
BIOGRAPHICAL SKETCH

Provide the following information for the Senior/key personnel and other significant contributors.
Follow this format for each person. **DO NOT EXCEED FOUR PAGES.**

NAME Brown, Theresa Jean	POSITION TITLE Distinguished Member of Technical Staff
eRA COMMONS USER NAME (credential, e.g., agency login) tjbrown	

EDUCATION/TRAINING *(Begin with baccalaureate or other initial professional education, such as nursing, include postdoctoral training and residency training if applicable.)*

INSTITUTION AND LOCATION	DEGREE <i>(if applicable)</i>	MM/YY	FIELD OF STUDY
Adams State College	B.S./B.A.	12/81	Earth Science/Secondary Education
University of Texas at Austin	M.A.	12/89	Geology
University of Wisconsin Madison	Ph.D.	05/94	Geology

A. Personal Statement

Dr. Theresa Brown is a Distinguished Member of Technical Staff at Sandia National Laboratories and the Applications Lead for the Complex Adaptive Systems of Systems (CASoS) Engineering Initiative and the science advisor to National Infrastructure Simulation and Analysis Center (NISAC). She was the Technical Lead for the NISAC work at Sandia from 2005-2010. NISAC is a joint program with staff at DHS in the Infrastructure Strategy and Analysis Division, at Los Alamos National Laboratory and at Sandia. NISAC provides analysis in support of infrastructure protection decisions: the program's activities include development of improved methods for asset prioritization, providing fast-turn analyses for DHS on an event basis (e.g., potential hurricane impacts), analysis of the potential impacts of an influenza pandemic and recommendations for preparedness and mitigating those impacts. Sharing direction of the CASoS project to design social network and opinion dynamics modeling to assess tobacco-induced public health impacts, Theresa also leads the CASoS Engineering Healthcare Initiative, expanding existing applications to new domains in a program focused on population health issues of national and global significance through collaborative health policy projects and outreach. Theresa's technical expertise is in conceptual model development and decision-making under uncertainty using vulnerability and risk analyses and probabilistic performance assessments. While at Sandia National Laboratories, this expertise has been applied to infrastructure interdependencies vulnerability assessment, probabilistic performance assessments of radioactive waste disposal sites for the Department of Energy, risk assessment methodology development and analyses for the Nuclear Regulatory Commission. Theresa has a Ph.D. in Geology from the University of Wisconsin - Madison, an M.A. in Geology from the University of Texas at Austin and a B.S. in Earth Science and Secondary Science Education from Adams State College. She has been an Adjunct Professor at the University of New Mexico, the Wellhead Protection Project Coordinator for the City of Stevens Point, Wisconsin, a Geologist for Associated Drilling in Austin, Texas and the Crew Leader on a National Geographic Society paleontological dig. Theresa has been a Sandian since 1994.

B. Positions and Honors

Positions and Employment

1979-1981 Crew Leader – Research Assistant National Geographic Soc. Paleontological Dig, Alamosa CO
1984-1985 Geologist for Associated Drilling Co., Austin, TX
1989-1990 Wellhead Protection Coordinator, City of Stevens Point, WI
1994-2007 Senior Member of Technical Staff, Sandia National Laboratories, Albuquerque, NM

2007- Distinguished Member of Technical Staff, Sandia National Laboratories, Albuquerque, NM

Other Experience and Professional Memberships

Adjunct Professor appointment at the University of New Mexico

Honors

- *Distinguished Member of Technical Staff*, Sandia National Laboratories, less than 8% of Sandia staff achieve this distinction, 2007
- *Lockheed Martin NOVA Award*, Full Spectrum Leadership, 2007.
- *Sandia Employee Recognition Award*, Sandia National Laboratory, for Individual Leadership for the National Infrastructure Simulation and Analysis Center, 2007.
- *NNSA Certificate of Recognition*, National Nuclear Security Administration, for individual dedication and technical contribution to the Greater Confinement Disposal Project, 1998.
- *Outstanding Women in Geoscience*, Association for Women Geoscientists, Student Award, 1981

C. Selected Peer-reviewed Publications (Selected from journal articles and book chapters and reports)

Most relevant to the current application

1. Brodsky, Nancy S., Arlo L. Ames, Robert J. Glass, Theresa J. Brown, Patrick D. Finley, Thomas W. Moore, John M. Linebarger, Aldo A. Zagonel, S. Louise Maffitt, Application of Complex Adaptive Systems of Systems Engineering to Tobacco Products, Proceedings of 8th International Conference on Complex Systems, June 2011.
2. Brown, Theresa J., 2008. "Dependency Indicators", Wiley Handbook of Science and Technology for Homeland Security
3. Department of Homeland Security, 2007. National Population, Economic and Infrastructure Impacts of Pandemic Influenza with Strategic Recommendations. (T.J. Brown, co- PI with J.P. Smith).
4. Brown, Theresa, 2007. "Multiple Modeling Approaches and Insights for Critical Infrastructure Protection", in Computational Models of Risks to Infrastructure, NATO Science for Peace and Security Series D: Information and Communication Security, Vol. 13. IOS Press, Amsterdam p. 329.
5. O'Reilly, Gerard, Ahmad Jrad, Theresa Brown and Stephen Conrad, 2006. Critical Infrastructure Analysis of Telecom for Natural Disasters, Networks 2006.
6. Min, H-S. J., Beyeler, W., Brown, T., Young, J. S. and Jones, A., 2006 "Toward Modeling and Simulation of Critical National Infrastructure Interdependencies" IIE Transactions 39 (01),
7. Brown, Theresa, Walt Beyeler and Dianne Barton, 2004. Assessing Infrastructure Interdependencies: The Challenge of Risk Analysis for Complex Adaptive Systems, International Journal of Critical Infrastructures Vol. 1, 1, p. 108-117.
8. Webb, E.K., S.H. Conrad and T.J. Brown, 1996, "An Iterative, Probabilistic Environmental Decision Analysis Approach," in Risk Based Decision Making in Water Resources VII, Y. Haines, D. Moser and E. Stakhiv, eds., American Society of Civil Engineers, New York, p. 249-264.

Other recent relevant publications

Brown, Theresa J., Parks, M.J., Hernandez, J, Jennings, B.J., Kaplan, P.G., and Conrad, S.H., 2010. Uncertainty Quantification and Validation of Combined Hydrological and Macroeconomic Analyses, Sandia Report, SAND2010-6266.

D. Research Support

Ongoing Research Support

Title: Assessment and design of tobacco control policies through application of CASoS Engineering Principles
PIs: Glass (SNL), Brown (SNL)

Source of Support: Director for Center for Tobacco Products, Food and Drug Admin., US Dept. of Health and Human Services
Total Award Amount: 6500K **Total Award Period:** FY 10-14
Location of Project: SNL

Title: National Infrastructure Simulation and Analysis Center
PI: Kayser (SNL), Brown (SNL), Ammerlahn (SNL); Michelson (LANL), Smith (LANL), Berscheid (LANL)
Source of Support: Office of Infrastructure Protection, US Department of Homeland Security
Total Award Amount: 181600K
Total Award Period Covered: FY 02-11
Location of Project: SNL and LANL

Title: Policy Complex Adaptive Systems of Systems Engineering and Application to Policy Evaluation and Design
PI: Brodsky
Source of Support: US Food and Drug Administration
Total Award Amount: 2500K
Total Award Period Covered: FY 10-11
Location of Project: SNL

Title: Complex Adaptive Systems of Systems Engineering and Application to the Global Energy System
PI: Glass
Source of Support: Laboratory Directed Research and Development, Sandia National Laboratory
Total Award Amount: 1925K
Total Award Period Covered: FY 09-11
Location of Project: SNL

Title: Vulnerability of Multi-network Systems to Cascading Failure
PI: Glass
Source of Support: Laboratory Directed Research and Development, Sandia National Laboratory
Total Award Amount: 1270K
Total Award Period Covered: FY 09-11
Location of Project: SNL

Completed Research Support

Title: Uncertainty Quantification and Validation of Combined Hydrological and Macroeconomic Analyses
PI: Brown
Source of Support: Laboratory Directed Research and Development, Sandia National Laboratory
Total Award Amount: 75K
Total Award Period Covered: FY 10
Location of Project: SNL

Title: Vulnerability Analysis of the Strategic Petroleum Reserve's Critical Infrastructures and Cyber Systems
PIs: Torres (SNL)
Source of Support: Fossil Energy, US DOE
Total Award Amount: 500K
Total Award Period Covered: FY 02
Location of Project: SNL

Title: Dynamic Infrastructure Interdependency Simulation and Analysis
PIs: Brown (SNL)
Source of Support: Energy Assurance, US DOE
Total Award Amount: 780K
Total Award Period Covered: FY 02-04
Location of Project: SNL

Title: National Infrastructure Simulation and Analysis Center
PIs: Rinaldi (SNL), Kayser (SNL), Michelson (LANL)
Source of Support: Office of Energy Assurance, US DOE
Total Award Amount: 4500K
Total Award Period Covered: FY 00-01
Location of Project: SNL, LANL

Title: Residual Radioactive Contamination from Decommissioning: Development and Testing of the DandD Screening Tool
PIs: Brown (SNL)
Source of Support: US Nuclear Regulatory Commission
Total Award Amount: 1500K
Total Award Period Covered: FY 98-99
Location of Project: SNL

Title: Performance Assessment of the Greater Confinement Disposal Facility
PIs: Gallegos (SNL), Brown (SNL) and Cochrane (SNL)
Source of Support: Nevada Operations Office, US DOE
Total Award Amount: 4500K
Total Award Period Covered: FY 97-99
Location of Project: SNL

Title: Wellhead Protection Program and Monitoring System Design, Stevens Point, Wisconsin
PIs: Brown (City of Stevens Point)
Source of Support: Environmental Monitoring Systems Laboratory, US EPA
Total Award Amount: 150K
Total Award Period Covered: FY 91-93
Location of Project: Stevens Point, WI