



Public Meeting on Possible Changes to Physical Security Requirements for Advanced Reactor Designs

October 12, 2017



Telephone Bridge
(888) 793-9929
Passcode: 9736740

Public Meeting

- Telephone Bridge
(888) 793-9929
Passcode: 9736740
- Opportunities for public comments and questions at designated times

Outline

- Introductions
- Project Plan
- Discussion – NEI White Paper
- Discussion – NRC White Paper/Commission Paper
- Public Questions/Comments
 - Union of Concerned Scientists

Interactions & Path Forward

- NEI White Paper; December 14, 2016; (ML17026A474)
- Public Meeting; May 3, 2017; (Summary - ML17144A403)
 - Interactions leading to Commission paper
- NRC staff questions/comments; July 21, 2017; (ML17201Q109)
- NEI Response; September 8, 2017; (ML17263B142)
- Public Meeting; October 12, 2017

- NRC Staff Prepares White Paper
- Additional public meeting(s)
- Commission paper in early-mid 2018

NEI White Paper NRC Staff Questions/Comments

The NEI white paper suggested the following criteria for determining applicability of alternative requirements related primarily to requirements for armed responders:

- 1) Uses a reactor technology that is not susceptible to significant core damage and spent fuel sabotage, or
- 2) Does not have an achievable target set, or
- 3) Has engineered safety and security features that allow for implementation of mitigation strategies to prevent significant core damage and spent fuel sabotage if a target set is compromised, destroyed, or rendered nonfunctional.

Note that initial focus of NEI white paper is on radiological sabotage. Assessments and requirements will also need to address theft and diversion

Criterion 1 (Inherent Safety Features)

- Consider technology inclusive approach/terminology
- Consider using radiological consequences from a hypothetical unmitigated event involving loss of engineered safety features
 - Considering form, location, and dispersibility of radioactive materials
- Use of fission product barrier integrity could be used as a means of addressing radiological consequences criterion

Criterion 2 (Achievable Target Set)

- Question appropriateness of using existing design basis threat under possibly different sets of conditions with proposed absence of defined armed responders
- Possible use of security assessments to arrive at a graded approach discussed in May 2017 public meeting

Criterion 3 (Mitigation Strategies)

- Has NEI developed an approach or guidance for how this criterion might be applied
- Question plans for either a generic approach or site-specific considerations related to offsite support; need for related operational programs and periodic assessments
- Identified need to coordinate advanced reactors with proposals for existing reactors to credit local, State, or Federal law enforcement response

NEI White Paper NRC Staff Questions/Comments

- Discussion
- NEI response dated September 8, 2017
(ML17263B142)

NRC Advanced Reactor Policy Statement – Attributes:

- Highly reliable and less complex decay heat removal systems;
- Longer time constants to reaching safety system challenges;
- Simplified safety systems that reduce required operator actions;
- Designs that minimize the potential for severe accidents and their consequences; and
- Designs that incorporate the defense-in-depth philosophy by maintaining multiple barriers against radiation release

NRC Advanced Reactor Policy Statement

- Designs that include considerations for safety and security requirements together in the design process such that security issues (e.g., newly identified threats of terrorist attacks) can be effectively resolved through facility design and engineered security features, and formulation of mitigation measures, with reduced reliance on human actions.
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- Challenge is to address policy issues related to how safety and security requirements for advanced reactors should reflect inherent design characteristics such as longer time constants before degradation of barriers and release of radioactive material given a loss of safety functions.

Background

- SECY-15-0077, “Options for Emergency Preparedness for Small Modular Reactors and Other New Technologies.”
 - **Option 1:** Revise regulations and guidance ... because of advancements in reactor designs and their associated design features (e.g., smaller cores or passive safety systems) which are expected to have a different accident response than for large ... would promote regulatory clarity, predictability, and stability ...
 - **Option 2:** No change to the current EP regulations. Applicants for licenses can currently, and in the future, request exemptions ...
- SECY-16-0069, “Rulemaking Plan on Emergency Preparedness for Small Modular Reactors and Other New Technologies”

Preliminary White Paper Outline

- Considering 4 Options:
 - 1) No change
 - 2) Address via guidance
 - 3) Limited scope rulemaking
 - 4) Broader based rulemaking

Option 1 - No Change

- SECY-11-0184, “Security Regulatory Framework for Certifying, Approving, and Licensing Small Modular Reactors.”
 - The staff’s assessment determined that the current security regulatory framework is adequate to certify, approve, and license iPWRs ...
 - The current regulations allow SMR designers and potential applicants to propose alternative methods or approaches to meet the performance-based and prescriptive security and MC&A requirements.
 - Alternate Measures (10 CFR 73.55(r))
 - License Conditions
 - Exemptions

Option 2 - Guidance

- Facilitate NRC staff review of applicants' proposals for alternative measures and/or exemptions from regulations related to physical security through NRC guidance documents
- Future interactions using established processes to identify likely proposals from applicants and develop/endorse guidance documents

Option 3 – Limited Scope Rulemaking

- Identify a possible rulemaking of limited scope to promote regulatory clarity, predictability, and stability
 - Example – NEI Proposal for reductions in the number of armed responders (10 CFR 73.55(k)(5))
- Future interactions to seek information and insights on potential requirements to include within scope and on related benefits and costs of those elements of security programs
- Rulemaking plan similar to SECY-16-0069 related to possible changes in requirements for emergency preparedness

Option 4 – Broad Scope Rulemaking

- Identify a possible rulemaking considering broader changes to Part 73 based on possible design attributes of advanced reactors.
- Future interactions to seek information and insights on potential requirements and on related benefits and costs of many elements of security programs

Path Forward

- Staff preparing initial white paper to support internal alignments and additional interactions with stakeholders
- Proposed public meeting for December 13, 2017
- Identify potential need for further interactions
- Commission paper in early-mid 2018

Public Comments / Questions