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Risk Informed Security Regulation (RISR) Workshop

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Presented to the INMM Risk Informing Security Workshop

February 11, 2014

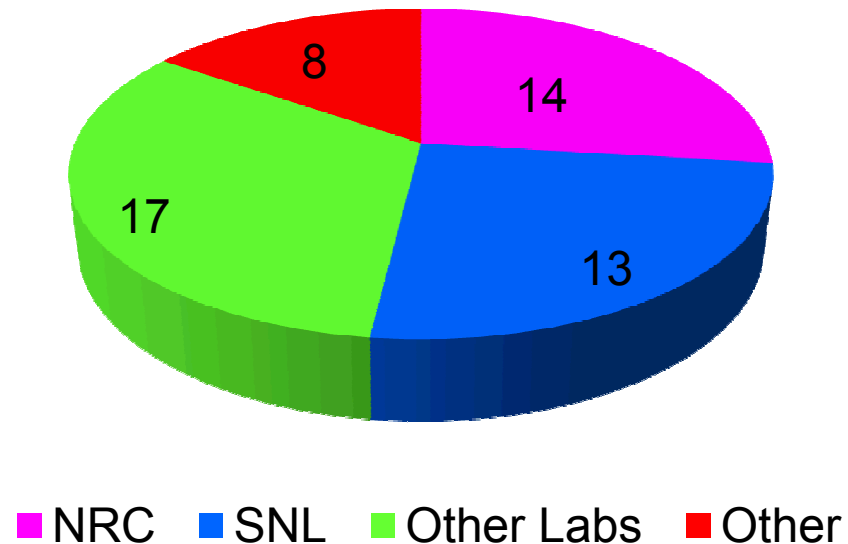


Sandia National Laboratories is a multi-program laboratory managed and operated by Sandia Corporation, a wholly owned subsidiary of Lockheed Martin Corporation, for the U.S. Department of Energy's National Nuclear Security Administration under contract DE-AC04-94AL85000.

The RISR workshop was sponsored by the nuclear regulatory commission.

RISR Participation

- 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

Aleatory
(Stochastic)

Epistemic
(State of Knowledge)



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

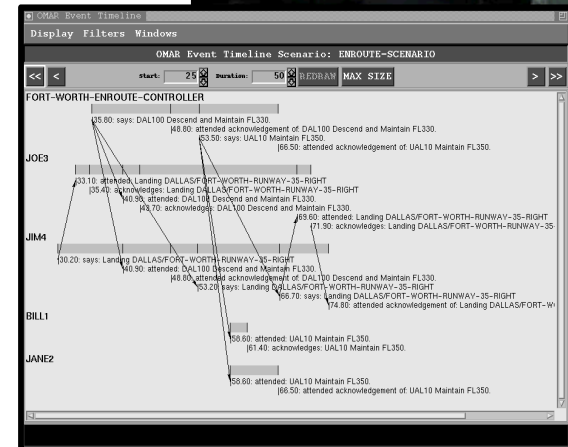
http://www.nap.edu/catalog.php?record_id=11836

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

■ Barriers

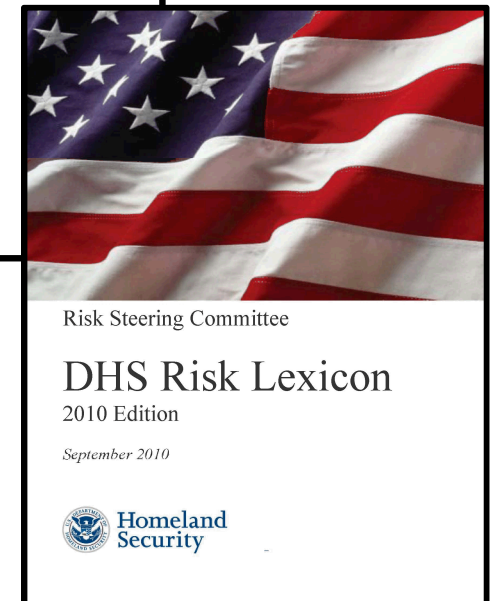
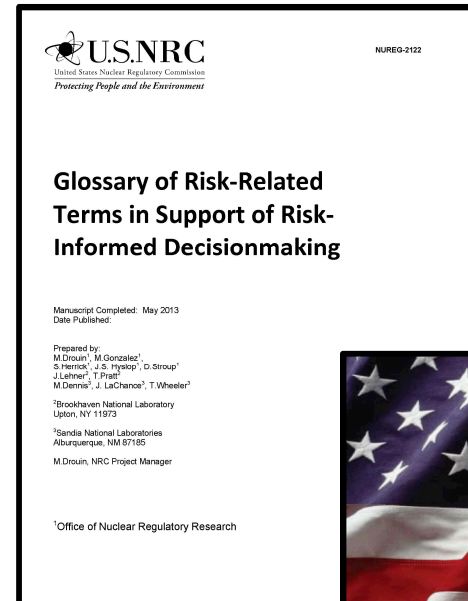
- Common Language
- Frame of Reference
- Standards

■ 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

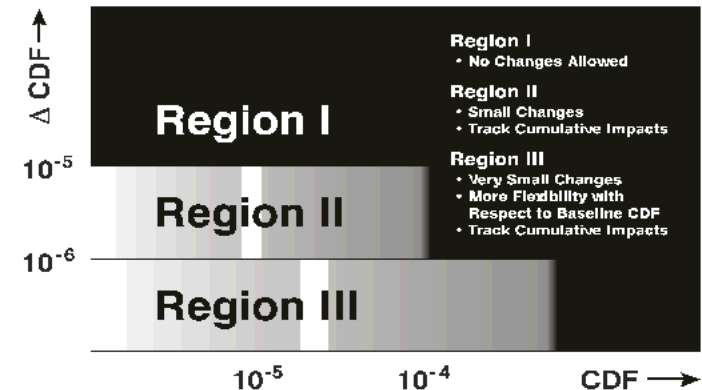


Figure 3. Acceptance Guidelines* for Core Damage Frequency (CDF)

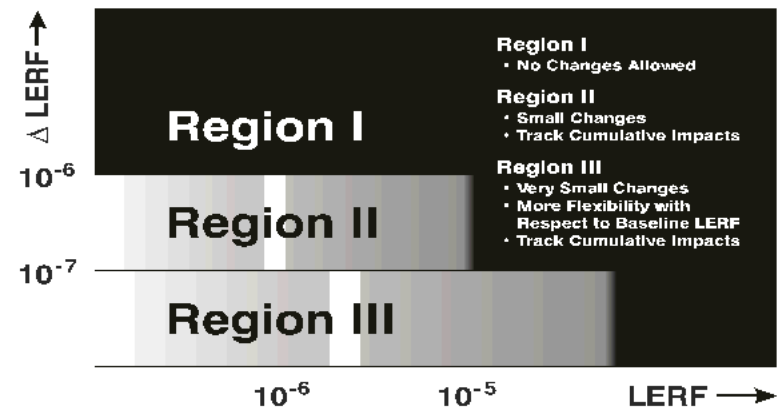


Figure 4. Acceptance Guidelines* for Large Early Release Frequency (LERF)

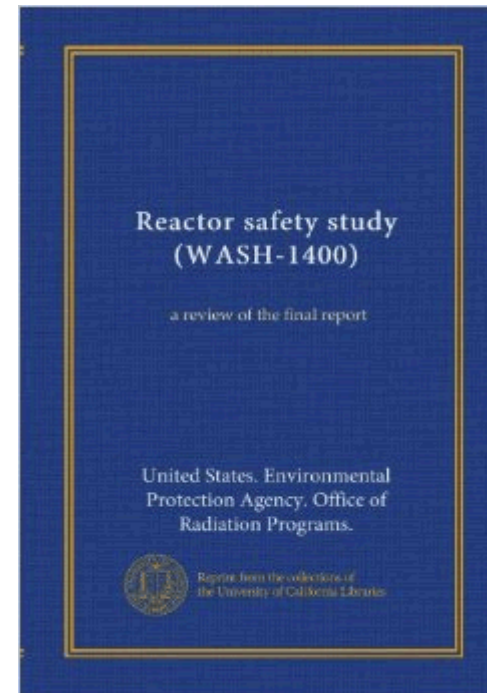
NRC, Regulatory Guide 1.174

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