

# Defense Nuclear Facilities Safety Board Recommendation 2009-1

*Risk Assessment Methodologies at Defense Nuclear Facilities*

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- Recommendation 2009-1, *Risk Assessment Methodologies at Defense Nuclear Facilities*, was issued on July 30, 2009
- Federal Register Notice Published on August 12, 2009
  - Response deadline was on September 26, 2009
- Department of Energy Acceptance Letter and Implementation Plan has not been received as of October 16, 2009
  - During briefings, acceptance has been indicated

The Board recommends that DOE:

1. Establish a policy on the use of quantitative risk assessment for nuclear safety applications.
2. Consistent with this policy, establish requirements and guidance in a DOE directive or directives that prescribe controls over the quality, use, implementation, and applicability of quantitative risk assessment in the design and operation of defense nuclear facilities.
3. Evaluate current ongoing uses of quantitative risk assessment methodologies at defense nuclear facilities to determine if interim guidance or special oversight is warranted pending the development of formal policy and guidance.
4. Establish a requirement to identify deficiencies and gaps in ongoing applications of quantitative risk assessment along with the additional research necessary to fill those gaps in support of the development and implementation of the final policy and guidance.

## History of Correspondence

**August 2003 - February 2004:** Staff review of uses of risk methodologies; five Information Papers published on February 9, 2004.

**April 5, 2004:** Board letter with reporting requirement on programs and policies for assessing and managing risk.

**June 3, 2004:** In a briefing , a DOE commitment was made to establish a formal policy on the use of risk technology.

**April 7, 2005:** A DOE commitment was made for a draft in August 2005 and a final Policy in January 2006.

**November 23, 2005:** Board letter to the Secretary of Energy asking for details of a more aggressive plan.

**January 23, 2006:** Letter from DOE with a draft and commitment for a more refined draft within 6 months and a final product within 12 months.

**May 16, 2007:** Board letter acknowledged the incremental progress made by the draft Policy

**July 10, 2007:** DOE briefed the Board on the progress and indicated that a revised draft would be available in December 2007.

**July 30, 2009:** The Board issued Recommendation 2009-1

**WhoKnows ??, 2009:** DOE Acceptance Letter and Implementation Plan

## Selected Applications of Risk Methodologies at Defense Nuclear Facilities

- Weapons Engineering Tritium Facility
  - Event tree for lightning strike; frequency estimate
- SRS FB Line Fire Risk
  - Overall frequency estimates with and without hazard controls (elimination of fire controls from safety classification)
- WIPP Hoist Drop Scenario Definition
  - Elimination of free fall scenario
- Risk Evaluation of Rocky Flats B-371
  - Seismic and systems safety for long term storage of SNM
- Waste Treatment Plant (WTP) Operational Risk Analysis
  - Comparison with risk goals (SEN-35-91) and adequacy of design
- Several weapons related PRAs (design and assembly/disassembly operations)
- Defense Programs Safety Survey
  - Bounding accident analyses for DOE high hazard facilities
  - Comparison with risk goals (SEN-35-91)
- Y-12 Comparison Risk Assessment for Fire Protection
  - Evaluation of options
- Risk Assessments of NASA Launches of Pu-238 RTGs provided by DOE
- Multi Unit Operations at Pantex
- WTP design applications
- Y-12 Facility Risk Review
- HEUMF risk informed allowable outage times

## Discussion

- Ownership of the issue has been transitory and fragmented
- The Wheel was invented ca. 3500 BC, Risk Analysis has been around since at least the 1970's
  - There is no apparent need to reinvent either one
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