PUBLIC SUBMISSION

As of: 10/18/24, 3:57 PM
Received: October 17, 2024
Status: Pending_Post
Tracking No. m2d-w9dn-cn3h
Comments Due: October 23, 2024
Submission Type: API

Docket: NRC-2017-0227
Alternative Physical Security Requirements for Advanced Reactors

Comment On: NRC-2017-0227-0038
Alternative Physical Security Requirements for Advanced Reactors

Document: NRC-2017-0227-DRAFT-0044
Comment on FR Doc # 2024-17598

Submitter Information

Email: charlie@blueenergy.co
Organization: Blue Energy

General Comment

See attached file

Attachments

Comments on Alternate Physical Security Requirements

Comments on Alternate Physical Security Requirements

Proposed Rule Link: https://www.federalregister.gov/documents/2024/08/09/2024-17598/alternative-physical-security-requirements-for-advanced-reactors

Part 73.55, Part (s) proposed addition at the bottom of the document.

NRC Specific Requests for Comment

(1) Some advanced reactors may have designs that are significantly different from the current operating large LWRs. These large LWRs must meet the requirement found in § 73.55(b)(3) for preventing "significant core damage and spent fuel sabotage." The NRC is proposing that advanced reactors meet a new technology-inclusive requirement that would prevent a "significant release of radionuclides from any source."

(a) If non-LWRs and SMRs should use a different requirement, then what other suitable requirement besides preventing "a significant release of radionuclides from any source" could be applicable to SMRs and non-LWRs? Please provide the basis for your response.

Blue Energy Stance: We agree that, "a significant release of radionuclides from any source," is a good, technology-agnostic standard for physical security. Coupling the technology agnostic statement with the dose requirements of 50.34(a)(1)(ii)(D) or 52.79(a)(1)(vi) is an effective way to put a constraint on plant development for licensees.

(b) The NRC also considered using a more specific technology-inclusive requirement, such as the dose reference values currently found in §§ 50.34(a)(1)(ii)(D) and 52.79(a)(1)(vi). How could the NRC implement the use of such a dose-based requirement (*e.g.,* offsite dose reference values) in the context of evaluating physical security for a site? If there should be alternative value(s) (such as a different dose-based or safety-based value(s)), what would be a suitable alternative value(s)? Please provide the basis for your response.

50.34(a)(1)(ii)(D) requirements:

(*1*) An individual located at any point on the boundary of the exclusion area for any 2 hour period following the onset of the postulated fission product release, would not receive a radiation dose in excess of 25 rem total effective dose equivalent (TEDE).

(*2*) An individual located at any point on the outer boundary of the low population zone, who is exposed to the radioactive cloud resulting from the postulated fission product release (during the entire period of its passage) would not receive a radiation dose in excess of 25 rem total effective dose equivalent (TEDE);"

Blue Energy Stance: Blue Energy agrees with the dose limits imposed under articles 10 CFR 50 and 52 as a bounding constraint for physical security plans. Maintaining the same requirements that are already outlined in 10 CFR 50 and 52 streamline engineering evaluations and simplify licensing.

(2) The NRC is not proposing a hybrid approach that would allow a licensee to rely on a combination of onsite armed responders and law enforcement or other offsite armed responders to implement the licensee's protective strategy. Why should or shouldn't the NRC establish requirements and supporting guidance to allow for such a hybrid approach? What changes are necessary to the proposed rule and supporting guidance to address potential hybrid approaches? Please provide the basis for your response.

Blue Energy Stance: Blue Energy does not agree with this approach. Blue Energy recommends allowing for a hybrid approach. 10 CFR 73 (s)(2)(i) removes the minimum number of guards, then (s)(2)(ii) says if the licensee has no armed response personnel, they may rely on local law enforcement. This incentivizes licensees to pursue zero-guard security programs potentially at the expense of system effectiveness. If the end goal is to show prevention of, “a significant release of radionuclides from any source,” why not consider a hybrid security force structure? Physical security modeling software can simulate onsite and offsite blue-force capabilities, and they could be evaluated using force-on-force drills. Blue Energy thinks these mutually exclusive articles are overbearing and counterproductive to an effective security program.

Additionally, (s)(2)(ii)(A)(5) says, “The Licensee must identify criteria and measures to compensate for the degradation or absence of law enforcement or other offsite responders and propose suitable compensatory measures that meet the requirements of paragraphs (o)(2) and (3) of this section to address this degradation.” Conceivably, a licensee could stand up or increase an on-site guard force in the event of law-enforcement degradation. The hybrid site and law enforcement security force would be evaluated in this case. If allowed during law enforcement degradation, a hybrid security force structure would make sense across all operational time frames.

---

(3) The NRC recognizes that allowing licensees to rely entirely or partially on law enforcement, rather than onsite armed responders, to interdict and neutralize threats up to and including the DBT of radiological sabotage, is a novel approach to meeting the performance objectives in § 73.55(b). Has the NRC adequately addressed the uncertainties associated with the proposed requirements at 10 CFR 73.55(s)(2)(ii)? Please provide the basis for your response.

Blue Energy Stance: Licensees can pursue software that allows design and evaluation of physical security plans, with and without on-site guards. Licensees should evaluate a multitude of scenarios and perform sensitivity analysis to evaluate the effects of law enforcement degradations and what actions are needed to ensure effectiveness. However, this level of detail could be considered Safeguards Information (SGI) and should not be broadcast on NRC websites. Blue Energy would recommend that the NRC and licensees engage early in preapplication meetings about the expectations for sensitivity analysis once the licensee’s SGI program is established.

---

(4) Some advanced reactors may have design characteristics or engineered safety features that would contribute to the ability of a designer to show that the criteria in proposed § 73.55(s)(1)

are met. However, the NRC is not currently proposing to add any submittal requirements in this regard for standard design certification applications under subpart B to 10 CFR part 52. What would be the potential benefits and challenges if the NRC were to add optional submittal requirements on such design characteristics or engineered safety features to § 52.47, "Contents of applications; technical information," similar to those for emergency plans for early site permit applicants in § 52.17(b)(2) and (3)? To what extent should the NRC consider security matters resolved under § 52.63(a)(5) for a standard design certification when the information that would be required to show that the criteria in proposed § 73.55(s)(1) are met is provided by a design certification applicant and reviewed by the NRC as part of the certification process?

Blue Energy Stance: Blue Energy recommends not adding requirements to standard design certifications under part 52. Licensees pursuing standard design certifications could add features or characteristics to aid follow-on developers who use their standard design. However, regardless of what items are included in the part 52 license, the builder of the plant will require a site-specific physical security plan which would need to demonstrate how 73.55(s)(1) requirements are met. Not including optional requirements in part 52 allows for a streamlined standard design approval process without redoing analysis of plant security plans.

10 CFR 73.55 Part (s)

(s) *Alternative physical security requirements.*

(1) *General requirements.*

(i) *Applicability.* The requirements of this section apply to an applicant for or holder of a license under part 50 of this chapter or part 52 of this chapter for a small modular reactor, as defined in § 171.5 of this chapter, or a non-light-water reactor.

(ii) *Eligibility.* The applicant or licensee must demonstrate that the consequences of a postulated radiological release that could result from a postulated security-initiated event do not exceed the offsite dose reference values defined in §§ 50.34(a)(1)(D) and 52.79(a)(1)(vi) of this chapter.

(iii) *Identification and documentation.* The applicant or licensee must identify the specific alternative physical security requirement(s) it intends to implement as part of its physical protection program and demonstrate how the requirements set forth in this section are met when the selected alternative(s) is used.

(iv) *Analysis.* The applicant or licensee electing to meet one or more of the alternative security requirements in paragraph (s)(2) of this section must perform a technical analysis demonstrating how it meets the criteria in paragraph (s)(1)(ii) of this section. The licensee must maintain the analysis until submittal of the licensee's certifications required by § 50.82(a)(1) of this chapter or § 52.110(a) of this chapter.

(2) *Specific alternative physical security requirements.*

(i) *Alternative requirement for armed responders.* A licensee that meets paragraph (s)(1) of this section is relieved from the requirement for the minimum number of armed responders in paragraph (k)(5)(ii) of this section.

(ii) *Alternative requirements for interdiction and neutralization.* A licensee that meets paragraph (s)(1) of this section and has no armed response personnel onsite whose primary duty is to respond to, interdict, and neutralize acts of radiological sabotage:

(A) May rely on law enforcement or other offsite armed responders to fulfill the interdiction and neutralization functions required by paragraph (b)(3)(i) of this section.

(1) The licensee must maintain the capability to detect, assess, interdict, and neutralize threats as required by paragraph (b)(3)(i) of this section.

(2) The licensee must provide adequate delay for threats up to and including the DBT of radiological sabotage to enable law enforcement or other offsite armed responders to fulfill the interdiction and neutralization functions.

(3) The licensee must provide necessary information about the facility and make available periodic training to law enforcement or other offsite armed responders who will fulfill the interdiction and neutralization functions for threats up to and including the DBT of radiological sabotage.

(4) The licensee must fully describe in the safeguards contingency plan the role that law enforcement or other offsite armed responders will play in the licensee's protective strategy when relied upon to fulfill the interdiction and neutralization capabilities required by paragraph (b)(3)(i) of this section. The description must provide sufficient detail to enable the NRC to determine that the licensee's physical protection program provides high assurance of adequate protection against threats up to and including the DBT of radiological sabotage.

(5) The licensee must identify criteria and measures to compensate for the degradation or absence of law enforcement or other offsite armed responders and propose suitable compensatory measures that meet the requirements of paragraphs (o)(2) and (3) of this section to address this degradation.

(B) Is relieved from applying:

(1) The requirements in paragraphs (k)(3) through (7) of this section and the requirement in paragraph (k)(8)(ii) of this section to law enforcement responders.

(2) The training and qualification requirements related to armed response personnel in section VI of appendix B to this part for law enforcement responders, except for the performance evaluation program requirements related to armed response personnel in section VI.C.3 of appendix B to this part, which the licensee shall continue to satisfy for all armed response personnel, including law enforcement.

(3) The location-related requirements in paragraph (k)(5)(iii) of this section and in section II.B.3.c.(iv) of appendix C to this part related to armed responders.

(iii) *Alternative requirements for physical barriers.* A licensee that meets paragraph (s)(1) of this section may utilize means other than physical barriers and barrier systems to satisfy the physical protection program design requirements of paragraph (e) of this section. Acceptable means can be any method(s) that accomplishes the delay and

access control functions necessary to allow the licensee to implement its physical protection program.

(iv) *Alternative requirements for onsite secondary alarm stations.* A licensee that meets paragraph (s)(1) of this section:

(A) May have one alarm station located offsite notwithstanding the requirement in paragraph (i)(2) of this section to have at least two alarm stations located onsite. The central alarm station must remain onsite.

(B) Is relieved from the requirement in paragraph (i)(4)(iii) of this section to construct, locate, and protect the offsite secondary alarm station to the standards for the central alarm station. The licensee is not relieved from the requirement in paragraph (i)(4)(iii) of this section that both alarm stations shall be equipped and redundant, such that all functions needed to satisfy the requirements of paragraph (i)(4) of this section can be performed in both alarm stations.

(v) *Alternative requirements for vital areas.* A licensee that meets paragraph (s)(1) of this section:

(A) Is relieved from the requirement in paragraph (e)(9)(v)(D) of this section to designate an offsite secondary alarm station as a vital area.

(B) Is relieved from the requirement in paragraph (e)(9)(vi) of this section to locate the secondary power supply systems for an offsite secondary alarm station in a vital area.