

U.S. Nuclear Regulatory Commission Public Meeting Summary

June 21, 2021

Title: Draft Guidance for the Alternative Physical Security Requirements for Advanced Reactors Rulemaking

Meeting Identifier: 20210440

Date of Meeting: April 21, 2021

Location: Webinar

Type of Meeting: Observation Category

Purpose of the Meeting(s): The purpose of this meeting was to discuss recent clarifications on the draft implementation guidance document, NEI 20-05, , “Methodological Approach and Considerations for a Technical Analysis to Demonstrate Compliance with the Performance Eligibility Criteria of 10 CFR 73.55(a)(7),” related to the proposed rulemaking of alternative physical security requirements for non-light water reactors and small modular reactors.

General Details: The U.S. Nuclear Regulatory Commission (NRC) staff conducted an online public meeting on Wednesday, April 21, 2021, to discuss the preliminary draft implementation guidance for the alternative physical security requirements for advanced reactors rulemaking. The meeting started at 1000 EST and concluded at 1130 EST. There were approximately 38 participants including affiliates from the NRC, Nuclear Energy Institute (NEI), Electric Power Research Institute (EPRI), Oklo, Westinghouse, Tennessee Valley Authority (TVA), Curtiss Wright, Idaho National Lab (INL), Union of Concerned Scientists (UCS), and members of the public, to name a few.

Dennis Andrukat from the Office of Nuclear Material Safety and Safeguards started the meeting by welcoming all attendees and providing a quick overview of the agenda and meeting logistics. Once the introductions were complete, Mr. Andrukat turned the meeting over to Shana Helton (Division Director, Division of Physical and Cyber Security Policy in the Office of Nuclear Security and Incident Response (NSIR) to provide NRC opening remarks. Ms. Helton noted that this rule is a priority for the Commission and a lot of interest has been expressed by external stakeholders but that the timeframe for moving forward is short as the NRC staff strives to meet the September 2021 public milestone to deliver the draft proposed rule to the Commission for review. Ms. Helton stated the purpose of the meeting was to get stakeholder feedback and achieve a further understanding of stakeholder perspectives on the preliminary proposed rule language’s eligibility criterion, to support completion of the draft implementation guidance. Following Ms. Helton’s opening, Ms. Kati Austgen gave opening remarks on behalf of NEI.

Afterwards, Mr. Andrukat turned the meeting over to Ms. Valliere who gave the NRC’s presentation. The presentation provided an overview of the NRC’s recent response to NEI’s March 22, 2021 clarification email (ADAMS Accession Nos. ML21104A109) regarding eligibility Criterion A and the term “unmitigated” (see preliminary proposed section 10 CFR 73.55(a)(7)). After the NRC presentation the meeting was turned over to David Young of NEI, who elaborated on NEI’s clarification question submitted to the NRC March 22, 2021. The meeting participants

discussed the differences in their interpretation of the eligibility criteria to support development of the associated implementation guidance in NEI 20-05.

After these discussions, the NRC opened the meeting to other stakeholders. The Union of Concerned Scientists' (UCS) Ed Lyman was the only other attendee to make comments.

Public Participation Themes: The NRC and the participants covered a variety of issues.

Nuclear Industry:

NEI's Mr. Young presented several clarifying questions and NEI's interpretation of the preliminary proposed eligibility criteria:

- Under Criterion A, the design basis threat (DBT) adversary attack occurs, and no matter what the DBT-initiated attack accomplishes, the resulting consequences can't exceed the dose reference values in the criterion. No operator action is allowed, but full credit can be taken for all systems at T=0. In other words, the event is "unmitigated" by human actions.
- Under Criterion B, if certain plant features were disabled, the resulting consequences could exceed the dose reference values, but the DBT adversary is not capable of disabling those plant features. In other words, there is "no achievable target set"(i.e., the DBT-initiated attack can't comprise the target set so that it's possible to exceed the dose reference values offsite).

NEI followed up with additional questions:

1. Does a technical analysis for criterion (A) assume that decay heat removal systems are disabled at T=0 (start of scenario)?
NRC responded: Yes, as this is meant to be a bounding analysis.
2. How is a passive decay heat removal system and/or structure addressed? For example, say a reactor is located in a very large pool of water that is below grade. Is the applicant to assume the water is not there at T=0 or is it credited for some period of time?
NRC responded: The assessment of inherent characteristics could include the reasonable assumption of availability of heat sinks related to structures and the environment. Design-specific assessments of the unmitigated events would need to justify the availability of specific heat sinks and the ability to transfer heat from the reactor to those heat sinks.
3. How are "possible breaches in physical structures" determined? Is the applicant to look at the physical processes resulting from the loss of decay heat removal systems and determine where breaches would occur?
NRC responded: Breaches in physical structures are to be determined to bound all breaches that could result from a DBT-initiated attack. This includes breaches from the DBT-adversary directly and those breaches resulting from the loss of safety systems.
4. Regarding the last version of preliminary proposed rule language - for the alternative to rely on law enforcement, the preliminary proposed rule would relieve the licensee of 10 CFR 73.55(k)(3)-(7); however, why is 10 CFR 73.55(k)(6), for armed security officers, included?
NRC responded: NSIR/DPCP's Pete Lee explained that there may be times that an armed security officer would play a role, as assigned by the licensee, in the interdiction and/or neutralization of the DBT adversary and that is why staff included 10 CFR 73.55(k)(6) in this alternative. The staff understands the difference between the two

types of security personnel and are working to try to make the applicable roles clear in the proposed rule language.

On April 21, 2021, after the public meeting, NEI submitted an email highlighting the comments they made during the public meeting regarding target sets for each eligibility criterion. On April 28th, 2021, the NRC staff issued a response to NEI with proposed edits (ADAMS Accession No. ML21175A049).

UCS Comments:

Edwin Lyman of the UCS highlighted a potential concern with the preliminary proposed rule language, namely that, he agreed with NEI's understanding of the eligibility criteria. Mr. Lyman further explained that the NRC's version of preliminary proposed Criterion A (i.e., a "magical source term"), is not useful, doesn't make sense, no [power] reactor would be able to meet it, and therefore the NRC should get rid of it. Only thing that could meet Criterion A is a system with such a small radiological inventory (source term) that a release would not result in a consequence above the dose reference values. Regarding preliminary proposed Criterion B example, Mr. Lyman suggested that it is possible that a reactor could be designed with one target set component in a deep underground bunker that DBT adversary cannot defeat. Meeting Criterion B could be done with a design that had a target set that, if destroyed, could exceed the dose reference values, but that target set is unattainable. Mr. Lyman also stated that the way the term "mitigation" is being used in the criteria is confusing. For example, operational systems referred to in the criteria may be there for prevention, not mitigation. Lastly, Mr. Lyman discussed the local law enforcement credit [speaking to the preliminary proposed alternative that would allow zero onsite armed responders], and noted that at this time, groups like the Oath Keepers are recruiting local law enforcement personnel. He is very concerned that the current preliminary proposed rule language has no proposal for expanded NRC requirements for vetting of local law enforcement. Mr. Lyman stated that he has additional concerns regarding other activities related to crediting of local law enforcement.

NRC Responded:

This rule is intended to address a wide range of reactors including some with a very low source term and others based on a specific site configuration. For example, if the site was very large and the site boundary very far away from the source, the site configuration may limit reference dose exposures and therefore, an associated reactor may qualify for Criterion A.

Conclusion:

The NRC appreciated the discussions and comments made during the meeting and noted that the implementation guidance is still under development and the staff will consider these comments as the NRC continues to develop the proposed rule.

Next Steps:

- NEI expected to submit the next revision of NEI 20-05 mid to late May 2021. NEI has posed the idea of having an additional interaction prior to the next full submission of NEI 20-05.
- The NRC intends submit the proposed rule package to the Commission September 2021.

Enclosures:

1. **Attendee List**
2. **NEI email dated April 21, 2001**

Attachments:

- Public Meeting Notice - Notice of Observation Category Public Meeting Regarding Draft Guidance for the Alternative Physical Security Requirements for Advanced Reactors Rulemaking, April 21, 2021 (ADAMS Accession No. ML21105A510)
- Meeting Slides - Rulemaking for Alternative Physical Security Requirement for Advanced Reactors, April 21, 2021 Public Meeting (ADAMS Accession No. ML21106A003)
- DRAFT B of NEI 20-05, Methodological Approach and Considerations for a Security Assessment to Demonstrate Compliance with the Performance Criteria of 10 CFR 73.55 [(a)(7)]. (ADAMS Accession No. ML20107D894)
- NRC's review (March 2021) of NEI-20-05 Draft B (ADAMS Accession No. ML21049A029)
- NEI email to NRC (March 22, 2021) NEI clarification questions to NRC's review of Draft B of NEI 20-05 (ML21175A043)
- NRC's response (April 13, 2021) to NEI's clarification question email dated March 22, 2021 (ADAMS Accession No. ML21104A109)
- NRC's response (April 28, 2021) to NEI's email comment dated April 21, 2021 RE: Public Meeting for the Alternative Physical Security Requirement for Advanced Reactors Rulemaking, (ADAMS Accession No. ML21175A049).

ATTENDEES LIST:

Public Attendee List:

David Young, NEI
Kati Austgen, NEI
Jana Bergman, Curtiss Wright
Edwin Lyman, UCS
Rich Mogavero, NEI
Ross Moore, Oklo
Marc Nichol, NEI
Richard M Paese, Westinghouse
Susan Perkins, NEI
Joseph Rivers, USA Nuclear (Rivers
Security Services)
Michael Sleigh, Westinghouse
Chris Wiegand, EPRI
Rob Carroll, Oklo
Kevin E Casey, Tennessee Valley Authority
Christopher P. Chwasz, INL
William Gross, NEI
Steve (Guest), ???

NRC Attendee List:

Andrukat, Dennis
Helton, Shana
Mossman, Tim
Bowers, Tony
Lee, Pete
Valliere, Nan
Reed, Beth
Vitto, Steven
St. Amour, Norman
Carpentier, Marcia
Mertz, Nick
Hart, Michelle
Beall, Bob
Nakanishi, Tony
Ezell, Julie
Williams, Vince
Walker, Shakur
Baxter, Brad
Sampson, Michele
Mekonen Bayssie, NRC
Love-Blair, Angela
Anderson, Mary
Brian Thomas, NRC
Carolyn Wolf, NRC
Eric Bowman, NRC
Jordan Hoellman, NRC
Shawn Campbell, NRC
William Orders, NRC

NEI EMAIL, DATED APRIL 21, 2021:

From: YOUNG, David <dly@nei.org>
Sent: Wednesday, April 21, 2021 12:57 PM
To: Valliere, Nanette <Nanette.Valliere@nrc.gov>
Cc: Andrukat, Dennis <Dennis.Andrukat@nrc.gov>; Lee, Pete <Pete.Lee@nrc.gov>; Helton, Shana <Shana.Helton@nrc.gov>
Subject: [External_Sender] Summary table showing key attributes for eligibility criteria
Importance: High

Nan,

Good afternoon.

As discussed during the meeting this morning, the attached table shows our understanding of the key attributes associated with each of the eligibility criteria. I ask that your folks review the table and then let me know if we're aligned in our understanding or if adjustments are needed. Given my commitment to get you the guidance in time to support the near-term rulemaking schedule milestones, I request a timely review and return of staff feedback. Any method of providing the feedback is fine with me – telephone call, email or meeting.

David Young | *Technical Advisor*
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NEI's Email Attachment:

Attributes	Eligibility Criterion		
	§ 73.55(a)(7)(i)(A)	§ 73.55(a)(7)(i)(B)	§ 73.55(a)(7)(i)(C)
Facility Possesses a Target Set (<i>see definition below</i>)?	No	Yes	Yes
Facility Possesses an Achievable Target Set (<i>see definition below</i>)?	N/A	No	Yes
Credit engineered safety and security	Yes	Yes	Yes

NEI EMAIL, DATED APRIL 21, 2021:

features described in licensing basis?			
Credit on-shift operator actions to prevent or mitigate consequences?	No	Yes	Yes
Credit post-facility recovery actions to prevent or mitigate consequences?	No	No	Yes
How is release timing and magnitude determined?	Analysis assumes DBT attack starts at T=0 and determines subsequent SSC failures	Analysis assumes DBT attack starts at T=0 and determines subsequent SSC failures	Analysis assumes DBT attack starts at T=0 and determines subsequent SSC failures
Credit physical and chemical processes that prevent or mitigate consequences?	Yes	Yes	Yes

A "target set" is the minimum combination of equipment or operator actions which, if all are prevented from performing their intended safety function or prevented from being accomplished, would result in offsite doses greater than the reference values in §§ 50.34(a)(1)(ii)(D) and 52.79(a)(1)(vi).

An "achievable target set" means a target set that is within the ability of the DBT to compromise, destroy, or render nonfunctional, absent actions by an onsite armed response force.