



BWR Industry Perspective on Reliable Hardened Vents

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Topics

Goals

Background

Tier 1 NRC recommendations

Recommendation sequencing and execution
(Industry Flex approach)

BWR Hardened Wetwell Vent (HWWV) actions

Issues to be addressed

Summary

Discussion

BWROG Goals for This Meeting

Understand current NRC views on resolution of Reliable Hardened Vent issues as stated in recent SECYs and SRMs

Provide current BWROG actions to address Reliable Hardened Vent issues

Discuss potential near term BWROG actions and interactions with NRC on Reliable Hardened Vent issue

Apply the lessons-learned from the Fukushima accident to further enhance the safety margins of the U.S. reactor fleet

Background

Near Term Task Force (NTTF) “90 Day Report” recommendations

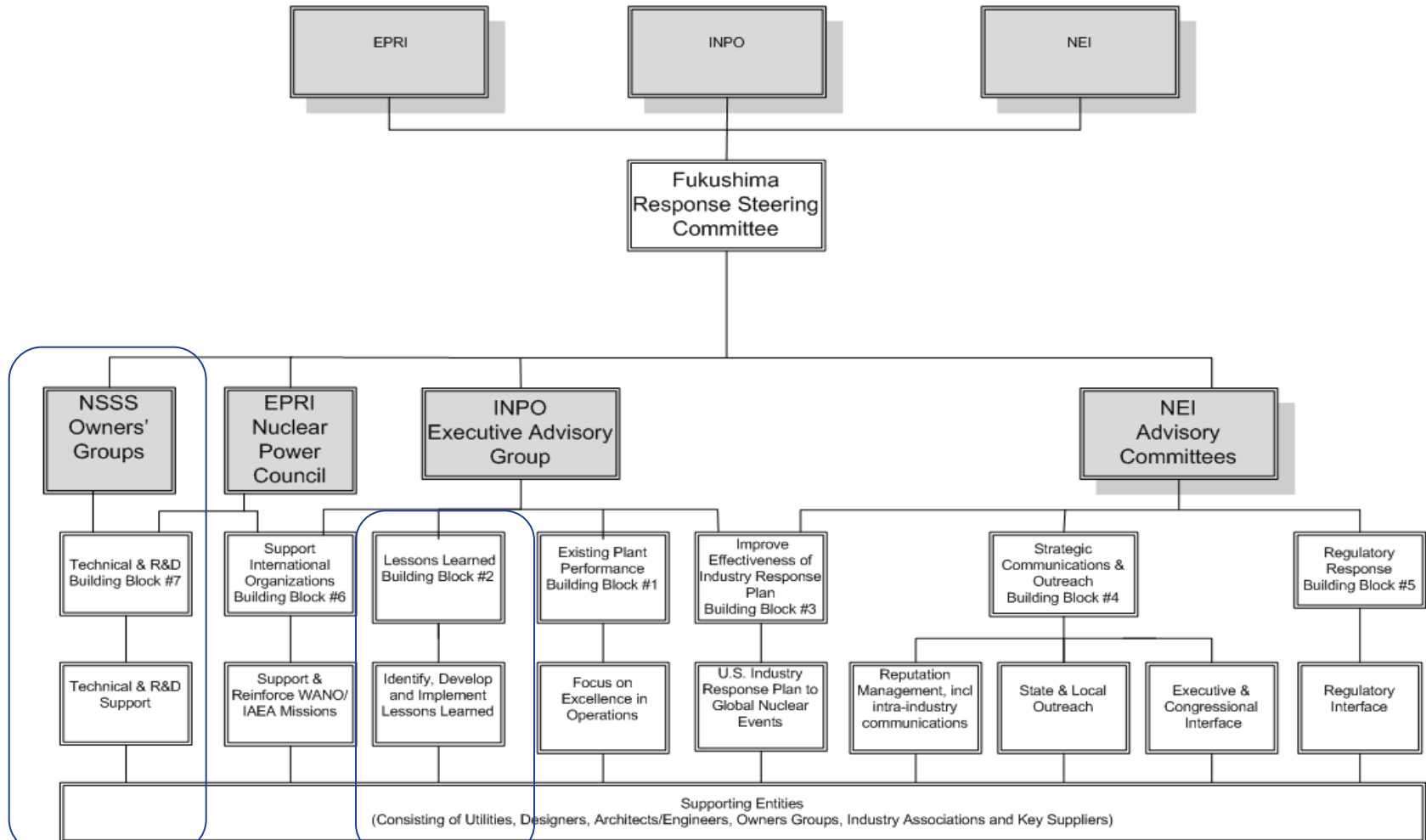
SECY 11-0137 Tier 1 prioritization

Integrated industry response to Tier 1 recommendations

BWROG-driven industry activities

- HWWV survey of US Mark I and Mark II BWRs
- Committee and working groups
- Building Block #7

Industry Response Structure



Shaded blocks are standing committees. All other organizations are temporary bodies for the life of this project

NRC Tier 1 Recommendations

- 2.1 Seismic and flood hazard re-evaluations
- 2.3 Seismic and flood walkdowns
- 4.1 SBO regulatory actions
- 4.2 10CFR50.54(hh)(2) recommendations
- 5.1 Reliable Hardened Vents - Mk I's and II's**
- 7.1 SFP instrumentation
- 8 EOP, SAMG, EDMG integration
- 9.3 EP regulatory actions

Industry Flex Approach

Presented to NRC on 12/1/2011

BWROG will evaluate Reliable Hardened Vent issues in the context of this Flex approach

- Holistic approach needed for responding to Tier 1 recommendations

Flex Functions

Water and electric power generating source

Capability to inject cooling water into core and spent fuel pool

Power for instrumentation and control

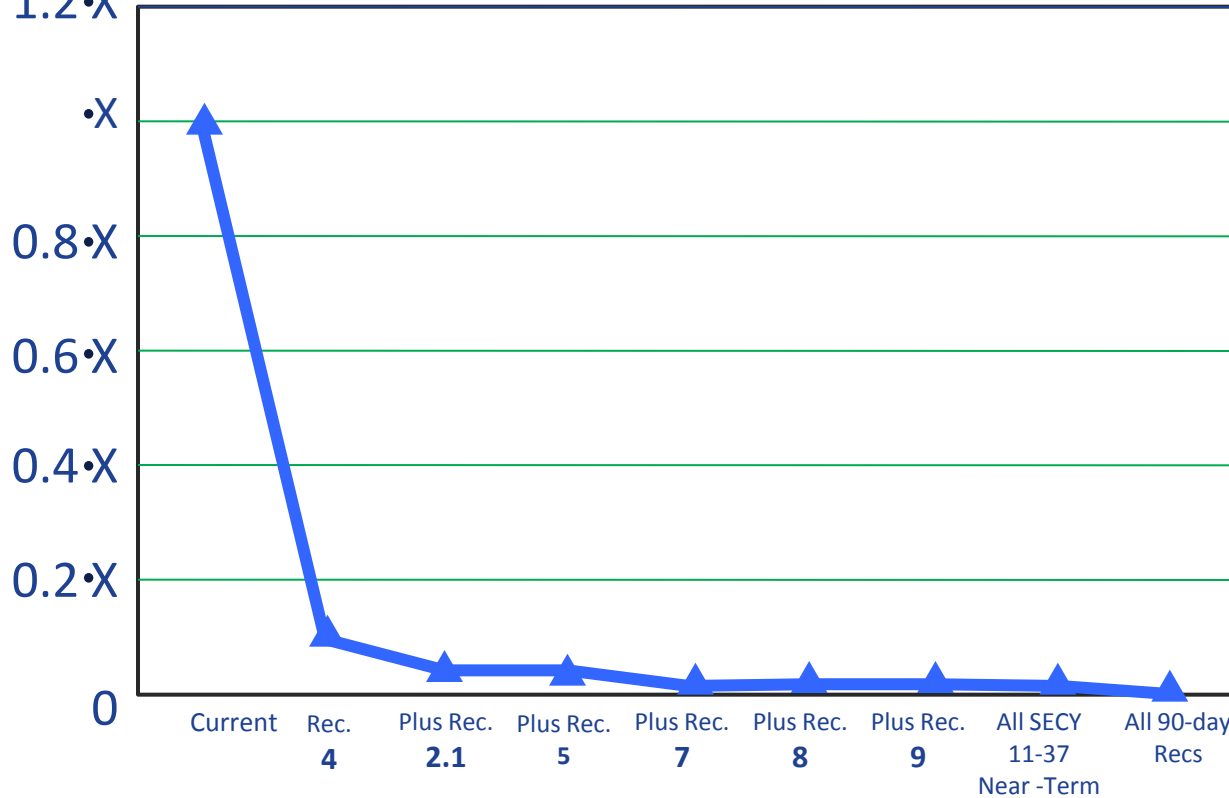
Heat removal

- **Core, fuel pool and containment**

Could include other functions or equipment to protect/mitigate beyond DB external events

Conceptual Representation of Flex

Current
Risk
1.2·X



Adapted from NEI
presentation 12-1-2011

BWROG HWWV Actions

Mark I containments

- 1990: Design criteria for HWWV accepted by NRC
 - Path from wetwell vapor space to suitable release point
 - Loss of decay heat removal sequences
 - Sized for 1% of rated thermal power at Primary Containment Pressure Limit (PCPL)
 - Operate up to PCPL
 - No inadvertent actuation
 - Vent path to 2nd containment isolation valve consistent with design basis
 - Radiation monitoring available in Control Room
 - No ignition sources in the pipeway

- 50.59 implementation

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BWROG HWWV Actions

Mark II Containments (1990; GL 88-20 Supp 3)

- The need for Mark II containment HWWV installation was resolved via IPE evaluations and submittals
- Mark II's have significantly different containment designs from Mark I's

BWR HWWV Actions

Current Actions

- Survey conducted Summer – Fall 2011
 - Mark I and Mark II containments
 - 25 questions covering components, power supplies, procedures, remote and local operation, alternate lineups, training
 - Results to be used to define HWWV mission and develop additional design criteria for discussion with NRC

BWR HWWV Actions

Formed Containment Protection Strategies Subcommittee to work within Building Block 7 and Flex approach to address NRC Recommendation 5.1

Provide preliminary recommendations to NRC in early 2012 to address “reliable” vent designs

Fundamental Reliable Hardened Vent Issues

Re-evaluate mission of HWWV

Define “reliable”

Determine risk reduction potential

Prioritize Reliable Hardened Vent issues along with other critical regulatory issues

Determine operational and financial impacts (likely to be significant)

Summary

NRC has identified installation of Reliable Hardened Vents in Mark I's and II's as a significant issue

BWROG has taken and is taking actions to address the issue

BWROG proposes to provide near-term preliminary recommendations to facilitate issue resolution

Significant issues remain to be addressed

Discussion
