator for code development and analysis of nuclear accident consequences, including RADTRAD, MACCS2, WinMACCS, SECPOP2000, and MELMACCS, for the NRC. Development focused on improved fidelity of atmospheric transport, dosimetry, and health effects modeling. Analyses were to evaluate the security of nuclear power plants, the security of research and test reactors, and to oversee the consequence analyses for the State of the Art Reactor Consequence Analysis (SOARCA) Project.

2003 – 2009 Principal instructor for the weeklong NRC class titled “P-301 – Accident Consequence Analysis.” Training emphasizes level-3 probabilistic risk assessment (PRA) and the use of the WinMACCS/MACCS2 code system for estimating health and economic consequences.

2006 – 2009 Member of the ANS writing group to develop a standard for level-3 PRAs.

2006 – 2008 Performed consequence analyses for the Protective Action Recommendation (PAR) study using the WinMACCS/MACCS2 code system. The project was to reevaluate and potentially revise NRC guidance on protective actions at nuclear power plants.

2005 – Present Lead investigator for consequence analyses of a 2011 NASA mission to Mars (Mars Science Laboratory) and other future space missions involving nuclear materials. Responsible for the content of Vol. III of the Final Safety Analysis Report (FSAR), which is a major element of the launch approval process.

2010 – Present Lead investigator for developing a framework for calculating source terms for fuel recycling plants. The work supports NRC license reviews for potential reprocessing plants to be built in the US.

1990 – 1998 Principal investigator for VICTORIA development and analyses. VICTORIA is a fission product release and transport code developed by Sandia National Laboratories for the NRC. Work focused on chemistry and aerosol physics within the reactor coolant system during a severe accident. VICTORIA analyses emphasized validation against fission product release tests (ORNL HI/VI, SNL ST, VERCORS), aerosol deposition (HEVA, STORM), and integral data (PHEBUS).

1982 – 1990 Code development and analysis in the areas of fluid mechanics, heat transfer, and two-phase flow in porous media. Emphasis on waste repository analyses of Yucca Mountain and WIPP.

PUBLICATIONS:

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- N. E. Bixler
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- Eaton, R. R., Bixler, N. E., and Gartling, D. K.
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- Bixler, N. E. and Carrigan, C. R.
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- T. J. Heames, Williams, D. A., Bixler, N. E., et al.
VICTORIA: A Mechanistic Model of Radionuclide Behavior in the Reactor Coolant System under Severe Accident Conditions
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- Bixler, N. E. and Heames, T. J.
Status of VICTORIA Development and Assessment
Proceedings of the 18th Water Reactor Safety Information Meeting, 1990
- Bixler, N. E. and Heames, T. J.
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Bixler, N. E., Heames, T. J., and Powers, D. A.
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Bixler, N. E. and Erickson, C. E.
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RADTRAD: A Simplified Model for Radionuclide Transport and Removal and Dose Estimation
NUREG/CR-6604, Supp. 1, SAND98-0272/1, 1999

N. E. Bixler and R. D. Gasser
Recent Plant Studies Using VICTORIA 2.0
Proceeding of ICONE8, 2000

N. E. Bixler, D. I. Chanin, K. L. McFadden, and D. W. Whitehead
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N. E. Bixler, A. B. Baker, W. E. Beyeler, S. H. Conrad, D. L. Harris, L. A. Malczynski, and P. E. Rexroth

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N. E. Bixler, K. L. McFadden, and J. E. Cash

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N. E. Bixler, D. W. Whitehead, J. J. Gregory, C. A. Ottinger, T. D. Brown, and J. A. Mitchell

Methodology for a Level 3 PRA Analysis of a Nuclear Reactor Accident Using MACCS2
Proceedings of PSAM6, 2002

N. E. Bixler, R. D. Waters, and D. W. Whitehead

Uncertainty Analysis with MACCS2 Using Data Based on Expert Elicitation
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N. E. Bixler, S. A. Shannon, C. W. Morrow, B. E. Meloche, and J. N. Ridgely
SECPOP2000: Sector Population, Land Fraction, and Economic Estimation Program
NUREG/CR-6525 Rev. 1, SAND2003-1684P, 2003

J. A. Mitchell, C. Molenkamp, N. E. Bixler, C. Morrow, and J. V. Ramsdell
Comparison of Average Transport and Dispersion among a Gaussian Model, a Two-Dimensional Model and a Three-Dimensional Model
Proceedings of PSAM7, 2004

N. E. Bixler, C. W. Morrow, J. M. Phillips, M. Fatenejad, and J. Mitchell
Assessment of Uncertain Input Data, Methodology, and Results for a Level 3 PRA Analysis of a Nuclear Reactor Accident Using MACCS2
Proceedings of PSAM7, 2004

N. E. Bixler, J. W. Braithwaite, and D. G. Robinson
A Perspective on Risk/Reliability Estimation in the Presence of Aging
Incorporating PSA into Ageing Management, 2004

N. E. Bixler and R. O. Gauntt
A Methodology for Performing Consequence Analyses in Support of Level -3 PRAs
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S. Ashbaugh, N. E. Bixler, and M. Leonard
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