



NUCLEAR ENERGY INSTITUTE

WHITE PAPER

PROPOSED PHYSICAL SECURITY REQUIREMENTS FOR ADVANCED
REACTOR TECHNOLOGIES

December 14, 2016

1. Introduction

The purpose of this white paper is to propose new physical security requirements for advanced nuclear power generation technologies, such as small modular reactors (SMRs) and non-light-water reactors (non-LWRs) with enhanced engineered safety and security features. The proposed requirements would continue to provide high assurance that activities involving special nuclear material are not inimical to the common defense and security, and do not constitute an unreasonable risk to the public health and safety.

This paper builds upon and supersedes an earlier NEI white paper on this topic that was submitted to the NRC in November 2015. We request that the NRC use the white paper as a basis for initiating a rulemaking in 2017, similar to the approach the NRC took to initiate a rulemaking for emergency preparedness (EP) for advanced reactor technologies approved in NRC's SMR-SECY-15-0077, "Options for Emergency Preparedness for Small Modular Reactors and Other New Technologies."

2. Specific Problems or Issues to be Addressed

10 CFR Part 73, "Physical Protection of Plants and Materials," prescribes requirements for the establishment and maintenance of a physical protection system, which will have capabilities for the protection of special nuclear material at fixed sites and in transit, and of plants in which special nuclear material is used. Physical protection requirements for power reactor facilities are specified in §73.55, "Requirements for physical protection of licensed activities in nuclear power reactors against radiological sabotage." The development of these requirements was informed by the designs of currently operating nuclear power plants within the United States, which are commonly referred to as large light water reactors (LWRs). In particular, one aspect of large LWR designs is the reliance on human actions to prevent radiological sabotage by threats up to and including the design basis threat (i.e., onsite armed responders to interdict and neutralize an adversary force).

Around the globe, many companies and governmental agencies are working on advanced nuclear power generation technologies, such as small modular reactors (SMRs) and non-light-water reactors (non-LWRs) that will have significantly enhanced safety and security performance as compared to the reactors in operation today. These advanced reactor technologies may also offer improved performance in other areas, such as used fuel management and economics.

Some of these advanced reactor technologies will rely on coolants other than water, such as gases, or molten metals or salts. Many will not be susceptible to overheating and core damage (i.e., fuel melting with the potential for a significant radiological release to the environment). Advanced reactor designers are also incorporating engineered physical security systems, hardware, and features into their facilities, which will considerably reduce or eliminate reliance upon an onsite armed responder force to prevent radiological sabotage.

In light of the above, the industry is proposing new physical security requirements for advanced reactor technologies. It is recognized that no design has yet been submitted to the NRC for review; therefore, the proposed requirements are grounded in a set of “performance capabilities” that serve as criteria for identifying facilities with designs that can prevent radiological sabotage primarily through engineered safety and security features. This approach allows new regulations to be established generically in advance of a design- or site-specific application. By demonstrating that a proposed facility can meet a performance capability, an applicant could obtain a license through compliance with a set of physical security requirements developed specifically for advanced reactor technologies. These same requirements would continue to apply to the licensee during operation of the facility.

It is reasonable to consider new physical security requirements for advanced reactor technologies because their enhanced safety and security features will make the accomplishment of radiological sabotage extremely unlikely. Thus, the NRC should promulgate new physical security regulations that are aligned with the inherently lowered risk profile of advanced reactor technologies. These new regulations should be consistent with the present physical security objective of providing high assurance that activities involving special nuclear material are not inimical to the common defense and security and do not constitute an unreasonable risk to the public health and safety.

The rule changes proposed herein would promote the establishment of a clear, predictable and stable licensing process for advanced reactor technologies, and avoid the inefficiency and uncertainty associated with achieving compliance through alternative measures, exemptions and license conditions. Absent a change to existing regulations, advanced reactor technologies will be subject to the existing physical security requirements delineated in § 73.55, which would impose an unnecessary regulatory burden on applicants and licensees. Compliance with § 73.55 requirements will diminish the cost competitiveness of advanced reactor technologies, thus hindering their development and deployment.

A rulemaking based on the proposed requirements herein would support an objective discussed in the Commission’s “Policy Statement on the Regulation of Advanced Reactors.”¹ The policy stipulates that advanced reactor designs should include considerations for safety and security requirements together in the design process such that security issues can be effectively resolved through facility design and engineered security features, and formulation of mitigation measures, with reduced reliance on human actions. The Commission provided the following general direction for addressing these considerations in regulation:

To provide for more timely and effective regulation of advanced reactors, the

¹ 73 Fed. Reg. 60612 (October 14, 2008)

NEI White Paper: Proposed Physical Security Requirements for Advanced Reactor Technologies

Commission encourages the earliest possible interaction of applicants, vendors, other government agencies, and the NRC to provide for early identification of regulatory requirements for advanced reactors and to provide all interested parties, including the public, with a timely, independent assessment of the safety and security characteristics of advanced reactor designs. Such licensing interaction and guidance early in the design process will contribute towards minimizing complexity and adding stability and predictability in the licensing and regulation of advanced reactors.²

This white paper is responsive to the Commission's suggestion for early interaction to identify timely and effective regulatory requirements for advanced reactor technologies.

3. Proposed Solution

The industry proposes the creation of a new section within 10 CFR Part 73 that would contain the physical security requirements for advanced reactor technologies with enhanced engineered safety and security features. The proposed new section is § 73.52, "Requirements for physical protection of licensed activities in nuclear power reactors with performance capabilities precluding radiological sabotage." As stated in the proposed § 73.52, an applicant can qualify for conducting physical security operations under this framework if an applicant can demonstrate that the proposed facility:

- 1) Uses a reactor technology that is not susceptible to significant core damage and spent fuel sabotage,³ 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.

Attachment 1 presents proposed changes to 10 CFR, including proposed rule language and bases. An overview of the physical security framework and measures described by the proposed § 73.52 is presented in Figure 1, below.

² 73 Fed. Reg. 60616 (October 14, 2008)

³ As illustrations of this criterion, consider several of the leading proposed designs for a high temperature gas-cooled reactor or a molten salt reactor.

Figure 1
 Overview of Proposed Physical Security Framework and Measures for Advanced Reactor Technologies

Framework Element	Proposed Measures
General performance objective and requirements	<ul style="list-style-type: none"> • Protect against the design basis threat of radiological sabotage as stated in § 73.1 • Prevent significant core damage and spent fuel sabotage • Insider Mitigation Program
Security Plans	<ul style="list-style-type: none"> • Physical Security Plan • Training & Qualification Plan (in accordance with Appendix B, Sections I through V) • Safeguards Contingency Plan (in accordance with Appendix C, Section I) • Cyber Security Plan (in accordance with §73.54)
Security Organization	<ul style="list-style-type: none"> • Implement program • Management system
Physical Barriers	<ul style="list-style-type: none"> • Owner Controlled Area • Vehicle control and barrier system • Isolation Zone • Protected Area • Vital Area
Access Controls	<ul style="list-style-type: none"> • Protected Area • Vital Area • Limit unescorted access • Access Authorization Program • Controlled badge program • Escort requirements • Two-person rule during site-specific threat response
Search Programs	<ul style="list-style-type: none"> • Owner controlled area – vehicles • Protected Area – personnel, vehicles and materials
Detection and Assessment	<ul style="list-style-type: none"> • Protected Area Intrusion Detection System with real-time and play-back/recorded video images and Uninterruptible Power Supply (UPS) • Central Alarm Station (CAS) • Secondary Alarm Station (SAS)

NEI White Paper: Proposed Physical Security Requirements for Advanced Reactor Technologies

Framework Element	Proposed Measures
	<ul style="list-style-type: none"> • Surveillance, observation and monitoring • Periodic patrols of outside areas • Illumination
Communication	<ul style="list-style-type: none"> • CAS/SAS two-way redundant communication with LLEA • Continuous communication capability between CAS/SAS and off-site response force • Non-portable equipment on UPS
Security Program Review	<ul style="list-style-type: none"> • Every 24 months with provisions for more frequent reviews if needed • Specified review areas/topics • Reports to higher-level management • Issue identification and resolution program
Maintenance & Testing	Required
Compensatory Measures	Allowed
Suspension of Security Measures	Allowed
Records	Required
Alternative Measures	Allowed

The most significant differences between the proposed security framework for advanced reactor technologies in § 73.52 and the existing framework for large LWRs in §73.55 are identified below.

- 1) The licensee would be required the maintain the capabilities to detect and assess threats up to and including the design basis threat of radiological sabotage, and to promptly summon local law enforcement assistance; the interdiction and/or neutralization of the threat would be performed by local law enforcement officers.

If an applicant can demonstrate that the proposed facility meets one of the performance capabilities prescribed in § 73.52(a)(1), then an onsite armed responder force to interdict and neutralize an adversary force would not be needed because the adversaries would not be capable of causing radiological sabotage. The licensee of such a facility would maintain the capability to detect and assess an intrusion and, when warranted, promptly notify a local law enforcement agency. Upon notification, local enforcement agency officials would respond to the site to interdict and/or neutralize the threat. Supporting this capability would be

NEI White Paper: Proposed Physical Security Requirements for Advanced Reactor Technologies

requirements to have diverse alarm stations and offsite communication methods, and agreements or arrangements for summoning prompt assistance from a local law enforcement agency.

- 2) A Training and Qualification Plan for the security force would be based on 10 CFR 73, Appendix B, Sections I through V.

The licensee of a power reactor facility without an onsite armed response force would need to maintain a security officer force to perform other functions and tasks required by the proposed regulations in § 73.52 (e.g., inspections, patrols, etc.). The training and qualification plan provisions described in 10 CFR 73, Appendix B, Sections I through V, are adequate to prepare a security officer force for the performance of the functions and tasks required by § 73.52. The plan would address the areas of employment suitability and qualification, training and qualifications, weapons training and qualification, weapons qualification and requalification program, and armed guard equipment. Because the licensee would not maintain on onsite threat interdiction and neutralization capability, the Training and Qualification Plan would not include a performance evaluation program.

- 3) A Safeguards Contingency Plan for the facility would be based on 10 CFR 73, Appendix C, Section I.

The licensee of a power reactor facility licensed under the proposed § 73.52 would need to maintain a security officer force to perform the threat-related functions and tasks required by this section. The safeguards contingency plan provisions described in 10 CFR 73, Appendix C, Section I, are adequate to guide the development of arrangements and procedures for implementing the threat response requirements of § 73.52. The plan criteria would require a licensee to have the organization, structures, equipment and procedures necessary for threat detection and assessment, and prompt notification of a local law enforcement agency. The requirements also support ongoing response planning with local law enforcement agencies (e.g., identification of entry routes for assistance forces, control points for response activities, response capabilities, working agreements, etc.). Because the licensee would not maintain an onsite threat interdiction and neutralization capability, the Safeguards Contingency Plan would not address a protective strategy.

With respect to regulatory guidance for conducting a licensing-basis physical security analysis, the process described in NUREG/CR-7145, “Nuclear Power Plant Security Assessment Guide,” provides one acceptable methodology for determining if a facility would have an achievable target set. Additional assessment guidance will be necessary for determining if a facility design would allow for the implementation of mitigation strategies to prevent significant core damage and spent fuel sabotage following the disabling/loss of a target set. This guidance could explicitly address how mitigation strategies may be credited within a physical security analysis and cover topics such as:

- Determination of allowable security event mitigation times
- Types of actions and strategies that may be credited
- Considerations for use of installed equipment and portable equipment
- Guidance for determining implementation feasibility and timing
- Expected support from local law enforcement (e.g., timing, resources and actions)
- Security planning arrangements

Guidance will also be needed for the identification of designs meeting the proposed facility performance capability criterion, “Uses a reactor technology that is not susceptible to significant core damage and spent fuel sabotage.” The criteria and process for making this determination could be linked to other licensing provisions (e.g., results of transient and accident analyses, and probabilistic risk assessments). The industry is prepared to participate in the development of all new and changed guidance necessary to support the rule changes proposed in this petition.

4. Alternatives to Rulemaking and Related On-Going Regulatory Actions

A rulemaking is the most favorable approach to address the issues discussed above because the regulatory framework should accommodate the licensing of advanced reactor technologies in an efficient, clear and reliable manner. The proposed rulemaking is within the NRC’s jurisdiction because the agency has the legal authority and responsibility to regulate the civilian uses of nuclear materials, including the licensing of domestic nuclear power facilities, as described in the Atomic Energy Act of 1954, as amended. Incorporating the proposed requirements would involve making changes to regulations previously issued by the NRC.

The industry notes that the Commission has approved the staff’s recommendation to initiate a rulemaking to revise regulations and guidance for emergency preparedness (EP) for small modular reactors and other new technologies, such as non-light-water reactors and medical isotope production facilities.⁴ This rulemaking will develop EP requirements that are commensurate with the potential consequences to public health and safety, as determined for a spectrum of accidents. The staff subsequently requested Commission approval of a proposed rulemaking plan and provided the following estimated schedule:⁵

- Initiate regulatory basis phase – August 2016
- Complete regulatory basis – March 2017

⁴ Staff Requirements – SECY-15-0077 – Options for Emergency Preparedness for Small Modular Reactors and Other New Technologies

⁵ SECY-16-0069, “Rulemaking Plan on Emergency Preparedness for Small Modular Reactors and Other New Technologies”

NEI White Paper: Proposed Physical Security Requirements for Advanced Reactor Technologies

- Publish proposed rule – September 2018
- Publish final rule – April 2020

The reasons cited by the NRC staff for initiating the EP rulemaking are similar to those noted in this white paper. Further, in approving the staff’s request to begin an EP rulemaking, the Commissioners also made several observations in their response (vote) sheets that are consistent with the industry’s request for a physical security rulemaking.

“I agree with my colleagues that this approach [*a rulemaking*] will provide greater regulatory stability and more opportunity for external stakeholder involvement in the development of EP requirements for SMRs and non-light-water reactor technologies.”

~ Chairman Burns

“This rulemaking will provide greater clarity and regulatory stability for future applicants and greater transparency for all stakeholders as the agency considers the appropriate EP requirements for these facilities.

...

However, the staff should strive to complete this rulemaking in order to support issuance of any new permit, license, or certification, rather than rely on the exemption process.”

~ Commissioner Ostendorff

“A rulemaking will provide regulatory certainty to potential applicants and offer the public an opportunity to comment on novel approaches to emergency preparedness. Without a rulemaking, potential applicants likely would seek exemptions from NRC's existing EPZ requirements, which were established for large light-water reactors. Relying on the exemption process would result in NRC making important and potentially controversial safety decisions without hearing the views of interested stakeholders. The exemption process also would not provide regulatory clarity and transparency to future applicants and other stakeholders.”

~ Commissioner Baran

Addressing new security policy and technical issues broadly applicable to new technologies through exemptions, alternative measures and/or license conditions would be not be efficient or predictable. In addition, portions of the underlying regulatory and technical bases for the EP rulemaking may have applicability in the physical security arena. Thus, moving forward with a rulemaking in 2017 to revise regulations and guidance for physical security for advanced reactor technologies will also promote regulatory consistency and efficiency.

The industry believes that a rulemaking could also serve as a vehicle to address the topics of security coping time and implementation of mitigation strategies, as discussed in “Staff Requirements - SECY-16-0073 – Options and Recommendations for the Force-on-Force

NEI White Paper: Proposed Physical Security Requirements for Advanced Reactor Technologies

Inspection Program in Response to SRM-SECY-14-0088.” The staff may wish to use this opportunity to consider new physical security requirements concerning allowable regulatory credit for the performance of operator actions, the use of additional equipment such as "flex equipment," which was installed to enhance safety but can also provide a security benefit, and actions by local, State, or Federal law enforcement officials. Likewise, a clarification of, or change to, the term “high assurance” – as it relates to the NRC’s term “reasonable assurance” – could be considered within the proposed rulemaking.

Finally, concerning another related topic, NEI submitted a petition for rulemaking (PRM-73-18) in June of 2014 to amend the NRC’s cyber security requirements in 10 CFR 73.54, “Protection of Digital Computer and Communication Systems and Networks.”⁶ The issues raised in PRM-73-18 are also applicable to advanced reactor technologies. This observation notwithstanding, the industry believes that resolution of PRM-73-18 should proceed independently of the NRC’s consideration of the physical security regulatory changes proposed in this white paper.

⁶ Refer to 79 Fed. Reg. 56525 (September 22, 2014) and Docket ID NRC-2014- 0165.

NEI White Paper: Proposed Physical Security Requirements for Advanced Reactor Technologies

Attachment 1 – Proposed Changes to 10 CFR for New Physical Security Requirements for Advanced Reactor Technologies

Location	Proposed Rule Language	Basis
§ 50.34 Contents of applications; technical information.	* * * * *	
	(c) * * *	
	(2) Each applicant for an operating license for a utilization facility that will be subject to the requirements of § 73.52 or § 73.55 of this chapter must include a physical security plan, a training and qualification plan in accordance with the criteria set forth in appendix B to part 73 of this chapter, and a cyber security plan in accordance with the criteria set forth in § 73.54 of this chapter.	This is a conforming change to support the addition of § 73.52. Applicants will be directed to the appropriate sections of Appendix B by the requirements in § 73.52 or § 73.55.
	(d) * * *	
	(2) Each application for a license to operate a utilization facility that will be subject to § 73.52 or § 73.55 of this chapter must include a licensee safeguards contingency plan in accordance with the criteria set forth in appendix C to part 73 of this chapter. The “implementing procedures” required in appendix C to part 73 of this chapter do not have to be submitted to the Commission for approval.	This is a conforming change to support the addition of § 73.52. Applicants will be directed to the appropriate sections of Appendix C by the requirements in § 73.52 or § 73.55.
	* * * * *	
§ 52.79 Contents of applications; technical information in final safety analysis report. Footnote 8	* * * * *	
	⁸ A physical security plan that contains all the information required in § 73.52 or § 73.55 of this chapter, and appendix C to 10 CFR part 73 satisfies the	This is a conforming change to support the addition of § 73.52. Applicants will submit a contingency plan based on the requirements in either § 73.52 or § 73.55 depending upon the

NEI White Paper: Proposed Physical Security Requirements for Advanced Reactor Technologies

Attachment 1 – Proposed Changes to 10 CFR for New Physical Security Requirements for Advanced Reactor Technologies

Location	Proposed Rule Language	Basis
	requirement for a contingency plan.	performance capabilities of the facility design.
	* * * * *	
§ 72.212 Conditions of general license issued under § 72.210.	* * * * *	
	(b) * * *	
	(9) Protect the spent fuel against the design basis threat of radiological sabotage in accordance with the same provisions and requirements as are set forth in the licensee’s physical security plan pursuant to § 73.52 or § 73.55 of this chapter with the following additional conditions and exceptions:	This is a conforming change to support the addition of § 73.52.
	(i) The physical security organization and program for the facility must be modified as necessary to assure that activities conducted under this general license do not decrease the effectiveness of the protection of vital equipment in accordance with § 73.52 or § 73.55 of this chapter;	This is a conforming change to support the addition of § 73.52.
	(ii) Storage of spent fuel must be within a protected area, in accordance with § 73.52(e) or § 73.55(e) of this chapter, but need not be within a separate vital area. Existing protected areas may be expanded or new protected areas added for the purpose of storage of spent fuel in accordance with this general license;	This is a conforming change to support the addition of § 73.52.
(iii) For the purpose of this general license, personnel searches required by § 73.52(h) or § 73.55(h) of this chapter before admission to a new protected area may	This is a conforming change to support the addition of § 73.52.	

NEI White Paper: Proposed Physical Security Requirements for Advanced Reactor Technologies

Attachment 1 – Proposed Changes to 10 CFR for New Physical Security Requirements for Advanced Reactor Technologies

Location	Proposed Rule Language	Basis
	be performed by physical pat-down searches of persons in lieu of firearms and explosives detection equipment;	
	(iv) The observational capability required by § 73.52(i)(3) or § 73.55(i)(3) of this chapter as applied to a new protected area may be provided by a guard or watchman on patrol in lieu of video surveillance technology;	This is a conforming change to support the addition of § 73.52.
	* * * * *	
§ 73.2 Definitions.	(a) * * *	
	<i>Achievable Target Set</i> means a target set that is within the ability of the design basis threat of radiological sabotage as defined in § 73.1 to compromise, destroy, or render nonfunctional, independent of response strategy.	This term is being added to promote a clear understanding and application of the performance capability stated in § 73.52 (a)(1)(ii). The proposed definition is consistent with that provided in Regulatory Guide 5.81, “Target Set Identification and Development for Nuclear Power Reactors.”
	* * *	
	<i>Significant core damage</i> means nonincipient, nonlocalized fuel melting and/or core destruction.	This term is being added to promote a clear understanding and application of the performance capabilities stated in § 73.52 (a)(1)(i) and (iii). The proposed definition is consistent with that provided in Regulatory Guide 5.81, “Target Set Identification and Development for Nuclear Power Reactors.”
* * *		

NEI White Paper: Proposed Physical Security Requirements for Advanced Reactor Technologies

Attachment 1 – Proposed Changes to 10 CFR for New Physical Security Requirements for Advanced Reactor Technologies

Location	Proposed Rule Language	Basis
	<i>Spent fuel sabotage</i> means a loss of spent fuel pool water inventory and exposure of spent fuel.	This term is being added to promote a clear understanding and application of the performance capabilities stated in § 73.52 (a)(1)(i) and (iii). The proposed definition is consistent with that provided in Regulatory Guide 5.81, “Target Set Identification and Development for Nuclear Power Reactors.”
	* * *	
	<i>Target set</i> means 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 likely result in radiological sabotage, specifically, significant core damage or spent fuel sabotage, barring extraordinary actions by plant operations.	This term is being added to promote a clear understanding and application of the performance capabilities stated in § 73.52 (a)(1)(ii) and (iii). The proposed definition is consistent with that provided in Regulatory Guide 5.81, “Target Set Identification and Development for Nuclear Power Reactors.”
	* * * * *	
*** Add new § 73.52 as presented below. ***		
§ 73.52	Requirements for physical protection of licensed activities in nuclear power reactors with performance capabilities precluding radiological sabotage.	New § 73.52 added to support a clear, predictable and stable process for the licensing of advanced reactor technologies with designs and related capabilities that can prevent significant core damage and spent fuel sabotage without reliance upon an onsite armed response force.
(a) <i>Introduction.</i>	(1) The requirements of this section are applicable, in	This paragraph specifies licensing part

NEI White Paper: Proposed Physical Security Requirements for Advanced Reactor Technologies

Attachment 1 – Proposed Changes to 10 CFR for New Physical Security Requirements for Advanced Reactor Technologies

Location	Proposed Rule Language	Basis
	<p>lieu of the requirements provided in 10 CFR § 73.55, to each nuclear power reactor applicant for an operating license under 10 CFR part 50, or a combined license under 10 CFR part 52, and each nuclear power reactor licensee, licensed under 10 CFR part 50 or part 52, with a facility design meeting one or more of the following performance capabilities:</p>	<p>applicability for the applicants and licensees that seek to conduct physical protection of activities under the requirements of this section. It also specifies the criteria that an applicant would need to meet in order to employ the physical security framework defined in this section. In addition, it clearly states that the requirements of § 73.55 do not apply to an applicant or licensee meeting the requirements of § 73.52.</p>
	<p>(i) The facility uses a reactor technology that is not susceptible to significant core damage and spent fuel sabotage; or</p>	<p>An example of meeting this criterion: A high temperature gas-cooled reactor.</p>
	<p>(ii) The facility does not have an achievable target set; or</p>	<p>An example of meeting this criterion: The engineered security features of a facility adequately protect one or more target elements such that a complete target set cannot be compromised, destroyed, or rendered nonfunctional.</p>
	<p>(iii) The facility 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.</p>	<p>An example of meeting this criterion: The design features of a facility are such that it can sustain the loss of a target set for 12 hours before the onset of significant core damage. The facility staff has arrangements with local law enforcement to clear certain areas within 6 hours of notification and the ability to implement mitigation strategies using portable equipment within the following 3 hours (e.g.,</p>

NEI White Paper: Proposed Physical Security Requirements for Advanced Reactor Technologies

Attachment 1 – Proposed Changes to 10 CFR for New Physical Security Requirements for Advanced Reactor Technologies

Location	Proposed Rule Language	Basis
		by employing FLEX or EDMG strategies). The implementation of mitigation strategies will prevent significant core damage (i.e., 9 hours < 12 hours). The actual elapsed times for a given applicant or licensee will be design and site-specific.
	(2) An applicant seeking to conduct physical protection of licensed activities in accordance with the requirements of this section must submit an analysis to demonstrate that the facility design meets one or more of the performance capabilities specified in paragraph (a)(1).	This requirement is included to ensure that the NRC reviews the technical basis supporting an applicant’s request to conduct physical security under the provisions of this section.
	(3) Applicants shall implement the requirements of this section before fuel is allowed onsite (protected area).	This requirement is included to maintain consistency with introduction of § 73.55. References to 10 CFR parts 50 and 52 are not needed since the licensing applicability for this section is specified in paragraph (a)(1) and need not be repeated here.
	(4) Each nuclear power reactor licensee shall implement the requirements of this section through its Commission-approved Physical Security Plan, Training and Qualification Plan, Safeguards Contingency Plan, and Cyber Security Plan referred to collectively hereafter as “security plans.”	This requirement is included to maintain consistency with introduction of § 73.55. References to 10 CFR parts 50 and 52 are not needed since the licensing applicability for this section is specified in paragraph (a)(1) and need not be repeated here.
	(5) The security plans must identify, describe, and account for site-specific conditions that affect the licensee’s capability to satisfy the requirements of this section.	This requirement is included to maintain consistency with introduction of § 73.55.

NEI White Paper: Proposed Physical Security Requirements for Advanced Reactor Technologies

Attachment 1 – Proposed Changes to 10 CFR for New Physical Security Requirements for Advanced Reactor Technologies

Location	Proposed Rule Language	Basis
	(6) The licensee is responsible for maintaining the onsite physical protection program in accordance with Commission regulations through the implementation of security plans and written security implementing procedures.	This requirement is included to maintain consistency with introduction of § 73.55.
	(7) Applicants and licensees using a facility meeting a performance capability specified in (a)(1)(i) are exempt from the provisions of paragraph (f).	A facility using a design that is not susceptible to significant core damage and spent fuel sabotage will not have a target set.
	(8) Applicants and licensees using a facility meeting a performance capability specified in (a)(1) and authorized to use special nuclear material in the form of MOX fuel assemblies containing up to 20 weight percent PuO ₂ shall meet the requirements of § 73.52(k).	This requirement is included to maintain consistency with unique requirements in § 73.55 for the protection of MOX fuel assemblies.
(b) <i>General performance objective and requirements.</i>	(1) The licensee shall establish and maintain a physical protection program, to include a security organization, which will have as its objective to provide high assurance that activities involving special nuclear material are not inimical to the common defense and security and do not constitute an unreasonable risk to the public health and safety.	This requirement is included to maintain consistency with security performance objective and requirements of § 73.55.
	(2) To satisfy the general performance objective of paragraph (b)(1) of this section, the physical protection program must protect against the design basis threat of radiological sabotage as stated in § 73.1.	This requirement is included to maintain consistency with security performance objective and requirements of § 73.55.
	(3) The physical protection program must be designed to prevent significant core damage and spent fuel sabotage. Specifically, the program must:	This requirement is included to maintain consistency with security performance objective and requirements of § 73.55.

NEI White Paper: Proposed Physical Security Requirements for Advanced Reactor Technologies

Attachment 1 – Proposed Changes to 10 CFR for New Physical Security Requirements for Advanced Reactor Technologies

Location	Proposed Rule Language	Basis
	(i) Ensure that the capabilities to detect and assess threats up to and including the design basis threat of radiological sabotage as stated in § 73.1, and to promptly summon local law enforcement assistance, are maintained at all times.	This requirement is included to maintain consistency with security performance objective and requirements of § 73.55. Consistent with the objective and basis for § 73.52, the requirement for the licensee to maintain a capability to interdict and neutralize threats was not included.
	(ii) Provide defense-in-depth through the integration of systems, technologies, programs, equipment, supporting processes, and implementing procedures as needed to ensure the effectiveness of the physical protection program.	This requirement is included to maintain consistency with security performance objective and requirements of § 73.55.
	(4) The licensee shall analyze and identify site-specific conditions, including target sets, that may affect the specific measures needed to implement the requirements of this section and shall account for these conditions in the design of the physical protection program.	This requirement is included to maintain consistency with security performance objective and requirements of § 73.55.
	(5) Upon the request of an authorized representative of the Commission, the licensee shall demonstrate the ability to meet Commission requirements through the implementation of the physical protection program, including the ability of armed and unarmed personnel to perform assigned duties and responsibilities required by the security plans and licensee procedures.	This requirement is included to maintain consistency with security performance objective and requirements of § 73.55.
	(6) The licensee shall establish, maintain, and implement an access authorization program in accordance with § 73.56 and shall describe the program	This requirement is included to maintain consistency with security performance objective and requirements of § 73.55.

NEI White Paper: Proposed Physical Security Requirements for Advanced Reactor Technologies

Attachment 1 – Proposed Changes to 10 CFR for New Physical Security Requirements for Advanced Reactor Technologies

Location	Proposed Rule Language	Basis
	in the Physical Security Plan.	
	(7) The licensee shall establish, maintain, and implement a cyber security program in accordance with § 73.54.	This requirement is included to maintain consistency with security performance objective and requirements of § 73.55.
	(8) The licensee shall establish, maintain, and implement an insider mitigation program and shall describe the program in the Physical Security Plan.	This requirement is included to maintain consistency with security performance objective and requirements of § 73.55.
	(i) The insider mitigation program must monitor the initial and continuing trustworthiness and reliability of individuals granted or retaining unescorted access authorization to a protected or vital area, and implement defense-in-depth methodologies to minimize the potential for an insider to adversely affect, either directly or indirectly, the licensee’s capability to prevent significant core damage and spent fuel sabotage.	This requirement is included to maintain consistency with security performance objective and requirements of § 73.55.
	(ii) The insider mitigation program must contain elements from:	This requirement is included to maintain consistency with security performance objective and requirements of § 73.55.
	(A) The access authorization program described in § 73.56;	This requirement is included to maintain consistency with security performance objective and requirements of § 73.55.
	(B) The fitness-for-duty program described in part 26 of this chapter;	This requirement is included to maintain consistency with security performance objective and requirements of § 73.55.
	(C) The cyber security program described in § 73.54; and	This requirement is included to maintain consistency with security performance objective

NEI White Paper: Proposed Physical Security Requirements for Advanced Reactor Technologies

Attachment 1 – Proposed Changes to 10 CFR for New Physical Security Requirements for Advanced Reactor Technologies

Location	Proposed Rule Language	Basis
		and requirements of § 73.55.
	(D) The physical protection program described in this section.	This requirement is included to maintain consistency with security performance objective and requirements of § 73.55.
	(9) The licensee shall use the site corrective action program to track, trend, correct and prevent recurrence of failures and deficiencies in the physical protection program.	This requirement is included to maintain consistency with security performance objective and requirements of § 73.55.
	(10) Implementation of security plans and associated procedures must be coordinated with other onsite plans and procedures to preclude conflict during both normal and emergency conditions.	This requirement is included to maintain consistency with security performance objective and requirements of § 73.55.
(c) <i>Security plans.</i>	(1) Licensee security plans must describe:	This requirement is included to maintain consistency with the security plans developed under § 73.55.
	(i) How the licensee will implement requirements of this section through the establishment and maintenance of a security organization, the use of security equipment and technology, the training and qualification of security personnel, the implementation of predetermined response plans and strategies, and the protection of digital computer and communication systems and networks.	This requirement is included to maintain consistency with the security plans developed under § 73.55.
	(ii) Site-specific conditions that affect how the licensee implements Commission requirements.	This requirement is included to maintain consistency with the security plans developed under § 73.55.

NEI White Paper: Proposed Physical Security Requirements for Advanced Reactor Technologies

Attachment 1 – Proposed Changes to 10 CFR for New Physical Security Requirements for Advanced Reactor Technologies

Location	Proposed Rule Language	Basis
	(2) Protection of Security Plans. The licensee shall protect the security plans and other security-related information against unauthorized disclosure in accordance with the requirements of § 73.21.	This requirement is included to maintain consistency with the security plans developed under § 73.55.
	(3) Physical Security Plan. The licensee shall establish, maintain, and implement a Physical Security Plan which describes how the performance objective and requirements set forth in this section will be implemented.	This requirement is included to maintain consistency with the security plans developed under § 73.55.
	(i) Licensees shall establish, maintain, and implement a threat warning system which identifies specific graduated protective measures and actions to be taken to increase licensee preparedness against a heightened security threat.	This requirement was relocated from § 73.55(k)(10) and is included to maintain consistency with the security plans developed under § 73.55.
	(A) Licensees shall ensure that the specific protective measures and actions identified for each threat level are consistent with the security plans and other emergency plans and procedures.	This requirement was relocated from § 73.55(k)(10)(i) and is included to maintain consistency with the security plans developed under § 73.55.
	(B) Upon notification by an authorized representative of the Commission, licensees shall implement the specific threat level indicated by the Commission representative.	This requirement was relocated from § 73.55(k)(10)(ii) and is included to maintain consistency with the security plans developed under § 73.55.
	(4) Training and Qualification Plan. The licensee shall establish, maintain, and implement, and follow a Training and Qualification Plan that describes how the criteria set forth in appendix B, “General Criteria for Security Personnel,” sections I through V, to this part,	The training and qualification plan provisions described in 10 CFR 73, Appendix B, Sections I through V, are adequate to prepare a security officer force for the performance of the functions and tasks required by § 73.52. See

NEI White Paper: Proposed Physical Security Requirements for Advanced Reactor Technologies

Attachment 1 – Proposed Changes to 10 CFR for New Physical Security Requirements for Advanced Reactor Technologies

Location	Proposed Rule Language	Basis
	will be implemented.	additional discussion in Section 3, “Proposed Solution,” of this white paper.
	(5) Safeguards Contingency Plan. The licensee shall establish, maintain, and implement a Safeguards Contingency Plan that describes how the criteria set forth in appendix C, “Licensee Safeguards Contingency Plans,” section I, to this part will be implemented.	The safeguards contingency plan provisions described in 10 CFR 73, Appendix C, Section I, are adequate to guide the development of arrangements and procedures for implementing the threat response requirements of § 73.52. See additional discussion in Section 3, “Proposed Solution,” of this white paper.
	(i) To the extent practicable, licensees shall document and maintain current agreements with applicable law enforcement agencies to include estimated response times and capabilities.	This requirement was relocated from § 73.55(k)(9) and is included to maintain consistency with the security plans developed under § 73.55.
	(6) Cyber Security Plan. The licensee shall establish, maintain, and implement a Cyber Security Plan that describes how the criteria set forth in § 73.54 “Protection of Digital Computer and Communication systems and Networks” of this part will be implemented.	This requirement is included to maintain consistency with the security plans developed under § 73.55.
	(7) Security implementing procedures.	This requirement is included to maintain consistency with the security plans developed under § 73.55.
	(i) The licensee shall have a management system to provide for the development, implementation, revision, and oversight of security procedures that implement Commission requirements and the security plans.	This requirement is included to maintain consistency with the security plans developed under § 73.55.
	(ii) Implementing procedures must document the	This requirement is included to maintain

NEI White Paper: Proposed Physical Security Requirements for Advanced Reactor Technologies

Attachment 1 – Proposed Changes to 10 CFR for New Physical Security Requirements for Advanced Reactor Technologies

Location	Proposed Rule Language	Basis
	structure of the security organization and detail the types of duties, responsibilities, actions, and decisions to be performed or made by each position of the security organization.	consistency with the security plans developed under § 73.55.
	(iii) The licensee shall:	This requirement is included to maintain consistency with the security plans developed under § 73.55.
	(A) Provide a process for the written approval of implementing procedures and revisions by the individual with overall responsibility for the security program.	This requirement is included to maintain consistency with the security plans developed under § 73.55.
	(B) Ensure that revisions to security implementing procedures satisfy the requirements of this section.	This requirement is included to maintain consistency with the security plans developed under § 73.55.
	(iv) Implementing procedures need not be submitted to the Commission for approval, but are subject to inspection by the Commission.	This requirement is included to maintain consistency with the security plans developed under § 73.55.
(d) <i>Security organization.</i>	(1) The licensee shall establish and maintain a security organization that is designed, staffed, trained, qualified, and equipped to implement the physical protection program in accordance with the requirements of this section.	This requirement is included to maintain consistency with a security organization developed under § 73.55.
	(2) The security organization must include:	This requirement is included to maintain consistency with a security organization developed under § 73.55.
	(i) A management system that provides oversight of the	This requirement is included to maintain

NEI White Paper: Proposed Physical Security Requirements for Advanced Reactor Technologies

Attachment 1 – Proposed Changes to 10 CFR for New Physical Security Requirements for Advanced Reactor Technologies

Location	Proposed Rule Language	Basis
	onsite physical protection program.	consistency with a security organization developed under § 73.55.
	(ii) At least one member, onsite and available at all times, who has the authority to direct the activities of the security organization and who is assigned no other duties that would interfere with this individual’s ability to perform these duties in accordance with the security plans.	This requirement is included to maintain consistency with a security organization developed under § 73.55.
	(3) The licensee may not permit any individual to implement any part of the physical protection program unless the individual has been trained, equipped, and qualified to perform their assigned duties and responsibilities in accordance with appendix B, sections I through V, to this part and the Training and Qualification Plan. Non-security personnel may be assigned duties and responsibilities required to implement the physical protection program and shall:	This requirement is included to maintain consistency with a security organization developed under § 73.55. The training and qualification plan provisions described in 10 CFR 73, Appendix B, Sections I through V, are adequate to prepare a security officer force for the performance of the functions and tasks required by § 73.52. See additional discussion in Section 3, “Proposed Solution,” of this white paper.
	(i) Be trained through established licensee training programs to ensure each individual is trained, qualified, and periodically re-qualified to perform assigned duties.	This requirement is included to maintain consistency with a security organization developed under § 73.55.
	(ii) Be properly equipped to perform assigned duties.	This requirement is included to maintain consistency with a security organization developed under § 73.55.
	(iii) Possess the knowledge, skills, and abilities, to include physical attributes such as sight and hearing, required to perform their assigned duties and	This requirement is included to maintain consistency with a security organization developed under § 73.55.

NEI White Paper: Proposed Physical Security Requirements for Advanced Reactor Technologies

Attachment 1 – Proposed Changes to 10 CFR for New Physical Security Requirements for Advanced Reactor Technologies

Location	Proposed Rule Language	Basis
	responsibilities.	
(e) <i>Physical barriers.</i>	Each licensee shall identify and analyze site-specific conditions to determine the specific use, type, function, and placement of physical barriers needed to satisfy the physical protection program design requirements of § 73.52(b).	This requirement is included to maintain consistency with physical barriers developed under § 73.55. As a conforming change, changed reference from § 73.55(b) to § 73.52(b).
	(1) The licensee shall:	This requirement is included to maintain consistency with physical barriers developed under § 73.55.
	(i) Design, construct, install and maintain physical barriers as necessary to control access into facility areas for which access must be controlled or denied to satisfy the physical protection program design requirements of paragraph (b) of this section.	This requirement is included to maintain consistency with physical barriers developed under § 73.55.
	(ii) Describe in the physical security plan, physical barriers, barrier systems, and their functions within the physical protection program.	This requirement is included to maintain consistency with physical barriers developed under § 73.55.
	(2) The licensee shall retain, in accordance with § 73.70, all analyses and descriptions of the physical barriers and barrier systems used to satisfy the requirements of this section, and shall protect these records in accordance with the requirements of § 73.21.	This requirement is included to maintain consistency with physical barriers developed under § 73.55.
	(3) Physical barriers must:	This requirement is included to maintain consistency with physical barriers developed under § 73.55.
	(i) Be designed and constructed to:	This requirement is included to maintain

NEI White Paper: Proposed Physical Security Requirements for Advanced Reactor Technologies

Attachment 1 – Proposed Changes to 10 CFR for New Physical Security Requirements for Advanced Reactor Technologies

Location	Proposed Rule Language	Basis
		consistency with physical barriers developed under § 73.55.
	(A) Protect against the design basis threat of radiological sabotage;	This requirement is included to maintain consistency with physical barriers developed under § 73.55.
	(B) Account for site-specific conditions; and	This requirement is included to maintain consistency with physical barriers developed under § 73.55.
	(C) Perform their required function in support of the licensee physical protection program.	This requirement is included to maintain consistency with physical barriers developed under § 73.55.
	(ii) Provide deterrence, delay, or support access control.	This requirement is included to maintain consistency with physical barriers developed under § 73.55.
	(iii) Support effective implementation of the licensee’s Safeguards Contingency Plan.	This requirement is included to maintain consistency with physical barriers developed under § 73.55.
	(4) Consistent with the stated function to be performed, openings in any barrier or barrier system established to meet the requirements of this section must be secured and monitored to prevent exploitation of the opening.	This requirement is included to maintain consistency with physical barriers developed under § 73.55.
	(5) Bullet Resisting Physical Barriers. The reactor control room, the central alarm station, and the location within which the last access control function for access to the protected area is performed, must be bullet-resisting.	This requirement is included to maintain consistency with physical barriers developed under § 73.55.

NEI White Paper: Proposed Physical Security Requirements for Advanced Reactor Technologies

Attachment 1 – Proposed Changes to 10 CFR for New Physical Security Requirements for Advanced Reactor Technologies

Location	Proposed Rule Language	Basis
	(6) Owner controlled area. The licensee shall establish and maintain physical barriers in the owner controlled area as needed to satisfy the physical protection program design requirements of § 73.52(b).	This requirement is included to maintain consistency with physical barriers developed under § 73.55. As a conforming change, changed reference from § 73.55(b) to § 73.52(b).
	(7) Isolation zone.	This requirement is included to maintain consistency with physical barriers developed under § 73.55.
	(i) An isolation zone must be maintained in outdoor areas adjacent to the protected area perimeter barrier. The isolation zone shall be:	This requirement is included to maintain consistency with physical barriers developed under § 73.55.
	(A) Designed and of sufficient size to permit observation and assessment of activities on either side of the protected area barrier;	This requirement is included to maintain consistency with physical barriers developed under § 73.55.
	(B) Monitored with intrusion detection equipment designed to satisfy the requirements of § 73.52(i) and be capable of detecting both attempted and actual penetration of the protected area perimeter barrier before completed penetration of the protected area perimeter barrier; and	This requirement is included to maintain consistency with physical barriers developed under § 73.55. As a conforming change, changed reference from § 73.55(i) to § 73.52(i).
	(C) Monitored with assessment equipment designed to satisfy the requirements of § 73.52(i) and provide the capability of viewing images of the detected activities before and after each alarm annunciation.	This requirement is included to maintain consistency with physical barriers developed under § 73.55. As a conforming change, changed reference from § 73.55(i) to § 73.52(i).
	(ii) Obstructions that could prevent the licensee’s capability to meet the observation and assessment requirements of this section must be located outside of	This requirement is included to maintain consistency with physical barriers developed

NEI White Paper: Proposed Physical Security Requirements for Advanced Reactor Technologies

Attachment 1 – Proposed Changes to 10 CFR for New Physical Security Requirements for Advanced Reactor Technologies

Location	Proposed Rule Language	Basis
	the isolation zone.	under § 73.55.
	(8) Protected area.	This requirement is included to maintain consistency with physical barriers developed under § 73.55.
	(i) The protected area perimeter must be protected by physical barriers that are designed and constructed to:	This requirement is included to maintain consistency with physical barriers developed under § 73.55.
	(A) Limit access into the protected area to only those personnel, vehicles, and materials required to perform official duties;	This requirement is included to maintain consistency with physical barriers developed under § 73.55.
	(B) Channel personnel, vehicles, and materials to designated access control portals; and	This requirement is included to maintain consistency with physical barriers developed under § 73.55.
	(C) Be separated from any other barrier designated as a vital area physical barrier, unless otherwise identified in the Physical Security Plan.	This requirement is included to maintain consistency with physical barriers developed under § 73.55.
	(ii) Penetrations through the protected area barrier must be secured and monitored in a manner that prevents or delays, and detects the exploitation of any penetration.	This requirement is included to maintain consistency with physical barriers developed under § 73.55.
	(iii) All emergency exits in the protected area must be alarmed and secured by locking devices that allow prompt egress during an emergency and satisfy the requirements of this section for access control into the protected area.	This requirement is included to maintain consistency with physical barriers developed under § 73.55.
	(iv) Where exterior building walls or roofs comprise a portion of the protected area perimeter barrier, an	This requirement is included to maintain consistency with physical barriers developed

NEI White Paper: Proposed Physical Security Requirements for Advanced Reactor Technologies

Attachment 1 – Proposed Changes to 10 CFR for New Physical Security Requirements for Advanced Reactor Technologies

Location	Proposed Rule Language	Basis
	isolation zone is not necessary provided that the detection and assessment requirements of this section are met, appropriate barriers are installed, and the area is described in the security plans.	under § 73.55.
	(v) Where interior building walls or roofs comprise a portion of the protected area perimeter barrier, an isolation zone is not necessary provided that:	This requirement is included to maintain consistency with physical barriers developed under § 73.55 and to address operating experience related to the use of interior building walls as a physical barrier.
	(A) The barrier is monitored by intrusion detection equipment designed to satisfy the requirements of § 73.52(i) and be capable of detecting both attempted and actual penetration of the protected area perimeter barrier; or	This requirement is included to maintain consistency with physical barriers developed under § 73.55 and to address operating experience related to the use of interior building walls as a physical barrier.
	(B) The barrier is monitored by the continuous presence of a security officer capable of communicating both an attempted or actual penetration of the barrier.	This requirement is included to maintain consistency with physical barriers developed under § 73.55 and to address operating experience related to the use of interior building walls as a physical barrier.
	(vi) All exterior areas within the protected area, except for areas that must be excluded for safety reasons, must be periodically checked to detect and deter unauthorized personnel, vehicles, and materials.	This requirement is included to maintain consistency with physical barriers developed under § 73.55.
	(9) Vital areas.	This requirement is included to maintain consistency with physical barriers developed under § 73.55.
	(i) Vital equipment must be located only within vital	This requirement is included to maintain

NEI White Paper: Proposed Physical Security Requirements for Advanced Reactor Technologies

Attachment 1 – Proposed Changes to 10 CFR for New Physical Security Requirements for Advanced Reactor Technologies

Location	Proposed Rule Language	Basis
	areas, which must be located within a protected area so that access to vital equipment requires passage through at least two physical barriers, except as otherwise approved by the Commission and identified in the security plans.	consistency with physical barriers developed under § 73.55.
	(ii) The licensee shall protect all vital area access portals and vital area emergency exits with intrusion detection equipment and locking devices that allow rapid egress during an emergency and satisfy the vital area entry control requirements of this section.	This requirement is included to maintain consistency with physical barriers developed under § 73.55.
	(iii) Unoccupied vital areas must be locked and alarmed.	This requirement is included to maintain consistency with physical barriers developed under § 73.55.
	(iv) More than one vital area may be located within a single protected area.	This requirement is included to maintain consistency with physical barriers developed under § 73.55.
	(v) At a minimum, the following shall be considered vital areas:	This requirement is included to maintain consistency with physical barriers developed under § 73.55.
	(A) The reactor control room;	This requirement is included to maintain consistency with physical barriers developed under § 73.55.
	(B) The spent fuel pool;	This requirement is included to maintain consistency with physical barriers developed under § 73.55.
	(C) The central alarm station; and	This requirement is included to maintain

NEI White Paper: Proposed Physical Security Requirements for Advanced Reactor Technologies

Attachment 1 – Proposed Changes to 10 CFR for New Physical Security Requirements for Advanced Reactor Technologies

Location	Proposed Rule Language	Basis
		consistency with physical barriers developed under § 73.55.
	(D) The secondary alarm station in accordance with § 73.52(i)(4)(iii).	This requirement is included to maintain consistency with physical barriers developed under § 73.55. As a conforming change, changed reference from § 73.55(i)(4)(iii) to § 73.52(i)(4)(iii).
	(vi) At a minimum, the following shall be located within a vital area:	This requirement is included to maintain consistency with physical barriers developed under § 73.55.
	(A) The secondary power supply systems for alarm annunciation equipment; and	This requirement is included to maintain consistency with physical barriers developed under § 73.55.
	(B) The secondary power supply systems for non-portable communications equipment.	This requirement is included to maintain consistency with physical barriers developed under § 73.55.
	(10) Vehicle control measures. Consistent with the physical protection program design requirements of § 73.52(b), and in accordance with the site-specific analysis, the licensee shall establish and maintain vehicle control measures, as necessary, to protect against the design basis threat of radiological sabotage vehicle bomb assault.	This requirement is included to maintain consistency with physical barriers developed under § 73.55. As a conforming change, changed reference from § 73.55(b) to § 73.52(b).
	(i) Land vehicles. Licensees shall:	This requirement is included to maintain consistency with physical barriers developed under § 73.55.

NEI White Paper: Proposed Physical Security Requirements for Advanced Reactor Technologies

Attachment 1 – Proposed Changes to 10 CFR for New Physical Security Requirements for Advanced Reactor Technologies

Location	Proposed Rule Language	Basis
	(A) Design, construct, install, and maintain a vehicle barrier system, to include passive and active barriers, at a stand- off distance adequate to protect personnel, equipment, and systems necessary to prevent significant core damage and spent fuel sabotage against the effects of the design basis threat of radiological sabotage land vehicle bomb assault.	This requirement is included to maintain consistency with physical barriers developed under § 73.55.
	(B) Periodically check the operation of active vehicle barriers and provide a secondary power source, or a means of mechanical or manual operation in the event of a power failure, to ensure that the active barrier can be placed in the denial position to prevent unauthorized vehicle access beyond the required standoff distance.	This requirement is included to maintain consistency with physical barriers developed under § 73.55.
	(C) Provide periodic surveillance and observation of vehicle barriers and barrier systems adequate to detect indications of tampering and degradation or to otherwise ensure that each vehicle barrier and barrier system is able to satisfy the intended function.	This requirement is included to maintain consistency with physical barriers developed under § 73.55.
	(D) Where a site has rail access to the protected area, install a train derailer, remove a section of track, or restrict access to railroad sidings and provide periodic surveillance of these measures.	This requirement is included to maintain consistency with physical barriers developed under § 73.55.
	(ii) Waterborne vehicles. Licensees shall:	This requirement is included to maintain consistency with physical barriers developed under § 73.55.
	(A) Identify areas from which a waterborne vehicle must be restricted, and where possible, in coordination	This requirement is included to maintain consistency with physical barriers developed

NEI White Paper: Proposed Physical Security Requirements for Advanced Reactor Technologies

Attachment 1 – Proposed Changes to 10 CFR for New Physical Security Requirements for Advanced Reactor Technologies

Location	Proposed Rule Language	Basis
	with local, State, and Federal agencies having jurisdiction over waterway approaches, deploy buoys, markers, or other equipment.	under § 73.55.
	(B) In accordance with the site-specific analysis, provide periodic surveillance and observation of waterway approaches and adjacent areas.	This requirement is included to maintain consistency with physical barriers developed under § 73.55.
(f) <i>Target sets.</i>	(1) The licensee shall document and maintain the process used to develop and identify target sets, to include the site-specific analyses and methodologies used to determine and group the target set equipment or elements.	This requirement is included to maintain consistency with target sets developed under § 73.55.
	(2) The licensee shall consider cyber attacks in the development and identification of target sets.	This requirement is included to maintain consistency with target sets developed under § 73.55.
	(3) Target set equipment or elements that are not contained within a protected or vital area must be identified and documented consistent with the requirements in § 73.52(f)(1).	This requirement is included to maintain consistency with target sets developed under § 73.55. As a conforming change, changed reference from § 73.55(f)(1) to § 73.52(f)(1).
	(4) The licensee shall implement a process for the oversight of target set equipment and systems to ensure that changes to the configuration of the identified equipment and systems are evaluated, and the facility continues to meet a performance capability specified in (a)(1)(ii) or (a)(1)(iii). Where appropriate, changes must be made to documented target sets.	This requirement is included to maintain consistency with target sets developed under § 73.55. Included a provision to assess change impacts on the continued ability of the facility to meet a performance capability allowing operation under § 73.52.
(g) <i>Access controls.</i>	(1) Consistent with the function of each barrier or barrier system, the licensee shall control personnel,	This requirement is included to maintain consistency with access controls developed

NEI White Paper: Proposed Physical Security Requirements for Advanced Reactor Technologies

Attachment 1 – Proposed Changes to 10 CFR for New Physical Security Requirements for Advanced Reactor Technologies

Location	Proposed Rule Language	Basis
	vehicle, and material access, as applicable, at each access control point in accordance with the physical protection program design requirements of § 73.52(b).	under § 73.55. As a conforming change, changed reference from § 73.55(b) to § 73.52(b).
	(i) To accomplish this, the licensee shall:	This requirement is included to maintain consistency with access controls developed under § 73.55.
	(A) Locate access control portals outside of, or concurrent with, the physical barrier system through which it controls access.	This requirement is included to maintain consistency with access controls developed under § 73.55.
	(B) Equip access control portals with locking devices, intrusion detection equipment, and surveillance equipment consistent with the intended function.	This requirement is included to maintain consistency with access controls developed under § 73.55.
	(C) Provide supervision and control over the badging process to prevent unauthorized bypass of access control equipment located at or outside of the protected area.	This requirement is included to maintain consistency with access controls developed under § 73.55.
	(D) Limit unescorted access to the protected area and vital areas, during non-emergency conditions, to only those individuals who require unescorted access to perform assigned duties and responsibilities.	This requirement is included to maintain consistency with access controls developed under § 73.55.
	(E) Assign an individual the responsibility for the last access control function (controlling admission to the protected area) and isolate the individual within a bullet-resisting structure to assure the ability of the individual to respond or summon assistance.	This requirement is included to maintain consistency with access controls developed under § 73.55.
	(ii) Where vehicle barriers are established, the licensee shall:	This requirement is included to maintain consistency with access controls developed

NEI White Paper: Proposed Physical Security Requirements for Advanced Reactor Technologies

Attachment 1 – Proposed Changes to 10 CFR for New Physical Security Requirements for Advanced Reactor Technologies

Location	Proposed Rule Language	Basis
		under § 73.55.
	(A) Physically control vehicle barrier portals to ensure only authorized vehicles are granted access through the barrier.	This requirement is included to maintain consistency with access controls developed under § 73.55.
	(B) Search vehicles and materials for contraband or other items which could be used to commit radiological sabotage in accordance with paragraph (h) of this section.	This requirement is included to maintain consistency with access controls developed under § 73.55.
	(C) Observe search functions to ensure a response can be initiated if needed.	This requirement is included to maintain consistency with access controls developed under § 73.55.
	(2) Before granting access into the protected area, the licensee shall:	This requirement is included to maintain consistency with access controls developed under § 73.55.
	(i) Confirm the identity of individuals.	This requirement is included to maintain consistency with access controls developed under § 73.55.
	(ii) Verify the authorization for access of individuals, vehicles, and materials.	This requirement is included to maintain consistency with access controls developed under § 73.55.
	(iii) Confirm, in accordance with industry shared lists and databases that individuals are not currently denied access to another licensed facility.	This requirement is included to maintain consistency with access controls developed under § 73.55.
	(iv) Search individuals, vehicles, and materials in accordance with paragraph (h) of this section.	This requirement is included to maintain consistency with access controls developed under § 73.55.

NEI White Paper: Proposed Physical Security Requirements for Advanced Reactor Technologies

Attachment 1 – Proposed Changes to 10 CFR for New Physical Security Requirements for Advanced Reactor Technologies

Location	Proposed Rule Language	Basis
	(3) Vehicles in the protected area.	This requirement is included to maintain consistency with access controls developed under § 73.55.
	(i) The licensee shall exercise control over all vehicles inside the protected area to ensure that they are used only by authorized persons and for authorized purposes.	This requirement is included to maintain consistency with access controls developed under § 73.55.
	(ii) Vehicles inside the protected area must be operated by an individual authorized unescorted access to the area, or must be escorted by an individual as required by paragraph (g)(8) of this section.	This requirement is included to maintain consistency with access controls developed under § 73.55.
	(iii) Vehicle use inside the protected area must be limited to plant functions or emergencies, and keys must be removed or the vehicle otherwise disabled when not in use.	This requirement is included to maintain consistency with access controls developed under § 73.55.
	(iv) Vehicles transporting hazardous materials inside the protected area, that are capable of causing significant core damage or spent fuel sabotage, must be escorted by an armed member of the security organization.	This requirement is included, with modification, to maintain consistency with access controls developed under § 73.55, but also recognize design features that would eliminate a condition where a hazardous material transport vehicle would not be capable of causing or contributing to significant core damage or spent fuel sabotage.
	(4) Vital Areas.	This requirement is included to maintain consistency with access controls developed under § 73.55.
	(i) Licensees shall control access into vital areas	This requirement is included to maintain consistency with access controls developed

NEI White Paper: Proposed Physical Security Requirements for Advanced Reactor Technologies

Attachment 1 – Proposed Changes to 10 CFR for New Physical Security Requirements for Advanced Reactor Technologies

Location	Proposed Rule Language	Basis
	consistent with access authorization lists.	under § 73.55.
	(ii) In response to a site-specific credible threat or other credible information, implement a two-person (line-of-sight) rule for all personnel in vital areas so that no one individual is permitted access to a vital area.	This requirement is included to maintain consistency with access controls developed under § 73.55.
	(5) Emergency conditions.	This requirement is included to maintain consistency with access controls developed under § 73.55.
	(i) The licensee shall design the access control system to accommodate the potential need for rapid ingress or egress of authorized individuals during emergency conditions or situations that could lead to emergency conditions.	This requirement is included to maintain consistency with access controls developed under § 73.55.
	(ii) To satisfy the design criteria of paragraph (g)(5)(i) of this section during emergency conditions, the licensee shall implement security procedures to ensure that authorized emergency personnel are provided prompt access to affected areas and equipment.	This requirement is included to maintain consistency with access controls developed under § 73.55.
	(6) Access control devices.	This requirement is included to maintain consistency with access controls developed under § 73.55.
	(i) The licensee shall control all keys, locks, combinations, passwords and related access control devices used to control access to protected areas, vital areas and security systems to reduce the probability of compromise. To accomplish this, the licensee shall:	This requirement is included to maintain consistency with access controls developed under § 73.55.

NEI White Paper: Proposed Physical Security Requirements for Advanced Reactor Technologies

Attachment 1 – Proposed Changes to 10 CFR for New Physical Security Requirements for Advanced Reactor Technologies

Location	Proposed Rule Language	Basis
	(A) Issue access control devices only to individuals who have unescorted access authorization and require access to perform official duties and responsibilities.	This requirement is included to maintain consistency with access controls developed under § 73.55.
	(B) Maintain a record, to include name and affiliation, of all individuals to whom access control devices have been issued, and implement a process to account for access control devices at least annually.	This requirement is included to maintain consistency with access controls developed under § 73.55.
	(C) Implement compensatory measures upon discovery or suspicion that any access control device may have been compromised. Compensatory measures must remain in effect until the compromise is corrected.	This requirement is included to maintain consistency with access controls developed under § 73.55.
	(D) Retrieve, change, rotate, deactivate, or otherwise disable access control devices that have been or may have been compromised or when a person with access to control devices has been terminated under less than favorable conditions.	This requirement is included to maintain consistency with access controls developed under § 73.55.
	(ii) The licensee shall implement a numbered photo identification badge system for all individuals authorized unescorted access to the protected area and vital areas.	This requirement is included to maintain consistency with access controls developed under § 73.55.
	(A) Identification badges may be removed from the protected area only when measures are in place to confirm the true identity and authorization for unescorted access of the badge holder before allowing unescorted access to the protected area.	This requirement is included to maintain consistency with access controls developed under § 73.55.
	(B) Except where operational safety concerns require otherwise, identification badges must be clearly	This requirement is included to maintain consistency with access controls developed

NEI White Paper: Proposed Physical Security Requirements for Advanced Reactor Technologies

Attachment 1 – Proposed Changes to 10 CFR for New Physical Security Requirements for Advanced Reactor Technologies

Location	Proposed Rule Language	Basis
	displayed by all individuals while inside the protected area and vital areas.	under § 73.55.
	(C) The licensee shall maintain a record, to include the name and areas to which unescorted access is granted, of all individuals to whom photo identification badges have been issued.	This requirement is included to maintain consistency with access controls developed under § 73.55.
	(iii) Access authorization program personnel shall be issued passwords and combinations to perform their assigned duties and may be excepted from the requirement of paragraph (g)(6)(i)(A) of this section provided they meet the background requirements of § 73.56.	This requirement is included to maintain consistency with access controls developed under § 73.55.
	(7) Visitors.	This requirement is included to maintain consistency with access controls developed under § 73.55.
	(i) The licensee may permit escorted access to protected and vital areas to individuals who have not been granted unescorted access in accordance with the requirements of § 73.56 and part 26 of this chapter. The licensee shall:	This requirement is included to maintain consistency with access controls developed under § 73.55.
	(A) Implement procedures for processing, escorting, and controlling visitors.	This requirement is included to maintain consistency with access controls developed under § 73.55.
	(B) Confirm the identity of each visitor through physical presentation of a recognized identification card issued by a local, State, or Federal government agency that includes a photo or contains physical characteristics of	This requirement is included to maintain consistency with access controls developed under § 73.55.

NEI White Paper: Proposed Physical Security Requirements for Advanced Reactor Technologies

Attachment 1 – Proposed Changes to 10 CFR for New Physical Security Requirements for Advanced Reactor Technologies

Location	Proposed Rule Language	Basis
	the individual requesting escorted access.	
	(C) Maintain a visitor control register in which all visitors shall register their name, date, time, purpose of visit, employment affiliation, citizenship, and name of the individual to be visited before being escorted into any protected or vital area.	This requirement is included to maintain consistency with access controls developed under § 73.55.
	(D) Issue a visitor badge to all visitors that clearly indicates an escort is required.	This requirement is included to maintain consistency with access controls developed under § 73.55.
	(E) Escort all visitors, at all times, while inside the protected area and vital areas.	This requirement is included to maintain consistency with access controls developed under § 73.55.
	(F) Deny escorted access to any individual who is currently denied access in industry shared data bases.	This requirement is included to maintain consistency with access controls developed under § 73.55.
	(ii) Individuals not employed by the licensee but who require frequent or extended unescorted access to the protected area and/or vital areas to perform duties and responsibilities required by the licensee at irregular or intermittent intervals, shall satisfy the access authorization requirements of § 73.56 and part 26 of this chapter, and shall be issued a non-employee photo identification badge that is easily distinguished from other identification badges before being allowed unescorted access to the protected and vital areas. Non-employee photo identification badges must visually reflect that the individual is a non-employee and that no	This requirement is included to maintain consistency with access controls developed under § 73.55.

NEI White Paper: Proposed Physical Security Requirements for Advanced Reactor Technologies

Attachment 1 – Proposed Changes to 10 CFR for New Physical Security Requirements for Advanced Reactor Technologies

Location	Proposed Rule Language	Basis
	escort is required.	
	(8) Escorts. The licensee shall ensure that all escorts are trained to perform escort duties in accordance with the requirements of this section and site training requirements.	This requirement is included to maintain consistency with access controls developed under § 73.55.
	(i) Escorts shall be authorized unescorted access to all areas in which they will perform escort duties.	This requirement is included to maintain consistency with access controls developed under § 73.55.
	(ii) Individuals assigned to visitor escort duties shall be provided a means of timely communication with security personnel to summon assistance when needed.	This requirement is included to maintain consistency with access controls developed under § 73.55.
	(iii) Individuals assigned to vehicle escort duties shall be trained and qualified in accordance with appendix B, sections I through V, of this part and provided a means of continuous communication with security personnel to ensure the ability to summon assistance when needed.	This requirement is included to maintain consistency with access controls developed under § 73.55. The training and qualification plan provisions described in 10 CFR 73, Appendix B, Sections I through V, are adequate to prepare a security officer force for the performance of the functions and tasks required by § 73.52. See additional discussion in Section 3, “Proposed Solution,” of this white paper.
	(iv) When visitors are performing work, escorts shall be generally knowledgeable of the activities to be performed by the visitor and report behaviors or activities that may constitute an unreasonable risk to the health and safety of the public and common defense and security, including a potential threat to commit	This requirement is included to maintain consistency with access controls developed under § 73.55.

NEI White Paper: Proposed Physical Security Requirements for Advanced Reactor Technologies

Attachment 1 – Proposed Changes to 10 CFR for New Physical Security Requirements for Advanced Reactor Technologies

Location	Proposed Rule Language	Basis
	radiological sabotage, consistent with § 73.56(f)(1).	
	(v) Each licensee shall describe visitor to escort ratios for the protected area and vital areas in physical security plans. Implementing procedures shall provide necessary observation and control requirements for all visitor activities.	This requirement is included to maintain consistency with access controls developed under § 73.55.
(h) <i>Search programs.</i>	(1) The objective of the search program is to detect, deter, and prevent the introduction of firearms, explosives, incendiary devices, or other items which could be used to commit radiological sabotage. To accomplish this the licensee shall search individuals, vehicles, and materials consistent with the physical protection program design requirements in paragraph (b) of this section, and the function to be performed at each access control point or portal before granting access.	This requirement is included to maintain consistency with search programs developed under § 73.55.
	(2) Owner controlled area searches.	This requirement is included to maintain consistency with search programs developed under § 73.55.
	(i) Where the licensee has established physical barriers in the owner controlled area, the licensee shall implement search procedures for access control points in the barrier.	This requirement is included to maintain consistency with search programs developed under § 73.55.
	(ii) For each vehicle access control point, the licensee shall describe in implementing procedures areas of a vehicle to be searched, and the items for which the search is intended to detect and prevent access. Areas of the vehicle to be searched must include, but are not	This requirement is included to maintain consistency with search programs developed under § 73.55.

NEI White Paper: Proposed Physical Security Requirements for Advanced Reactor Technologies

Attachment 1 – Proposed Changes to 10 CFR for New Physical Security Requirements for Advanced Reactor Technologies

Location	Proposed Rule Language	Basis
	limited to, the cab, engine compartment, undercarriage, and cargo area.	
	(iii) Vehicle searches must be performed by at least two (2) trained and equipped security personnel, one of which must be armed. The armed individual shall be positioned to observe the search process and provide immediate response.	This requirement is included to maintain consistency with search programs developed under § 73.55.
	(iv) Vehicle searches must be accomplished through the use of equipment capable of detecting firearms, explosives, incendiary devices, or other items which could be used to commit radiological sabotage, or through visual and physical searches, or both, to ensure that all items are identified before granting access.	This requirement is included to maintain consistency with search programs developed under § 73.55.
	(v) Vehicle access control points must be equipped with video surveillance equipment that is monitored by an individual capable of initiating a response.	This requirement is included to maintain consistency with search programs developed under § 73.55.
	(3) Protected area searches. Licensees shall search all personnel, vehicles and materials requesting access to protected areas.	This requirement is included to maintain consistency with search programs developed under § 73.55.
	(i) The search for firearms, explosives, incendiary devices, or other items which could be used to commit radiological sabotage shall be accomplished through the use of equipment capable of detecting these items, or through visual and physical searches, or both, to ensure that all items are clearly identified before granting access to protected areas. The licensee shall subject all persons except official Federal, state, and local law	This requirement is included to maintain consistency with search programs developed under § 73.55.

NEI White Paper: Proposed Physical Security Requirements for Advanced Reactor Technologies

Attachment 1 – Proposed Changes to 10 CFR for New Physical Security Requirements for Advanced Reactor Technologies

Location	Proposed Rule Language	Basis
	enforcement personnel on official duty to these searches upon entry to the protected area. Armed security officers who are on duty and have exited the protected area may re-enter the protected area without being searched for firearms.	
	(ii) Whenever search equipment is out of service, is not operating satisfactorily, or cannot be used effectively to search individuals, vehicles, or materials, a visual and physical search shall be conducted.	This requirement is included to maintain consistency with search programs developed under § 73.55.
	(iii) When an attempt to introduce firearms, explosives, incendiary devices, or other items which could be used to commit radiological sabotage has occurred or is suspected, the licensee shall implement actions to ensure that the suspect individuals, vehicles, and materials are denied access and shall perform a visual and physical search to determine the absence or existence of a threat.	This requirement is included to maintain consistency with search programs developed under § 73.55.
	(iv) For each vehicle access portal, the licensee shall describe in implementing procedures areas of a vehicle to be searched before access is granted. Areas of the vehicle to be searched must include, but are not limited to, the cab, engine compartment, undercarriage, and cargo area.	This requirement is included to maintain consistency with search programs developed under § 73.55.
	(v) Exceptions to the protected area search requirements for materials may be granted for safety or operational reasons provided the design criteria of § 73.52(b) are satisfied, the materials are clearly identified, the types of exceptions to be granted are described in the security plans, and the specific security measures to be	This requirement is included to maintain consistency with search programs developed under § 73.55. As a conforming change, changed reference from § 73.55(b) to § 73.52(b).

NEI White Paper: Proposed Physical Security Requirements for Advanced Reactor Technologies

Attachment 1 – Proposed Changes to 10 CFR for New Physical Security Requirements for Advanced Reactor Technologies

Location	Proposed Rule Language	Basis
	implemented for excepted items are detailed in site procedures.	
	(vi) To the extent practicable, excepted materials must be positively controlled, stored in a locked area, and opened at the final destination by an individual familiar with the items.	This requirement is included to maintain consistency with search programs developed under § 73.55.
	(vii) Bulk material excepted from the protected area search requirements must be escorted by an armed member of the security organization to its final destination or to a receiving area where the excepted items are offloaded and verified.	This requirement is included to maintain consistency with search programs developed under § 73.55.
	(viii) To the extent practicable, bulk materials excepted from search shall not be offloaded adjacent to a vital area.	This requirement is included to maintain consistency with search programs developed under § 73.55.
<i>(i) Detection and assessment systems.</i>	(1) The licensee shall establish and maintain intrusion detection and assessment systems that satisfy the design requirements of § 73.52(b) and provide, at all times, the capability to detect and assess unauthorized persons and facilitate the effective implementation of the licensee’s Safeguards Contingency Plan.	This requirement is included to maintain consistency with detection and assessment systems developed under § 73.55. As a conforming change, changed reference from § 73.55(b) to § 73.52(b).
	(2) Intrusion detection equipment must annunciate and video assessment equipment shall display concurrently, in at least two continuously staffed alarm stations, at least one of which must be protected in accordance with the requirements of the central alarm station within this section.	This requirement is included to maintain consistency with detection and assessment systems developed under § 73.55.

NEI White Paper: Proposed Physical Security Requirements for Advanced Reactor Technologies

Attachment 1 – Proposed Changes to 10 CFR for New Physical Security Requirements for Advanced Reactor Technologies

Location	Proposed Rule Language	Basis
	(3) The licensee’s intrusion detection and assessment systems must be designed to:	This requirement is included to maintain consistency with detection and assessment systems developed under § 73.55.
	(i) Provide visual and audible annunciation of the alarm.	This requirement is included to maintain consistency with detection and assessment systems developed under § 73.55.
	(ii) Provide a visual display from which assessment of the detected activity can be made.	This requirement is included to maintain consistency with detection and assessment systems developed under § 73.55.
	(iii) Ensure that annunciation of an alarm indicates the type and location of the alarm.	This requirement is included to maintain consistency with detection and assessment systems developed under § 73.55.
	(iv) Ensure that alarm devices to include transmission lines to annunciators are tamper indicating and self-checking.	This requirement is included to maintain consistency with detection and assessment systems developed under § 73.55.
	(v) Provide an automatic indication when the alarm system or a component of the alarm system fails, or when the system is operating on the backup power supply.	This requirement is included to maintain consistency with detection and assessment systems developed under § 73.55.
	(vi) Support the initiation of a timely response in accordance with the security plans and associated implementing procedures.	This requirement is included to maintain consistency with detection and assessment systems developed under § 73.55.
	(vii) Ensure intrusion detection and assessment equipment at the protected area perimeter remains operable from an uninterruptible power supply in the event of the loss of normal power.	This requirement is included to maintain consistency with detection and assessment systems developed under § 73.55.

NEI White Paper: Proposed Physical Security Requirements for Advanced Reactor Technologies

Attachment 1 – Proposed Changes to 10 CFR for New Physical Security Requirements for Advanced Reactor Technologies

Location	Proposed Rule Language	Basis
	(4) Alarm stations.	This requirement is included to maintain consistency with detection and assessment systems developed under § 73.55.
	(i) Both alarm stations required by paragraph (i)(2) of this section must be designed and equipped to ensure that a single act, in accordance with the design basis threat of radiological sabotage defined in § 73.1(a)(1), cannot disable both alarm stations. The licensee shall ensure the survivability of at least one alarm station to maintain the ability to perform the following functions:	This requirement is included to maintain consistency with detection and assessment systems developed under § 73.55.
	(A) Detect and assess alarms;	This requirement is included to maintain consistency with detection and assessment systems developed under § 73.55.
	(B) Initiate and coordinate an adequate response to an alarm;	This requirement is included to maintain consistency with detection and assessment systems developed under § 73.55.
	(C) Summon offsite assistance; and	This requirement is included to maintain consistency with detection and assessment systems developed under § 73.55.
	(D) Provide command and control.	This requirement is included to maintain consistency with detection and assessment systems developed under § 73.55.
	(ii) Licensees shall:	This requirement is included to maintain consistency with detection and assessment systems developed under § 73.55.
	(A) Locate the central alarm station inside a protected	This requirement is included to maintain

NEI White Paper: Proposed Physical Security Requirements for Advanced Reactor Technologies

Attachment 1 – Proposed Changes to 10 CFR for New Physical Security Requirements for Advanced Reactor Technologies

Location	Proposed Rule Language	Basis
	area. The interior of the central alarm station must not be visible from the perimeter of the protected area.	consistency with detection and assessment systems developed under § 73.55.
	(B) Continuously staff each alarm station with at least one trained and qualified alarm station operator. The alarm station operator must not be assigned other duties or responsibilities which would interfere with the ability to execute the functions described in § 73.52(i)(4)(i) of this section.	This requirement is included to maintain consistency with detection and assessment systems developed under § 73.55. As a conforming change, changed reference from § 73.55(i)(4)(i) to § 73.52(i)(4)(i).
	(C) Not permit any activities to be performed within either alarm station that would interfere with an alarm station operator’s ability to execute assigned duties and responsibilities.	This requirement is included to maintain consistency with detection and assessment systems developed under § 73.55.
	(D) Assess and initiate response to all alarms in accordance with the security plans and implementing procedures.	This requirement is included to maintain consistency with detection and assessment systems developed under § 73.55.
	(E) Assess and initiate response to other events as appropriate.	This requirement is included to maintain consistency with detection and assessment systems developed under § 73.55.
	(F) Ensure that an alarm station operator cannot change the status of a detection point or deactivate a locking or access control device at a protected or vital area portal, without the knowledge and concurrence of the alarm station operator in the other alarm station.	This requirement is included to maintain consistency with detection and assessment systems developed under § 73.55.
	(G) Ensure that operators in both alarm stations are knowledgeable of the final disposition of all alarms.	This requirement is included to maintain consistency with detection and assessment systems developed under § 73.55.

NEI White Paper: Proposed Physical Security Requirements for Advanced Reactor Technologies

Attachment 1 – Proposed Changes to 10 CFR for New Physical Security Requirements for Advanced Reactor Technologies

Location	Proposed Rule Language	Basis
	(H) Maintain a record of all alarm annunciations, the cause of each alarm, and the disposition of each alarm.	This requirement is included to maintain consistency with detection and assessment systems developed under § 73.55.
	(iii) The applicant shall construct, protect, and equip both the central and secondary alarm stations to the standards for the central alarm station contained in this section. Both alarm stations shall be equal and redundant, such that all functions needed to satisfy the requirements of this section can be performed in both alarm stations.	This requirement is included to maintain consistency with detection and assessment systems developed under § 73.55. References to 10 CFR parts 50 and 52 are not needed since the licensing applicability for this section is specified in paragraph (a)(1) and need not be repeated here.
	(5) Surveillance, observation, and monitoring.	This requirement is included to maintain consistency with detection and assessment systems developed under § 73.55.
	(i) The physical protection program must include surveillance, observation, and monitoring as needed to satisfy the design requirements of § 73.52(b), identify indications of tampering, or otherwise implement the site Safeguards Contingency Plan.	This requirement is included to maintain consistency with detection and assessment systems developed under § 73.55. As a conforming change, changed reference from § 73.55(b) to § 73.52(b).
	(ii) The licensee shall provide continuous surveillance, observation, and monitoring of the owner controlled area as described in the security plans to detect and deter intruders and ensure the integrity of physical barriers or other components and functions of the onsite physical protection program. Continuous surveillance, observation, and monitoring responsibilities may be performed by security personnel during continuous patrols, through use of video technology, or by a	This requirement is included to maintain consistency with detection and assessment systems developed under § 73.55.

NEI White Paper: Proposed Physical Security Requirements for Advanced Reactor Technologies

Attachment 1 – Proposed Changes to 10 CFR for New Physical Security Requirements for Advanced Reactor Technologies

Location	Proposed Rule Language	Basis
	combination of both.	
	(iii) Unattended openings that intersect a security boundary such as underground pathways must be protected by a physical barrier and monitored by intrusion detection equipment or observed by security personnel at a frequency sufficient to detect exploitation.	This requirement is included to maintain consistency with detection and assessment systems developed under § 73.55.
	(iv) Armed security patrols shall periodically check external areas of the protected area to include physical barriers and vital area portals.	This requirement is included to maintain consistency with detection and assessment systems developed under § 73.55.
	(v) Armed security patrols shall periodically inspect vital areas to include the physical barriers used at all vital area portals.	This requirement is included to maintain consistency with detection and assessment systems developed under § 73.55.
	(vi) The licensee shall provide random patrols of all accessible areas containing target set equipment.	This requirement is included to maintain consistency with detection and assessment systems developed under § 73.55.
	(vii) Security personnel shall be trained to recognize obvious indications of tampering consistent with their assigned duties and responsibilities.	This requirement is included to maintain consistency with detection and assessment systems developed under § 73.55.
	(viii) Upon detection of tampering, or other threats, the licensee shall initiate response in accordance with the security plans and implementing procedures.	This requirement is included to maintain consistency with detection and assessment systems developed under § 73.55.
	(6) Illumination.	This requirement is included to maintain consistency with detection and assessment systems developed under § 73.55.

NEI White Paper: Proposed Physical Security Requirements for Advanced Reactor Technologies

Attachment 1 – Proposed Changes to 10 CFR for New Physical Security Requirements for Advanced Reactor Technologies

Location	Proposed Rule Language	Basis
	(i) The licensee shall ensure that all areas of the facility are provided with illumination necessary to satisfy the design requirements of § 73.52(b) and implement the Safeguards Contingency Plan.	This requirement is included to maintain consistency with detection and assessment systems developed under § 73.55. As a conforming change, changed reference from § 73.55(b) to § 73.52(b).
	(ii) The licensee shall provide a minimum illumination level of 0.2 foot-candles, measured horizontally at ground level, in the isolation zones and appropriate exterior areas within the protected area. Alternatively, the licensee may augment the facility illumination system by means of low-light technology to meet the requirements of this section or otherwise implement the Safeguards Contingency Plan.	This requirement is included to maintain consistency with detection and assessment systems developed under § 73.55.
	(iii) The licensee shall describe in the security plans how the lighting requirements of this section are met and, if used, the type(s) and application of low-light technology.	This requirement is included to maintain consistency with detection and assessment systems developed under § 73.55.
(j) <i>Communication requirements.</i>	(1) The licensee shall establish and maintain continuous communication capability with onsite and offsite resources to ensure effective command and control during both normal and emergency situations.	This requirement is included to maintain consistency with communications capabilities developed under § 73.55.
	(2) Individuals assigned to each alarm station shall be capable of calling for assistance in accordance with the security plans and the licensee’s procedures.	This requirement is included to maintain consistency with communications capabilities developed under § 73.55.
	(3) All on-duty security force personnel shall be capable	This requirement is included to maintain

NEI White Paper: Proposed Physical Security Requirements for Advanced Reactor Technologies

Attachment 1 – Proposed Changes to 10 CFR for New Physical Security Requirements for Advanced Reactor Technologies

Location	Proposed Rule Language	Basis
	of maintaining continuous communication with an individual in each alarm station, and vehicle escorts shall maintain continuous communication with security personnel. All personnel escorts shall maintain timely communication with the security personnel.	consistency with communications capabilities developed under § 73.55.
	(4) The following continuous communication capabilities must terminate in both alarm stations required by this section:	This requirement is included to maintain consistency with communications capabilities developed under § 73.55.
	(i) Radio or microwave transmitted two-way voice communication, either directly or through an intermediary, in addition to conventional telephone service between local law enforcement authorities and the site.	This requirement is included to maintain consistency with communications capabilities developed under § 73.55.
	(ii) A system for communication with the control room.	This requirement is included to maintain consistency with communications capabilities developed under § 73.55.
	(5) Non-portable communications equipment must remain operable from independent power sources in the event of the loss of normal power.	This requirement is included to maintain consistency with communications capabilities developed under § 73.55.
	(6) The licensee shall identify site areas where communication could be interrupted or cannot be maintained, and shall establish alternative communication measures or otherwise account for these areas in implementing procedures.	This requirement is included to maintain consistency with communications capabilities developed under § 73.55.
(k) <i>Facilities using mixed-oxide (MOX) fuel</i>	(1) In addition to meeting the requirements of this section, a licensee authorized to use special nuclear	This requirement is included to maintain consistency with the MOX fuel assembly

NEI White Paper: Proposed Physical Security Requirements for Advanced Reactor Technologies

Attachment 1 – Proposed Changes to 10 CFR for New Physical Security Requirements for Advanced Reactor Technologies

Location	Proposed Rule Language	Basis
<p><i>assemblies containing up to 20 weight percent plutonium dioxide (PuO₂).</i></p>	<p>material in the form of MOX fuel assemblies containing up to 20 weight percent PuO₂ shall protect un-irradiated MOX fuel assemblies against theft or diversion as described in this paragraph.</p>	<p>protection capabilities developed under § 73.55. References to 10 CFR parts 50 and 52 are not needed since the licensing applicability for this section is specified in paragraph (a)(1) and need not be repeated here.</p>
	<p>(2) Commercial nuclear power reactors authorized to use MOX fuel assemblies containing up to 20 weight percent PuO₂ are exempt from the requirements of §§ 73.20, 73.45, and 73.46 for the onsite physical protection of un-irradiated MOX fuel assemblies.</p>	<p>This requirement is included to maintain consistency with the MOX fuel assembly protection capabilities developed under § 73.55.</p>
	<p>(3) Administrative controls.</p>	<p>This requirement is included to maintain consistency with the MOX fuel assembly protection capabilities developed under § 73.55.</p>
	<p>(i) The licensee shall describe in the security plans the operational and administrative controls to be implemented for the receipt, inspection, movement, storage, and protection of un-irradiated MOX fuel assemblies.</p>	<p>This requirement is included to maintain consistency with the MOX fuel assembly protection capabilities developed under § 73.55.</p>
	<p>(ii) The licensee shall implement the use of tamper-indicating devices for un-irradiated MOX fuel assembly transport and shall verify their use and integrity before receipt.</p>	<p>This requirement is included to maintain consistency with the MOX fuel assembly protection capabilities developed under § 73.55.</p>
	<p>(iii) Upon receipt of un-irradiated MOX fuel assemblies, the licensee shall:</p>	<p>This requirement is included to maintain consistency with the MOX fuel assembly protection capabilities developed under § 73.55.</p>
	<p>(A) Inspect un-irradiated MOX fuel assemblies for damage.</p>	<p>This requirement is included to maintain consistency with the MOX fuel assembly</p>

NEI White Paper: Proposed Physical Security Requirements for Advanced Reactor Technologies

Attachment 1 – Proposed Changes to 10 CFR for New Physical Security Requirements for Advanced Reactor Technologies

Location	Proposed Rule Language	Basis
		protection capabilities developed under § 73.55.
	(B) Search un-irradiated MOX fuel assemblies for unauthorized materials.	This requirement is included to maintain consistency with the MOX fuel assembly protection capabilities developed under § 73.55.
	(iv) The licensee may conduct the required inspection and search functions simultaneously.	This requirement is included to maintain consistency with the MOX fuel assembly protection capabilities developed under § 73.55.
	(v) The licensee shall ensure the proper placement and control of un-irradiated MOX fuel assemblies as follows:	This requirement is included to maintain consistency with the MOX fuel assembly protection capabilities developed under § 73.55.
	(A) At least one armed security officer shall be present during the receipt and inspection of un-irradiated MOX fuel assemblies.	This requirement is included to maintain consistency with the MOX fuel assembly protection capabilities developed under § 73.55.
	(B) The licensee shall store un-irradiated MOX fuel assemblies only within a spent fuel pool, located within a vital area, so that access to the un-irradiated MOX fuel assemblies requires passage through at least two physical barriers and the water barrier combined with the additional measures detailed in this section.	This requirement is included to maintain consistency with the MOX fuel assembly protection capabilities developed under § 73.55.
	(vi) The licensee shall implement a material control and accountability program that includes a predetermined and documented storage location for each un-irradiated MOX fuel assembly.	This requirement is included to maintain consistency with the MOX fuel assembly protection capabilities developed under § 73.55.
	(4) Physical controls.	This requirement is included to maintain consistency with the MOX fuel assembly protection capabilities developed under § 73.55.

NEI White Paper: Proposed Physical Security Requirements for Advanced Reactor Technologies

Attachment 1 – Proposed Changes to 10 CFR for New Physical Security Requirements for Advanced Reactor Technologies

Location	Proposed Rule Language	Basis
	(i) The licensee shall lock, lockout, or disable all equipment and power supplies to equipment required for the movement and handling of un-irradiated MOX fuel assemblies when movement activities are not authorized.	This requirement is included to maintain consistency with the MOX fuel assembly protection capabilities developed under § 73.55.
	(ii) The licensee shall implement a two-person, line-of-sight rule within the spent fuel pool area whenever control systems or equipment required for the movement or handling of un-irradiated MOX fuel assemblies must be accessed.	This requirement is included to maintain consistency with the MOX fuel assembly protection capabilities developed under § 73.55.
	(iii) The licensee shall conduct random patrols of areas containing un-irradiated MOX fuel assemblies to identify indications of tampering and ensure the integrity of barriers and locks.	This requirement is included to maintain consistency with the MOX fuel assembly protection capabilities developed under § 73.55.
	(iv) Locks, keys, and any other access control device used to secure equipment and power sources required for the movement of un- irradiated MOX fuel assemblies, or openings to areas containing un-irradiated MOX fuel assemblies, must be controlled by the security organization.	This requirement is included to maintain consistency with the MOX fuel assembly protection capabilities developed under § 73.55.
	(v) Removal of locks used to secure equipment and power sources required for the movement of un-irradiated MOX fuel assemblies or openings to areas containing un-irradiated MOX fuel assemblies must require approval by both the on-duty security shift supervisor and the operations shift manager.	This requirement is included to maintain consistency with the MOX fuel assembly protection capabilities developed under § 73.55.
	(A) At least one armed security officer shall be present	This requirement is included to maintain

NEI White Paper: Proposed Physical Security Requirements for Advanced Reactor Technologies

Attachment 1 – Proposed Changes to 10 CFR for New Physical Security Requirements for Advanced Reactor Technologies

Location	Proposed Rule Language	Basis
	to observe activities involving the movement of un-irradiated MOX fuel assemblies before the removal of the locks and providing power to equipment required for the movement or handling of un-irradiated MOX fuel assemblies.	consistency with the MOX fuel assembly protection capabilities developed under § 73.55.
	(B) At least one armed security officer shall be present at all times until power is removed from equipment and locks are secured.	This requirement is included to maintain consistency with the MOX fuel assembly protection capabilities developed under § 73.55.
	(C) Security officers shall be knowledgeable of authorized and unauthorized activities involving un-irradiated MOX fuel assemblies.	This requirement is included to maintain consistency with the MOX fuel assembly protection capabilities developed under § 73.55.
	(5) At least one armed security officer shall be present and shall maintain constant surveillance of un-irradiated MOX fuel assemblies when the assemblies are not located in the spent fuel pool or reactor.	This requirement is included to maintain consistency with the MOX fuel assembly protection capabilities developed under § 73.55.
	(6) The licensee shall maintain at all times the capability to detect and assess threats to un-irradiated MOX fuel assemblies and promptly summon local law enforcement assistance in accordance with the requirements of this section.	This requirement is included to maintain consistency with the MOX fuel assembly protection capabilities developed under § 73.55.
	(7) MOX fuel assemblies containing greater than 20 weight percent PuO ₂ .	This requirement is included to maintain consistency with the MOX fuel assembly protection capabilities developed under § 73.55.
	(i) Requests for the use of MOX fuel assemblies containing greater than 20 weight percent PuO ₂ shall be reviewed and approved by the Commission before receipt of MOX fuel assemblies.	This requirement is included to maintain consistency with the MOX fuel assembly protection capabilities developed under § 73.55.

NEI White Paper: Proposed Physical Security Requirements for Advanced Reactor Technologies

Attachment 1 – Proposed Changes to 10 CFR for New Physical Security Requirements for Advanced Reactor Technologies

Location	Proposed Rule Language	Basis
	(ii) Additional measures for the physical protection of un-irradiated MOX fuel assemblies containing greater than 20 weight percent PuO ₂ shall be determined by the Commission on a case-by-case basis and documented through license amendment in accordance with 10 CFR 50.90.	This requirement is included to maintain consistency with the MOX fuel assembly protection capabilities developed under § 73.55.
(1) <i>Security program reviews.</i>	(1) As a minimum the licensee shall review each element of the physical protection program at least every 24 months. Reviews shall be conducted:	This requirement is included to maintain consistency with the security program reviews developed under § 73.55.
	(i) Within 12 months following initial implementation of the physical protection program or a change to personnel, procedures, equipment, or facilities that potentially could adversely affect security.	This requirement is included to maintain consistency with the security program reviews developed under § 73.55.
	(ii) As necessary based upon site-specific analyses, assessments, or other performance indicators.	This requirement is included to maintain consistency with the security program reviews developed under § 73.55.
	(iii) By individuals independent of those personnel responsible for program management and any individual who has direct responsibility for implementing the onsite physical protection program.	This requirement is included to maintain consistency with the security program reviews developed under § 73.55.
	(2) Reviews of the security program must include, but not limited to, an audit of the effectiveness of the physical security program, security plans, implementing procedures, cyber security programs, safety/security interface activities, the testing, maintenance, and calibration program, and response commitments by local, State, and Federal law enforcement authorities.	This requirement is included to maintain consistency with the security program reviews developed under § 73.55.

NEI White Paper: Proposed Physical Security Requirements for Advanced Reactor Technologies

Attachment 1 – Proposed Changes to 10 CFR for New Physical Security Requirements for Advanced Reactor Technologies

Location	Proposed Rule Language	Basis
	(3) The results and recommendations of the onsite physical protection program reviews, management’s findings regarding program effectiveness, and any actions taken as a result of recommendations from prior program reviews, must be documented in a report to the licensee’s plant manager and to corporate management at least one level higher than that having responsibility for day-to-day plant operations. These reports must be maintained in an auditable form and available for inspection.	This requirement is included to maintain consistency with the security program reviews developed under § 73.55.
	(4) Findings from onsite physical protection program reviews must be entered into the site corrective action program.	This requirement is included to maintain consistency with the security program reviews developed under § 73.55.
(m) <i>Maintenance, testing, and calibration.</i>	(1) The licensee shall:	This requirement is included to maintain consistency with the maintenance, testing and calibration programs, processes and procedures developed under § 73.55.
	(i) Establish, maintain, and implement a maintenance, testing and calibration program to ensure that security systems and equipment, including secondary and uninterruptible power supplies, are tested for operability and performance at predetermined intervals, maintained in operable condition, and are capable of performing their intended functions.	This requirement is included to maintain consistency with the maintenance, testing and calibration programs, processes and procedures developed under § 73.55.
	(ii) Describe the maintenance, testing and calibration program in the physical security plan. Implementing procedures must specify operational and technical details required to perform maintenance, testing, and	This requirement is included to maintain consistency with the maintenance, testing and calibration programs, processes and procedures

NEI White Paper: Proposed Physical Security Requirements for Advanced Reactor Technologies

Attachment 1 – Proposed Changes to 10 CFR for New Physical Security Requirements for Advanced Reactor Technologies

Location	Proposed Rule Language	Basis
	calibration activities to include, but not limited to, purpose of activity, actions to be taken, acceptance criteria, and the intervals or frequency at which the activity will be performed.	developed under § 73.55.
	(iii) Identify in procedures the criteria for determining when problems, failures, deficiencies, and other findings are documented in the site corrective action program for resolution.	This requirement is included to maintain consistency with the maintenance, testing and calibration programs, processes and procedures developed under § 73.55.
	(iv) Ensure that information documented in the site corrective action program is written in a manner that does not constitute safeguards information as defined in 10 CFR 73.21.	This requirement is included to maintain consistency with the maintenance, testing and calibration programs, processes and procedures developed under § 73.55.
	(v) Implement compensatory measures that ensure the effectiveness of the onsite physical protection program when there is a failure or degraded operation of security-related components or equipment.	This requirement is included to maintain consistency with the maintenance, testing and calibration programs, processes and procedures developed under § 73.55.
	(2) The licensee shall test each intrusion alarm for operability at the beginning and end of any period that it is used for security, or if the period of continuous use exceeds seven (7) days. The intrusion alarm must be tested at least once every seven (7) days.	This requirement is included to maintain consistency with the maintenance, testing and calibration programs, processes and procedures developed under § 73.55.
	(3) Intrusion detection and access control equipment must be performance tested in accordance with the security plans and implementing procedures.	This requirement is included to maintain consistency with the maintenance, testing and calibration programs, processes and procedures developed under § 73.55.

NEI White Paper: Proposed Physical Security Requirements for Advanced Reactor Technologies

Attachment 1 – Proposed Changes to 10 CFR for New Physical Security Requirements for Advanced Reactor Technologies

Location	Proposed Rule Language	Basis
	(4) Equipment required for communications onsite must be tested for operability not less frequently than once at the beginning of each security personnel work shift.	This requirement is included to maintain consistency with the maintenance, testing and calibration programs, processes and procedures developed under § 73.55.
	(5) Communication systems between the alarm stations and each control room, and between the alarm stations and local law enforcement agencies, to include backup communication equipment, must be tested for operability at least once each day.	This requirement is included to maintain consistency with the maintenance, testing and calibration programs, processes and procedures developed under § 73.55.
	(6) Search equipment must be tested for operability at least once each day and tested for performance at least once during each seven (7) day period.	This requirement is included to maintain consistency with the maintenance, testing and calibration programs, processes and procedures developed under § 73.55.
	(7) A program for testing or verifying the operability of devices or equipment located in hazardous areas must be specified in the implementing procedures and must define alternate measures to be taken to ensure the timely completion of testing or maintenance when the hazardous condition or other restrictions are no longer applicable.	This requirement is included to maintain consistency with the maintenance, testing and calibration programs, processes and procedures developed under § 73.55.
	(8) Security equipment or systems shall be tested in accordance with the site maintenance, testing and calibration procedures before being placed back in service after each repair or inoperable state.	This requirement is included to maintain consistency with the maintenance, testing and calibration programs, processes and procedures developed under § 73.55.

NEI White Paper: Proposed Physical Security Requirements for Advanced Reactor Technologies

Attachment 1 – Proposed Changes to 10 CFR for New Physical Security Requirements for Advanced Reactor Technologies

Location	Proposed Rule Language	Basis
(n) <i>Compensatory measures.</i>	(1) The licensee shall identify criteria and measures to compensate for degraded or inoperable equipment, systems, and components to meet the requirements of this section.	This requirement is included to maintain consistency with the compensatory measures developed under § 73.55.
	(2) Compensatory measures must provide a level of protection that is equivalent to the protection that was provided by the degraded or inoperable, equipment, system, or components.	This requirement is included to maintain consistency with the compensatory measures developed under § 73.55.
	(3) Compensatory measures must be implemented within specific time frames necessary to meet the requirements stated in paragraph (b) of this section and described in the security plans.	This requirement is included to maintain consistency with the compensatory measures developed under § 73.55.
(o) <i>Suspension of security measures.</i>	(1) The licensee may suspend implementation of affected requirements of this section under the following conditions:	This requirement is included to maintain consistency with the capability to suspend security measures developed under § 73.55.
	(i) In accordance with §§ 50.54(x) and 50.54(y) of this chapter, the licensee may suspend any security measures under this section in an emergency when this action is immediately needed to protect the public health and safety and no action consistent with license conditions and technical specifications that can provide adequate or equivalent protection is immediately apparent. This suspension of security measures must be approved as a minimum by a licensed senior operator before taking this action.	This requirement is included to maintain consistency with the capability to suspend security measures developed under § 73.55.
	(ii) During severe weather when the suspension of affected security measures is immediately needed to	This requirement is included to maintain consistency with the capability to suspend

NEI White Paper: Proposed Physical Security Requirements for Advanced Reactor Technologies

Attachment 1 – Proposed Changes to 10 CFR for New Physical Security Requirements for Advanced Reactor Technologies

Location	Proposed Rule Language	Basis
	<p>protect the personal health and safety of security force personnel and no other immediately apparent action consistent with the license conditions and technical specifications can provide adequate or equivalent protection. This suspension of security measures must be approved, as a minimum, by a licensed senior operator, with input from the security supervisor or manager, before taking this action.</p>	<p>security measures developed under § 73.55.</p>
	<p>(2) Suspended security measures must be reinstated as soon as conditions permit.</p>	<p>This requirement is included to maintain consistency with the capability to suspend security measures developed under § 73.55.</p>
	<p>(3) The suspension of security measures must be reported and documented in accordance with the provisions of § 73.71.</p>	<p>This requirement is included to maintain consistency with the capability to suspend security measures developed under § 73.55.</p>
(p) <i>Records.</i>	<p>(1) The Commission may inspect, copy, retain, and remove all reports, records, and documents required to be kept by Commission regulations, orders, or license conditions, whether the reports, records, and documents are kept by the licensee or a contractor.</p>	<p>This requirement is included to maintain consistency with security-related records controlled under § 73.55.</p>
	<p>(2) The licensee shall maintain all records required to be kept by Commission regulations, orders, or license conditions, until the Commission terminates the license for which the records were developed, and shall maintain superseded portions of these records for at least three (3) years after the record is superseded, unless otherwise specified by the Commission.</p>	<p>This requirement is included to maintain consistency with security-related records controlled under § 73.55.</p>
	<p>(3) If a contracted security force is used to implement</p>	<p>This requirement is included to maintain</p>

NEI White Paper: Proposed Physical Security Requirements for Advanced Reactor Technologies

Attachment 1 – Proposed Changes to 10 CFR for New Physical Security Requirements for Advanced Reactor Technologies

Location	Proposed Rule Language	Basis
	the onsite physical protection program, the licensee’s written agreement with the contractor must be retained by the licensee as a record for the duration of the contract.	consistency with security-related records controlled under § 73.55.
	(4) Review and audit reports must be maintained and available for inspection, for a period of three (3) years.	This requirement is included to maintain consistency with security-related records controlled under § 73.55.
(q) <i>Alternative measures.</i>	(1) The Commission may authorize an applicant or licensee to provide a measure for protection against radiological sabotage other than one required by this section if the applicant or licensee demonstrates that:	This requirement is included to maintain consistency with ability of the NRC to approve alternative measures as discussed in § 73.55.
	(i) The measure meets the same performance objectives and requirements specified in paragraph (b) of this section; and	This requirement is included to maintain consistency with ability of the NRC to approve alternative measures as discussed in § 73.55.
	(ii) The proposed alternative measure provides protection against radiological sabotage equivalent to that which would be provided by the specific requirement for which it would substitute.	This requirement is included to maintain consistency with ability of the NRC to approve alternative measures as discussed in § 73.55.
	(2) The licensee shall submit proposed alternative measure(s) to the Commission for review and approval in accordance with §§ 50.4 and 50.90 of this chapter before implementation.	This requirement is included to maintain consistency with ability of the NRC to approve alternative measures as discussed in § 73.55.
	(3) In addition to fully describing the desired changes, the licensee shall submit a technical basis for each proposed alternative measure. The basis must include an analysis or assessment that demonstrates how the proposed alternative measure provides a level of	This requirement is included to maintain consistency with ability of the NRC to approve alternative measures as discussed in § 73.55.

NEI White Paper: Proposed Physical Security Requirements for Advanced Reactor Technologies

Attachment 1 – Proposed Changes to 10 CFR for New Physical Security Requirements for Advanced Reactor Technologies

Location	Proposed Rule Language	Basis
	protection that is at least equal to that which would otherwise be provided by the specific requirement of this section.	
	(4) Alternative vehicle barrier systems. In the case of vehicle barrier systems required by § 73.52(e)(10), the licensee shall demonstrate that:	This requirement is included to maintain consistency with ability of the NRC to approve alternative measures as discussed in § 73.55. As a conforming change, changed reference from § 73.55(e)(10) to § 73.52(e)(10).
	(i) The alternative measure provides protection against the use of a vehicle as a means of transportation to gain proximity to vital areas;	This requirement is included to maintain consistency with ability of the NRC to approve alternative measures as discussed in § 73.55.
	(ii) The alternative measure provides protection against the use of a vehicle as a vehicle bomb; and	This requirement is included to maintain consistency with ability of the NRC to approve alternative measures as discussed in § 73.55.
	(iii) Based on comparison of the costs of the alternative measures to the costs of meeting the Commission’s requirements using the essential elements of 10 CFR 50.109, the costs of fully meeting the Commission’s requirements are not justified by the protection that would be provided.	This requirement is included to maintain consistency with ability of the NRC to approve alternative measures as discussed in § 73.55.
	* * * * *	
§ 73.54 Protection of digital computer and communication systems and networks.	(g) The licensee shall review the cyber security program as a component of the physical security program in accordance with the requirements of § 73.52(l) or § 73.55(m), including the periodicity requirements.	This is a conforming change to support the addition of § 73.52.

NEI White Paper: Proposed Physical Security Requirements for Advanced Reactor Technologies

Attachment 1 – Proposed Changes to 10 CFR for New Physical Security Requirements for Advanced Reactor Technologies

Location	Proposed Rule Language	Basis
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§ 73.55	Requirements for physical protection of licensed activities in nuclear power reactors with designs relying upon an onsite response force to prevent radiological sabotage.	Change the title of § 73.55 to reflect the addition of § 73.52 and that the physical protection of activities conducted at nuclear power reactors can comply with either section depending upon whether the facility design requires an onsite armed response force to prevent radiological sabotage.
(a) <i>Introduction.</i>	<p>(1) The requirements of this section are applicable to each nuclear power reactor applicant for an operating license under 10 CFR part 50, or a combined license under 10 CFR part 52, and each nuclear power reactor licensee, licensed under 10 CFR part 50 or part 52; <i>except that</i> the requirements of this section shall not apply to applicants or licensees where the facility design meets one or more of the performance capabilities provided in 10 CFR § 73.52(a)(1) and the applicant or licensee chooses to comply with the requirements of § 73.52 in lieu of the requirements of this section.</p> <p>(2) Each nuclear power reactor licensee shall implement the requirements of this section through its Commission-approved Physical Security Plan, Training and Qualification Plan, Safeguards Contingency Plan, and Cyber Security Plan referred to collectively</p>	<p>This paragraph specifies licensing part applicability for the applicants and licensees that will conduct physical protection of activities under the requirements of this section. The section is applicable applicants and licensees with facilities that require an onsite armed response force to prevent radiological sabotage (because the facility design does not meet any performance capability listed in § 73.52 paragraph (a)(1)). It also clearly states that the requirements of § 73.55 do not apply to an applicant or a licensee that meets the requirements for using § 73.52.</p> <p>Renumbered paragraph - current paragraph number is (a)(1). Removed “March 31, 2010” and “effective date of this rule” since both have passed and the associated provisions are no longer required. References to 10 CFR parts 50 and 52 are not needed since the licensing</p>

NEI White Paper: Proposed Physical Security Requirements for Advanced Reactor Technologies

Attachment 1 – Proposed Changes to 10 CFR for New Physical Security Requirements for Advanced Reactor Technologies

Location	Proposed Rule Language	Basis
	hereafter as “security plans.”	applicability for this section is specified in paragraph (a)(1) and need not be repeated here.
	(a) * * *	
	(5) Applicants shall implement the requirements of this section before fuel is allowed onsite (protected area).	Renumbered paragraph - current paragraph number is (a)(4). References to 10 CFR parts 50 and 52 are not needed since the licensing applicability for this section is specified in paragraph (a)(1) and need not be repeated here.
	* * *	
(1) <i>Facilities using mixed-oxide (MOX) fuel assemblies containing up to 20 weight percent plutonium dioxide (PuO₂).</i>	(1) In addition to meeting the requirements of this section, a licensee authorized to use special nuclear material in the form of MOX fuel assemblies containing up to 20 weight percent PuO ₂ shall protect un-irradiated MOX fuel assemblies against theft or diversion as described in this paragraph.	References to 10 CFR parts 50 and 52 are not needed since the licensing applicability for this section is specified in paragraph (a)(1) and need not be repeated here.
	* * * * *	
§ 73.56 Personnel access authorization requirements for nuclear power plants.	* * * * *	
	(n) * * *	
	(6) The results of the audits, along with any recommendations, must be documented in the site corrective action program in accordance with 73.52(b)(9) or § 73.55(b)(10) and reported to senior management having responsibility in the area audited and to management responsible for the access	This is a conforming change to support the addition of § 73.52.

NEI White Paper: Proposed Physical Security Requirements for Advanced Reactor Technologies

Attachment 1 – Proposed Changes to 10 CFR for New Physical Security Requirements for Advanced Reactor Technologies

Location	Proposed Rule Language	Basis
	<p>authorization program. Each audit report must identify conditions that are adverse to the proper performance of the access authorization program, the cause of the condition(s), and, when appropriate, recommended corrective actions, and corrective actions taken. The licensee, applicant, or contractor or vendor shall review the audit findings and take any additional corrective actions, to include re-auditing of the deficient areas where indicated, to preclude repetition of the condition.</p>	
	* * * * *	
§ 73.57 Requirements	* * * * *	
for criminal history	(b) * * *	
<p>records checks of individuals granted unescorted access to a nuclear power facility, a non-power reactor, or access to Safeguards Information.</p>	<p>(2)(i) For unescorted access to the nuclear power facility or the non-power reactor facility (but must adhere to provisions contained in §§ 73.21 and 73.22): NRC employees and NRC contractors on official agency business; individuals responding to a site emergency in accordance with the provisions of § 73.52(g)(5) or § 73.55(a); offsite emergency response personnel who are responding to an emergency at a nonpower reactor facility; a representative of the International Atomic Energy Agency (IAEA) engaged in activities associated with the U.S./IAEA Safeguards Agreement at designated facilities who has been certified by the NRC; law enforcement personnel acting in an official capacity; Federal, State or local government employees</p>	<p>This is a conforming change to support the addition of § 73.52. In addition, there appears to be an error in the present § 73.57; the industry believes the reference to “73.55(a)” is incorrect but it is unclear as to what the correct reference should be.</p>

NEI White Paper: Proposed Physical Security Requirements for Advanced Reactor Technologies

Attachment 1 – Proposed Changes to 10 CFR for New Physical Security Requirements for Advanced Reactor Technologies

Location	Proposed Rule Language	Basis
	who have had equivalent reviews of FBI criminal history data; and individuals employed at a facility who possess "Q" or "L" clearances or possess another active government granted security clearance (i.e., Top Secret, Secret, or Confidential);	
	* * * * *	
§ 73.70 Records.	Each record required by this part must be legible throughout the retention period specified by each Commission regulation. The record may be the original or a reproduced copy or a microform provided that the copy or microform is authenticated by authorized personnel and that the microform is capable of producing a clear copy throughout the required retention period. The record may also be stored in electronic media with the capability for producing legible, accurate, and complete records during the required retention period. Records such as letters, drawings, specifications, must include all pertinent information such as stamps, initials, and signatures. The licensee shall maintain adequate safeguards against tampering with and loss of records. Each licensee subject to the provisions of §§ 73.20, 73.25, 73.26, 73.27, 73.45, 73.46, 73.52, 73.55, or 73.60 shall keep the following records:	This is a conforming change to support the addition of § 73.52.
	* * *	
	(c) A register of visitors, vendors, and other individuals	This is a conforming change to support the

NEI White Paper: Proposed Physical Security Requirements for Advanced Reactor Technologies

Attachment 1 – Proposed Changes to 10 CFR for New Physical Security Requirements for Advanced Reactor Technologies

Location	Proposed Rule Language	Basis
	not employed by the licensee pursuant to §§ 73.46(d)(13), 73.52(g)(7), 73.55(g)(7), or 73.60. The licensee shall retain this register as a record, available for inspection, for 3 years after the last entry is made in the register.	addition of § 73.52. In addition, there appears to be an error in the present § 73.70; the industry believes the reference to “73.55(d)(6)” should be to “73.55(g)(7)”.
	* * * * *	
§ 73.71 Reporting of safeguards events.	* * * * *	
	(b) * * *	
	(1) Each licensee subject to the provisions of §§ 73.20, 73.37, 73.50, 73.51, 73.52, 73.55, 73.60, or 73.67 shall notify the NRC Operations Center within 1 hour of discovery of the safeguards events described in paragraph I(a)(1) of appendix G to this part. Licensees subject to the provisions of §§ 73.20, 73.37, 73.50, 73.51, 73.52, 73.55, 73.60, or each licensee possessing strategic special nuclear material and subject to § 73.67(d) shall notify the NRC Operations Center within 1 hour after discovery of the safeguards events described in paragraphs I(a)(2), (a)(3), (b), and (c) of appendix G to this part. Licensees subject to the provisions of §§ 73.20, 73.37, 73.50, 73.51, 73.52, 73.55, or 73.60 shall notify the NRC Operations Center within 1 hour after discovery of the safeguards events described in paragraph 1(d) of appendix G to this part.	This is a conforming change to support the addition of § 73.52.
	* * *	

NEI White Paper: Proposed Physical Security Requirements for Advanced Reactor Technologies

Attachment 1 – Proposed Changes to 10 CFR for New Physical Security Requirements for Advanced Reactor Technologies

Location	Proposed Rule Language	Basis
	<p>(c) Each licensee subject to the provisions of §§ 73.20, 73.37, 73.50, 73.51, 73.52, 73.55, 73.60, or each licensee possessing SSNM and subject to the provisions of § 73.67(d) shall maintain a current log and record the safeguards events described in paragraphs 11(a) and (b) of appendix G to this part within 24 hours of discovery by a licensee employee or member of the licensee's contract security organization. The licensee shall retain the log of events recorded under this section as a record for 3 years after the last entry is made in each log or until termination of the license.</p>	<p>This is a conforming change to support the addition of § 73.52.</p>
	<p align="center">* * * * *</p>	
<p>Appendix G to Part 73-- Reportable Safeguards Events</p>	<p>Pursuant to the provisions of 10 CFR 73.71 (b) and (c), licensees subject to the provisions of 10 CFR 73.20, 73.37, 73.50, 73.52, 73.55, 73.60, and 73.67 shall report or record, as appropriate, the following safeguards events.</p>	<p>This is a conforming change to support the addition of § 73.52.</p>
	<p align="center">* * * * *</p>	