

NATHAN E. BIXLER

Phone: 505-845-3144

Mail Stop: 0748

Fax: 505-844-2829

Email: nbixler@sandia.gov

EDUCATION:

1982 Ph.D., Chemical Engr, U OF MINNESOTA - MINNEAPOLIS, MN

1976 Bachelors, Chemical Engr, UNIVERSITY OF TOLEDO, OH

1972 HS, College Prep, SWANTON HIGH SCHOOL, OH

WORK EXPERIENCE:

1982-Present: Sandia National Laboratories

1997-present: Principal Member of the Technical Staff working in nuclear accident progression and consequence analysis for NRC (VICTORIA, RADTRAD, MACCS2, WinMACCS, MEL-MACCS, and SECPOP2000 codes); Performing safety analysis for Mars Science Laboratory Mission for DOE and NASA

1989-1995: Senior Member of the Technical Staff working in nuclear accident progression analysis for NRC (VICTORIA code)

1982-1989: Member of the Technical Staff working in fluid mechanics and heat transfer supporting the Yucca Mountain and WIPP projects

SPECIAL SKILLS:

Fluid Mechanics, Free Surface Flows, Heat Transfer, Porous Flows, Computer Code Development, Computer Simulation, In-Vessel Analysis of Fission Product Behavior (Level-2 PRA), Nuclear Accident Consequence Analysis (Level-3 PRA)

PUBLICATIONS:

Bixler, N. E. and Martinez, M. J.

Radionuclide Transport Code Development in Support of Nuclear Waste Storage Investigations
SAND83-0660, 1983

Bixler, N. E., Mondy, L. A., and Wilson, R. K.

Comparison of Waste Emplacement Configurations for a Nuclear Waste Repository in Tuff, IV. Thermo-Hydrological Analysis
SAND83-0757, 1983

Bixler, N. E. and Eaton, R. R.

Sensitivity of Calculated Hydrological Flows Through Multilayered Hard Rock to Computational Solution Procedures

Proc. Symposium on Groundwater Flow and Transport Modeling for Performance Assessment of Deep Geologic Disposal of Radioactive Waste: A Critical Evaluation of the State of the Art, 1985

Bixler, N. E. and Benner, R. E.

Finite Element Analysis of Axisymmetric Oscillations of Sessile Liquid Drops
Numerical Methods in Laminar and Turbulent Flow, Part II, 1985

Eaton, R. R., Bixler, N. E., and Reda, D.

Coupled Hydrothermal Flows of Liquid and Vapor in Welded Tuff: Numerical Modeling of Proposed Experiment
Coupled Processes Associated with Nuclear Waste Repositories, 1985

Bixler, N. E.

NORIA--A Finite Element Computer Program for Analyzing Water, Vapor, and Energy Transport in Porous Media
SAND84-2057, 1985

Eaton, R. R. and Bixler, N. E.

Analysis of a Multiphase, Porous-Flow Imbibition Experiment in Fractured Volcanic Tuff
Proc. Symposium on Flow and Transport through Unsaturated Fractured Rock, Geophysical Monograph 42, 1986

Bixler, N. E. and Carrigan, C. R.

Enhanced Heat Transfer in Partially Saturated Hydrothermal Systems
Geophysical Research Letters, Vol. 13, 1986

Bixler, N. E. and Scriven, L. E.

Downstream Development of Three-Dimensional Viscocapillary Film Flow
Industrial Engineering Chemistry Research, vol. 26, 1987

Bixler, N. E., Eaton, R. R., and Russo, A. J.

Drying Analysis of a Multiphase, Porous-Flow Experiment in Fractured Volcanic Tuff
Fundamentals of Heat Transfer in Drying, 1987

Bixler, N. E. and Kraynik, A. M.

The Onset of Taylor Vortices in Flows with a Circumferential Pressure Gradient: Application to the Helical Screw Rheometer
Canadian Congress on Applied Mechanics, 1987

Bixler, N. E. and Carrigan, C. R.

Finite Element Analysis of Heat Transfer in a Hydrothermal Zone
Numerical Methods in Thermal Problems, vol. 5, 1987

N. E. Bixler

An Improved Time Integrator for Finite Element Analysis
Communications in Applied Numerical Methods, 1989

Eaton, R. R., Bixler, N. E., and Gartling, D. K.

Effect of Pressure Basis Functions on Predicted Water Velocities for Flow in Fractured Rock

Journal of Contaminant Transport, 1989

Bixler, N. E. and Carrigan, C. R.

Finite Element Analysis of a Darcy Velocimeter in a Variably Saturated Soil

Proceedings of the 7th International Symposium on Finite Element Methods in Flow Problems, 1989

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

NUREG/CR-5545, SAND90-0756, 1990

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.

VICTORIA: A Code for Analyzing Severe Nuclear Accidents

Proceedings of the 6th Miami International Symposium on Heat & Mass Transfer, 1990

Bixler, N. E., Heames, T. J., and Powers, D. A.

VICTORIA-92 and Its Application to the Phebus-FPT0 Test,

Proceedings of the Twentieth Water Reactor Safety Information Meeting, 1992

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.

Model for Heat-Up of Structures in VICTORIA

SAND92-1506, 1993

Bixler, N. E. and Erickson, C. E.

VICTORIA-92 Pretest Analysis of PHEBUS-FPT0

SAND93-2275, 1994

Bixler, N. E. and Erickson, C. E.

Investigation of a Steam Generator Tube Rupture Sequence Using VICTORIA

Proceedings of the Twenty-Third Water Reactor Safety Information Meeting, 1996

Bixler, N. E. and Schaperow, J. H.

The Effect of the Number of Condensed Phases Modeled on Aerosol Behavior During an Induced Steam Generator Tube Rupture Sequence

Proceedings of the Third OECD Specialists Meeting on Nuclear Aerosols in Reactor Safety, 1998

Bixler, N. E., Cole, R. K., Young, M. F., Gauntt, R. O., and Schaperow, J. H.
Recent MELCOR and VICTORIA Fission Product Research at the NRC
Proceedings of the Twenty-Fifth Water Reactor Safety Information Meeting, 1998

Bixler, N. E.
VICTORIA 2.0: A Mechanistic Model for Radionuclide Behavior in a Nuclear Reactor Coolant System Under Severe Accident Conditions
NUREG/CR-6131, SAND93-2301, 1998

Bixler, N. E. and Erickson, C. M.
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
Current Activities to Enhance the MACCS2 Code at Sandia National Labs
Proceedings of the ANS Annual Meeting, 2001

N. E. Bixler, A. B. Baker, W. E. Beyeler, S. H. Conrad, D. L. Harris, L. A. Malczynski, and P. E. Rexroth
Global Energy Futures Model
Proceedings of ICONE10, 2002

N. E. Bixler, K. L. McFadden, and J. E. Cash
Future Plans for MACCS2
Proceedings of the Fourth International MACCS Users Group Meeting, 2002

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
American Meteorological Society Annual Meeting, 2002

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
Proceedings of ANS Probabilistic Safety Analysis Meeting, 2005

S. Ashbaugh, N. E. Bixler, and M. Leonard
Accident Progression and Source Term Analysis for Short-Term Station Blackout Scenarios in a BWR with a Mark III Containment
SAND2005-6116, 2005

N. E. Bixler, K. L. McFadden, and C. W. Morrow
Current Status of the MACCS2 and WinMACCS Codes
EFCOG/SAWG Workshop, 2005

N. E. Bixler, V. D. Cleary, and J. Joonyub
MACCS2 Consequence Calculations for a Postulated Short-Term Station Blackout at a Pressurized Water Reactor with an Ice Condenser Containment and a Boiling Water Reactor with a Mark III Containment
SAND2006-0632, 2005

N. E. Bixler et al.,
Sandia Support of the NRC's Nuclear Power Plant Vulnerability to Aircraft Attack Program
SAND2006-1284P

T. J. Bartel, G. C. Bessette, N. E. Bixler, B. P. Danowsky, C. A. Glissman, R. J. Lipinski, D. L. Potter, D. A. Powers, and D. G. Robinson
Preliminary Safety Analysis Report for the Mars Science Laboratory MMRTG Launch Approval
SAND2006-7312

SUPPLEMENTARY ACHIEVEMENTS:

Received SAFE Award for defending VICTORIA during the VICTORIA Independent Peer Review (V. Mubayi et al., BNL Tech Rep. W-6436, 1997)

Employee Recognition Award for Nuclear Power Plant Vulnerability Analysis Team, 2004

Employee Recognition Award for Research and Test Reactor Vulnerability Assessment Team, 2005

Best Presentation Award for EFCOG/SAWG Workshop, 2005

Employee Recognition Award for Radioisotope System Launch Safety Team, 2007

Lead trainer for NRC's Accident Consequence Analysis P-301 Course, 2003-present

REFERENCES:

John E. Kelly, Department 6870, Sandia National Labs, 844-8993

Dana A. Powers, Department 6870, Sandia National Labs, 845-9838

Randall O. Gauntt, Department 6762, Sandia National Labs, 844-2829

Jocelyn A. Mitchell, Office of Research, Nuclear Regulatory Commission, 301-415-5289

Jason H. Schaperow, Office of Research, Nuclear Regulatory Commission, 301-415-5907