

Exceptional service in the national interest



Risk Informed Security Regulation (RISR) Workshop

Phillip I. Pohl, Susan Y. Pickering, Shawn P. Burns, Patricia M. Sanchez, Yvonne McClellan

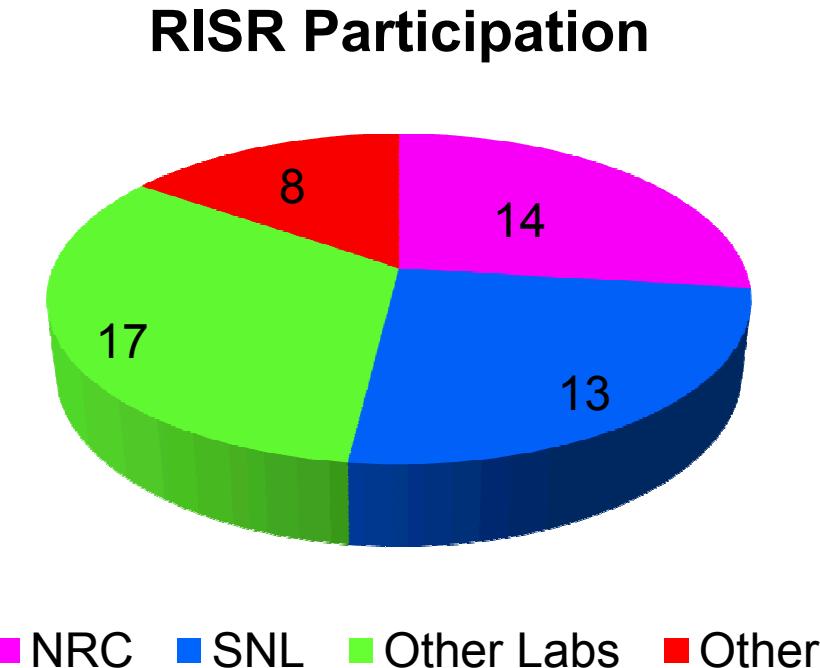
Presented to the INMM Risk Informing Security Workshop
February 11, 2014



Sandia National Laboratories is a multi-program laboratory managed and operated by Sandia Corporation, a wholly owned subsidiary of Lockheed Martin Corporation, for the U.S. Department of Energy's National Nuclear Security Administration under contract DE-AC04-94AL85000.

The RISR workshop was sponsored by the nuclear regulatory commission.

- September 2010
- Albuquerque, NM
- 52 participants



The purpose of RISR workshop was to identify opportunities for improving risk-informed security regulation.



3 OBJECTIVES

- Discuss Current Approaches
- Identify Opportunities
- Discuss Lessons Learned

Six areas of opportunity were identified from the RISR workshop deliberations.



- Examination of Initiating Events Uncertainty
- Simulation Tools
- Collaboration
- Cyber Security
- Improved Metrics
- Demonstration project

Examine the Initiating Event and Its Uncertainties



Photo: Reuters

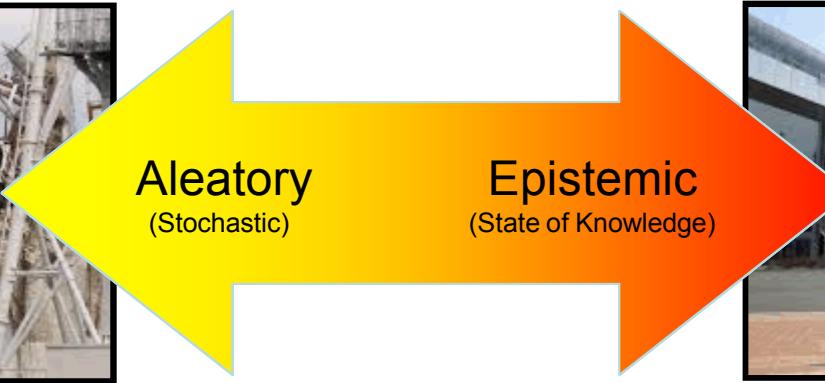


Photo: Reuters

National Research Council

Interim Report on Methodological Improvements to the Department of Homeland Security's Biological Agent Risk Analysis

The National Academies Press, 2007

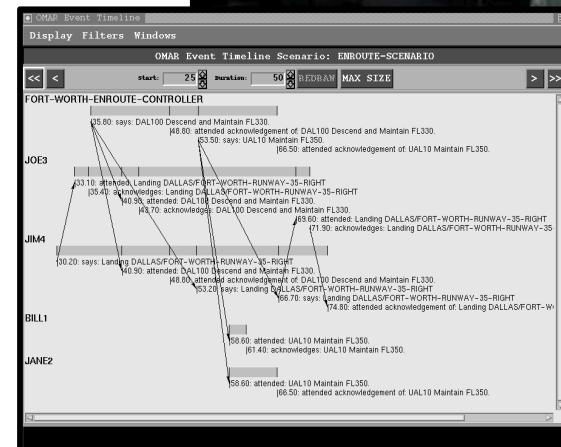
http://www.nap.edu/catalog.php?record_id=11836

Utilize Simulation Tools to Supplement Current Approaches

Criteria	Methods	A	B	⋮
Threat Simulation				
Consequence Simulation				
Vulnerability Simulation				
Mode of Use				
Value of Output				
⋮				
⋮				
⋮				



Joint Conflict and
Tactical Simulation

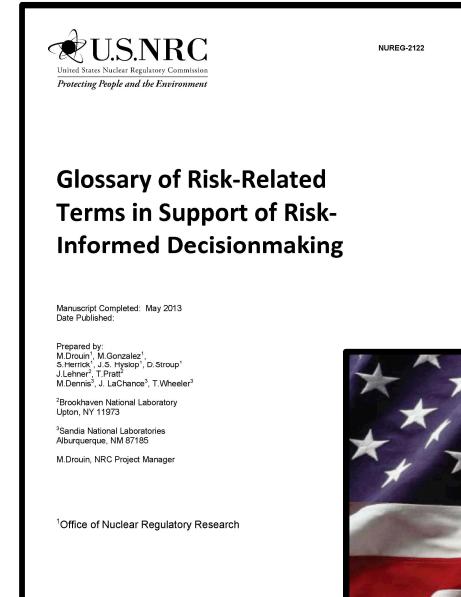


Deutsch, S., 1998, "Multi-disciplinary Foundations for Multiple-task Human Performance Modeling in OMAR," *Twentieth Annual Meeting of the Cognitive Science Society*, Madison, WI

Promote Collaboration



- Barriers
 - Common Language
 - Frame of Reference
 - Standards
- Venues
 - Conferences
 - Workshops/Training
 - Working Groups
- Sponsorship
 - Nuclear Regulatory Commission
 - Department of Energy
 - Department of Homeland Security
 - Professional Societies



Take a Long-Term Approach to Cyber Security.

- Challenging Problem
 - Ubiquitous
 - Multifaceted
 - Persistent
- Security Focus Dominates
 - Department of Homeland Security
 - National Security Agency
- Opportunity for Nuclear Regulatory Commission
 - Limited safety impact research
 - Cyber safety focus

Establish Security Metrics for Regulation

- Define Regulatory Acceptability
- Nuclear Safety Metrics
 - Core Damage Frequency
 - Large Early Release Frequency

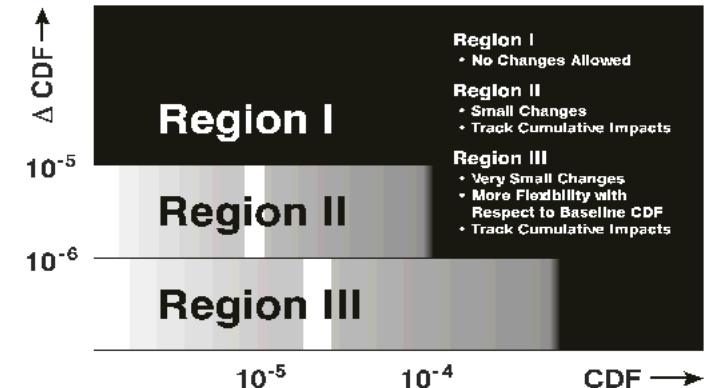


Figure 3. Acceptance Guidelines* for Core Damage Frequency (CDF)

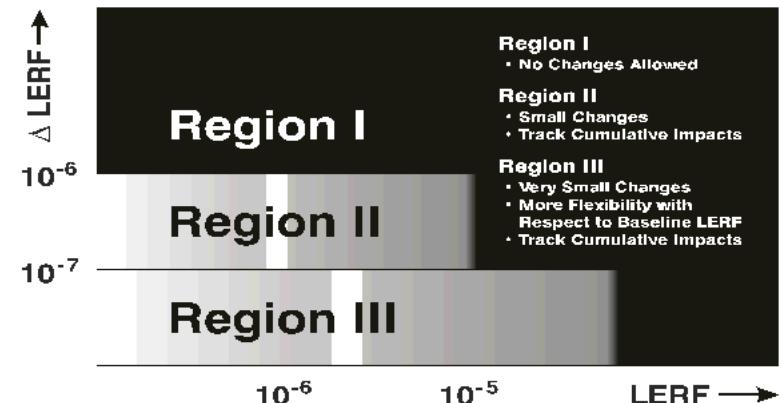


Figure 4. Acceptance Guidelines* for Large Early Release Frequency (LERF)

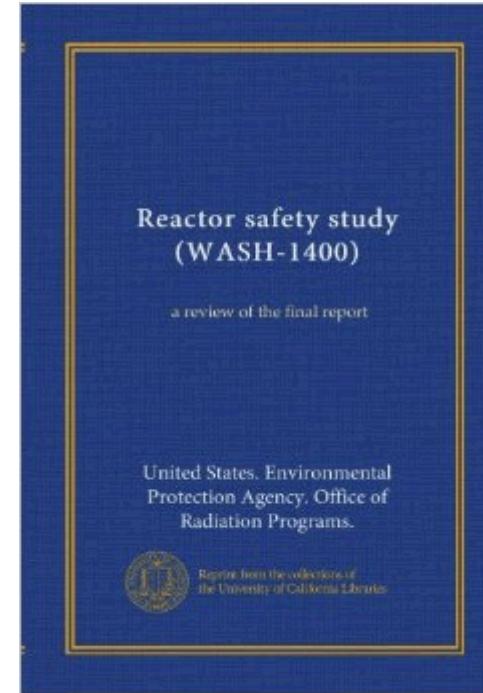
NRC, Regulatory Guide 1.174

An Approach for Using Probabilistic Risk Assessment in Risk-Informed Decisions on Plant-Specific Changes to the Licensing Basis

Conduct a Security Risk Analysis Effort Equivalent to WASH-1400

Test of:

- Assumptions
- Methodology
- Peer Review



Questions?

“Distrust and caution are the parents of security.”

- Benjamin Franklin

Thanks to:

Joseph Rivers, Nathan Siu – Nuclear Regulatory Commission