U.S. NUCLEAR REGULATORY COMMISSION

STANDARD REVIEW PLAN

14.3.12 PHYSICAL SECURITY HARDWARE - INSPECTIONS, TESTS, ANALYSES, AND ACCEPTANCE CRITERIA

REVIEW RESPONSIBILITIES

Primary - Organization responsible for the review of physical security hardware

Secondary - Licensing organization and cognizant review organization according to the Standard Review Plan (SRP) sections identified in this SRP

1. The SRP Section14.3, "Inspections, Tests, Analyses and Acceptance Criteria," provides guidance for the review of the inspections, tests, analyses, and acceptance criteria (ITAAC) for an early site permit (ESP), a design certification (DC), or a combined license (COL) application submitted under Title 10 of the *Code of Federal Regulations* (10 CFR) Part 52, "Licenses, Certifications, and Approvals for Nuclear Power Plants," and is intended to be used in tandem with this SRP section. This review approach ensures that the complete scope of the design is addressed and that the COL ITAAC are necessary and sufficient to provide the assurances stated in 10 CFR 52.97(b).

I. AREAS OF REVIEW

Refer to SRP Section14.3, Section I, "Areas of Review," for general ITAAC review guidance for an ESP, a DC, or a COL application.

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USNRC STANDARD REVIEW PLAN

This Standard Review Plan (SRP), NUREG-0800, has been prepared to establish criteria that the U.S. Nuclear Regulatory Commission staff responsible for the review of applications to construct and operate nuclear power plants intends to use in evaluating whether an applicant/licensee meets the NRC's regulations. The SRP is not a substitute for the NRC's regulations, and compliance with it is not required. However, an applicant is required to identify differences between the design features, analytical techniques, and procedural measures proposed for its facility and the SRP acceptance criteria and evaluate how the proposed alternatives to the SRP acceptance criteria provide an acceptable method of complying with the NRC regulations.

The SRP sections are numbered in accordance with corresponding sections in Regulatory Guide (RG) 1.70, "Standard Format and Content of Safety Analysis Reports for Nuclear Power Plants (LWR Edition)." Not all sections of RG 1.70 have a corresponding review plan section. The SRP sections applicable to a COL application for a new light-water reactor (LWR) are based on RG 1.206, "Combined License Applications for Nuclear Power Plants (LWR Edition)." These documents are made available to the public as part of the NRC's policy to inform the nuclear industry and the general public of regulatory procedures and policies. Individual sections of NUREG-0800 will be revised periodically, as appropriate, to accommodate comments and to reflect new information and experience. Comments may be submitted electronically by e-mail to NRR_SRP@nrc.gov.

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This section of the SRP specifically addresses ITAAC related to physical security hardware (PS-ITAAC). Physical security hardware includes, but is not limited to, communication systems, assessment and alarm systems, locks, personnel access control, physical equipment barriers, and surveillance devices. ITAAC information is contained in the Final Safety Analysis Report (FSAR) of a COL application or Tier 1 information from the design control document (DCD) of a DC application.

The staff of the U.S. Nuclear Regulatory Commission (NRC) will review PS-ITAAC for the facility's physical security system to determine whether the designs and specifications for PS-ITAAC are in accordance with the regulatory requirements of 10 CFR Part 73, "Physical Protection of Plants and Materials," which are applicable for a nuclear power plant. The NRC staff will also review the PS-ITAAC for consistency with Appendix A, "Physical Security Hardware - Inspections, Tests, Analyses, and Acceptance Criteria Table," to SRP Section 14.3.12. The PS-ITAAC specifically address equipment and features used for the physical security attributes of detection, assessment, delay, and response to protect against the design-basis threat (DBT) of radiological sabotage as stated in 10 CFR 73.1(a), "Purpose."

The NRC staff will review the following specific areas:

1. For a DC application:

    A. The NRC staff reviews any proposed PS-ITAAC to determine if they are necessary and sufficient to provide reasonable assurance that, if the inspections, tests, and analyses are performed and the acceptance criteria met, a plant that incorporates the DC will have been built and will operate in conformity with the DC, the Atomic Energy Act of 1954 (AEA), and NRC regulations.

    B. The NRC staff reviews the information submitted to ensure that compliance with the requirements is verifiable through PS-ITAAC. The NRC staff also reviews the methods that are to be used for verification of the requirements.

2. For a COL application:

    A. The NRC staff reviews the proposed PS-ITAAC that are necessary and sufficient to provide reasonable assurance that, if the inspections, tests, and analyses are performed and the acceptance criteria met, the facility will have been constructed and will operate in conformity with the COL, the AEA, and NRC regulations.

    B. If the application cites a standard DC, the staff verifies that the PS-ITAAC contained in the certified design apply to those portions of the facility design that are approved in the DC.

    C. ITAAC as described above are not requirements for an operating license (OL) under 10 CFR Part 50, "Domestic Licensing of Production and Utilization Facilities." Therefore, the review of PS-ITAAC is not within the scope for an OL application. Under 10 CFR 50.54, "Conditions of Licenses," an applicant or licensee must describe how regulatory requirements will be met; operational readiness review inspections (similar to the inspections,tests, and analyses [ITA]

of ITAAC) may be imposed by the Commission as a condition of license for an OL.

3. COL Action Items and Certification Requirements and Restrictions

   For a DC application, the staff review must address COL action items and requirements and restrictions (e.g., interface requirements and site parameters).

   For a COL application citing a DC, a COL applicant must address COL action items (referred to as "COL license information items" in certain DCs) included in the cited DC. Additionally, a COL applicant must address requirements and restrictions (e.g., interface requirements and site parameters) included in the cited DC.

Review Interfaces

The interface with SRP Section 14.3.12 ensures that the design bases and the descriptions of design and specifications of physical security systems in the FSAR support the identified PS-ITAAC, the proposed ITA, and required acceptance criteria.

The following NUREG-0800 SRP sections interface with this section by providing physical security review guidance for COL and DC reviews:

1. SRP Section 13.6.1, "Physical Security—Combined License Review Responsibilities"

2. SRP Section 13.6.2, "Physical Security—Design Certification"

3. SRP Section 14.2, "Initial Plant Test Program—Design Certification and New License Applicants"

4. SRP Section 14.3, "Inspections, Tests, Analyses and Acceptance Criteria"

5. SRP Section 9.5.2, "Communications Systems"

6. SRP Section 9.5.3, "Lighting Systems"

The specific acceptance criteria and review procedures are contained in the cited SRP sections.

II. ACCEPTANCE CRITERIA

Requirements

Acceptance criteria for the ITAAC in an ESP, DC, or COL application are based on meeting the requirements of the Commission's regulations as detailed in SRP 14.3, Section II, "Acceptance Criteria" and the relevant requirements of the following Commission regulations:

1. 10 CFR 73.1, "Purpose and Scope," which requires, in relevant part, the establishment and maintenance of a physical protection system capable of protecting plants in which special nuclear material is used and defines radiological sabotage and the attributes, assistance, and equipment of the DBT (including attributes related to land and waterborne vehicle bomb assault, internal threat, and cyber attack).

2. 10 CFR 73.2, “Definitions,” which defines terms relevant to physical security systems (e.g., “bullet-resisting,” “physical barriers,” “intrusion alarm,” “lock,” “protected area,” “vital area,” “vital equipment,” “isolation zone,” etc.).

3. 10 CFR 73.55, “Requirements for Physical Protection of Licensed Activities in Nuclear Power Reactors Against Radiological Sabotage,” beginning with 10 CFR 73.55(a), “Introduction,” which identifies the licensee’s responsibility to implement security plans and written implementing procedures; requires applicants and licensees to implement the requirements of 10 CFR 73.55 before fuel is allowed onsite (in the protected area (PA)); places specific requirements on Tennessee Valley Authority (TVA) Watts Bar Nuclear Plant, Unit 2; and states that the requirements of Section 73.55(i)(4)(iii) must be met by applicants for an OL, or holders of a COL, that does not cite a standard DC or that cites a standard DC issued after May 26, 2009.

4. 10 CFR 73.55(b), “General Performance Objective and Requirements,” which, in relevant part, specifies the performance-based regulatory requirement that facilities be protected against the DBT of radiological sabotage; requires that physical security systems be designed to maintain the capability to detect, assess, interdict, and neutralize threats up to the DBT of radiological sabotage; requires defense in depth (DID) through the integration of systems and technologies; and defines the objective of the security organization as being able 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.

5. 10 CFR 73.55(e), “Physical Barriers,” as it relates to designing physical security systems to be procured, constructed, and installed as physical barriers; identifying and analyzing the specific use, type, function, and placement of physical barriers relied on to control or deny access or credited with doing so; meeting the performance requirements of 10 CFR 73.55(b); and meeting the operational requirements and implementing the management systems and applicable design criteria set forth in Sections 10 CFR 73.55(e)(1) through 10 CFR 73.55(e)(10).

6. 10 CFR 73.55(g), “Access Controls,” as it relates to (A) the design requirements for physical security systems to be procured, constructed, and installed and the operational requirements to be implemented for access controls used to control personnel, vehicle, and material access at each access control point (in accordance with the requirements of 10 CFR 73.55(b) to protect against the DBT of radiological sabotage) and (B) meeting the applicable design criteria set forth in 10 CFR 73.55(g)(1), 10 CFR 73.55(g)(5), and 10 CFR 73.55(g)(6).

7. 10 CFR 73.55(h), “Search Programs,” as it relates to the design of physical security systems to be procured, constructed, and installed as search equipment; the operational requirements to detect, deter, and prevent introduction of firearms, explosives, incendiary devices, or other items at access control portals; equipping vehicle access control points with video surveillance systems for monitoring by individuals capable of initiating responses; and meeting applicable design criteria in 10 CFR 73.55(h)(2) and 10 CFR 73.55(h)(3).

8. 10 CFR 73.55(i), "Detection and Assessment Systems," as it relates to the (A) design of physical security systems to be procured, constructed, and installed as intrusion detection and assessment systems and (B) operational requirements, including human/machine interfaces, for meeting the performance requirements of 10 CFR 73.55(b) and meeting the applicable design criteria in 10 CFR 73.55(i)(1) through 10 CFR 73.55(i)(6).

9. 10 CFR 73.55(j), "Communication Requirements," as it relates to the (A) design of physical security systems to be procured, constructed, and installed to provide continuous communication capabilities and (B) operational requirements for meeting the applicable design criteria set forth in 10 CFR 73.55(j)(1) through 10 CFR 73.55(j)(6).

10. Paragraph 10 CFR 73.70(f) of 10 CFR 73.70, "Records," as it relates to the design of physical security systems that create and capture a record (at each onsite alarm annunciation location) of each alarm, false alarm, alarm check, and tamper indication that identifies the type of alarm, location, alarm circuit, date, and time.

The staff's specific PS-ITAAC review consists of the following:

1. 10 CFR 73.55(e)(3)(i), "Physical barriers must be designed and constructed to (A) Protect against the design basis threat of radiological sabotage; (B) Account for site-specific conditions; and (C) Perform their required function in support of the licensee physical protection program."

2. 10 CFR 73.55(e)(3)(ii), "Physical barriers must provide deterrence, delay, or support access control."

3. 10 CFR 73.55(e)(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."

4. 10 CFR 73.55(e)(7)(i), "An isolation zone must be maintained in outdoor areas adjacent to the protected area perimeter barrier. The isolation zone shall be: (A) Designed and of sufficient size to permit observation and assessment of activities on either side of the protected area barrier; (B) Monitored with intrusion detection equipment designed to satisfy the requirements of § 73.55(i) and be capable of detecting both attempted and actual penetration of the protected area perimeter barrier before complete penetration of the protected area perimeter barrier; and (C) Monitored with assessment equipment designed to satisfy the requirements of § 73.55(i) and provide real-time and play-back/recorded video images of the detected activities before and after each alarm annunciation."

5. 10 CFR 73.55(e)(7)(ii), "Obstructions that could prevent the licensee's capability to meet the observation and assessment requirements of this section must be located outside of the isolation zone."

6. 10 CFR 73.55(e)(8)(i), "The protected area perimeter must be protected by physical barriers that are designed and constructed to (A) Limit access into the protected area to only those personnel, vehicles, and materials required to perform official duties;

(B) Channel personnel, vehicles, and materials to designated access control portals; and (C) Be separated from any other barrier designated as a vital area physical barrier, unless otherwise identified in the Physical Security Plan."

7. 10 CFR 73.55(e)(8)(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."

8. 10 CFR 73.55(e)(8)(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."

9. 10 CFR 73.55(e)(8)(iv), "Where building walls or roofs comprise a portion of the protected area perimeter barrier, an 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."

10. 10 CFR 73.55(e)(9)(i), "Vital equipment must be located only within vital 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."

11. 10 CFR 73.55(e)(9)(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."

12. 10 CFR 73.55(e)(9)(iii), "Unoccupied vital areas must be locked and alarmed."

13. 10 CFR 73.55(e)(9)(iv), "More than one vital area may be located within a single protected area."

14. 10 CFR 73.55(e)(9)(v), "At a minimum, the following shall be considered vital areas: (A) The reactor control room; (B) The spent fuel pool; (C) The central alarm station; and (D) The secondary alarm station in accordance with § 73.55(i)(4)(iii)."

15. 10 CFR 73.55(e)(9)(vi), "At a minimum, the following shall be located within a vital area: (A) The secondary power supply systems for alarm annunciation equipment; and (B) The secondary power supply systems for non-portable communications equipment."

16. 10 CFR 73.55(e)(10), "Vehicle control measures. Consistent with the physical protection program design requirements of § 73.55(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."

17. 10 CFR 73.55(e)(10)(i), "Land vehicles. Licensees shall: (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. (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. (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. (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."

18. 10 CFR 73.55(g)(1)(i)(A), "Access controls. (1) Consistent with the function of each barrier or barrier system, the licensee shall control personnel, vehicle, and material access, as applicable, at each access control point in accordance with the physical protection program design requirements of § 73.55(b). (i) To accomplish this, the licensee shall: (A) Locate access control portals outside of, or concurrent with, the physical barrier system through which it controls access."

19. 10 CFR 73.55(g)(1)(i)(B), "Equip access control portals with locking devices, intrusion detection equipment, and surveillance equipment consistent with the intended function."

20. 10 CFR 73.55(g)(5)(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."

21. 10 CFR 73.55(g)(6)(ii), "The licensee shall implement a numbered photo identification badge system for all individuals authorized unescorted access to the protected area and vital areas."

22. 10 CFR 73.55(h)(2), "Owner controlled area searches. [...] (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.

23. 10 CFR 73.55(h)(2)(v),"Vehicle access control points must be equipped with video surveillance equipment that is monitored by an individual capable of initiating a response."

24. 10 CFR 73.55(h)(3)(i), "Protected area searches. Licensees shall search all personnel, vehicles, and materials requesting access to protected areas. (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. . ."

25. 10 CFR 73.55(i)(1), "The licensee shall establish and maintain intrusion detection and assessment systems that satisfy the design requirements of § 73.55(b) and provide, at

all times, the capability to detect and assess unauthorized persons and facilitate the effective implementation of the licensee's protective strategy."

26. 10 CFR 73.55(i)(2), "Intrusion detection equipment must annunciate and video assessment equipment shall display concurrently, in at least two continuously staffed onsite alarm stations…."

27. 10 CFR 73.55(i)(3), "The licensee's intrusion detection and assessment systems must be designed to: (i) Provide visual and audible annunciation of the alarm."

28. 10 CFR 73.55(i)(3)(ii), "Provide a visual display from which assessment of the detected activity can be made."

29. 10 CFR 73.55(i)(3)(iii), "Ensure that annunciation of an alarm indicates the type and location of the alarm."

30. 10 CFR 73.55(i)(3)(iv), "Ensure that alarm devices to include transmission lines to annunciators are tamper indicating and self-checking."

31. 10 CFR 73.55(i)(3)(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."

32. 10 CFR 73.55(i)(3)(vi), "Support the initiation of a timely response in accordance with the security plans, licensee protective strategy, and associated implementing procedures."

33. 10 CFR 73.55(i)(3)(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."

34. 10 CFR 73.55(i)(4)(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: (A) Detect and assess alarms; (B) Initiate and coordinate an adequate response to an alarm; (C) Summon offsite assistance; and (D) Provide command and control."

35. 10 CFR 73.55(i)(4)(ii)(A), "Licensees shall: (A) Locate the central alarm station inside a protected area. The interior of the central alarm station must not be visible from the perimeter of the protected area."

36. 10 CFR 73.55(i)(4)(ii)(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."

37. 10 CFR 73.55(i)(4)(ii)(H), "Maintain a record of all alarm annunciations, the cause of each alarm, and the disposition of each alarm."

38. 10 CFR 73.55(i)(4)(iii), “Applicants for an operating license under the provisions of 10 CFR Part 50 of this chapter, or holders of a combined license under the provisions of [10 CFR] part 52 of this chapter, shall construct, locate, 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.”

39. 10 CFR 73.55(i)(5)(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.”

40. 10 CFR 73.55(i)(6)(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 protective strategy.”

41. 10 CFR 73.55(j)(3), “All on-duty security force personnel shall be capable 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.”

42. 10 CFR 73.55(j)(4), “The following continuous communication capabilities must terminate in both alarm stations required by this section: (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. (ii) A system for communication with the control room.”

43. 10 CFR 73.55(j)(5), “Non-portable communications equipment must remain operable from independent power sources in the event of the loss of normal power.”

44. 10 CFR 73.70(f), “A record at each onsite alarm annunciation location of each alarm, false alarm, alarm check, and tamper indication that identifies the type of alarm, location, alarm circuit, date, and time. In addition, details of response by facility guards and watchmen to each alarm, intrusion, or other security incident shall be recorded. The license[e] shall retain each record for three years after the record is made.”

SRP Acceptance Criteria

Specific SRP acceptance criteria are described in this SRP section. The SRP is not a substitute for NRC regulations, and compliance with it is not required. However, an applicant should identify differences between the design features, analytical techniques, and procedural measures proposed for its facility and the SRP acceptance criteria and evaluate how the proposed alternatives to the SRP acceptance criteria provide acceptable methods of compliance with the NRC regulations.

The acceptance criteria specific to the review described in this SRP section are as follows:

1. Appendix A to this SRP section provides an acceptable set of generic PS-ITAAC that an applicant may use to develop application-specific PS-ITAAC, tailored to specific physical security hardware.

2. Additional plant-specific PS-ITAAC (i.e., other than those listed in Appendix A) may be proposed and will be examined to determine acceptability on a case-by-case basis.

The acceptance criteria delineated in this SRP are intended to communicate the underlying objectives. An applicant should tailor its security program to the site-specific conditions and features of its nuclear reactor.

The documents listed in Section VI, "References," of this SRP provide criteria that the NRC finds acceptable for meeting the relevant requirements of the agency's regulations identified above.

Technical Rationale

The staff's specific PS-ITAAC technical rationale for acceptance criteria consists of the following:

1. 10 CFR 52.79(a)(35)(i), which requires each applicant for a COL for a utilization facility that will be subject to the requirements of 10 CFR 73.55, "Requirements for Physical Protection of Licensed Activities in Nuclear Power Reactors Against Radiological Sabotage," to include a physical security plan.

2. 10 CFR 73.70(f) requires a record at each onsite alarm annunciation location of each alarm, false alarm, alarm check, and tamper indication that identifies the type of alarm, location, alarm circuit, date, and time. In addition, details of response by facility guards and watchmen to each alarm, intrusion, or other security incident shall be recorded. The license[e] shall retain each record for three years after the record is made.

3. 10 CFR 73.55(e) is satisfied when the applicant describes in sufficient detail how the designs of physical barriers, and their use, types, functions, and placement satisfy the capabilities of delays for control of access into the facility area; the designs meet the physical protection design requirements of 73.55(b); and the design descriptions provide sufficient detail of how the construction and installation of the physical barriers systems address the following prescriptive design criteria to:

    A. Protect against the design basis threat of radiological sabotage, (B) account for site-specific conditions, and (C) perform their required function in support of the licensee physical protection program (10 CFR 73.55(e)(3)(i)(A),(B), and (C)).

    B. Provide deterrence or delay or support access control (10 CFR 73.55(e)(3)(ii)).

    C. Provide bullet resisting physical barriers for the reactor control room, the central alarm station, and the locations within which the last access control function for access to the protected area is performed (10 CFR 73.55(e)(5)).

D. Establish an isolation zone in an outdoor area adjacent to the protected area perimeter barrier that is designed to meet the following design criteria (10 CFR 73.55(e)(7)(i)):

i. sufficient size to permit observation and assessment of activities on either side of the protected area barrier (10 CFR 73.55(e)(7)(i)(A)).

ii. intrusion detection equipment monitoring that is designed to satisfy the requirements of § 73.55(i) and is capable of detecting both attempted and actual penetrations of the protected area perimeter barrier before completed penetration of the protected area perimeter barrier (10 CFR 73.55(e)(7)(i)(B)).

iii. monitored with assessment equipment designed to satisfy the requirements of 10 CFR 73.55(i) and to provide real-time video images and recording and playback of video images of the detected activities before and after each alarm annunciation (10 CFR 73.55(e)(7)(i)(C)).

iv. clear of obstruction that could prevent capabilities for observation and assessment (10 CFR 73.55(e)(7)(ii)).

E. Provide physical barrier systems for the protected area perimeter that meet the following design criteria (10 CFR 73.55(e)(8)):

i. Systems limit access into the protected area (10 CFR 73.55(e)(8)(i)(A)).

ii. Systems channel personnel, vehicles, and material to designated access control portals (10 CFR 73.55(e)(8)(i)(B)).

iii. Systems are separated from any other barriers designated as vital area physical barriers (10 CFR 73.55(e)(8)(i)(C)).

iv. Any penetrations through the protected area barrier are secured and monitored to detect, and to prevent or delay, exploitation of the penetrations (10 CFR 73.55(e)(8)(ii)).

v. All emergency exits in the protected areas are alarmed and secured by locking devices that allow prompt egress during an emergency and satisfy the requirements for access control into the protected areas (10 CFR 73.55(e)(8)(iii)).

vi. Where building walls or roofs comprise a portion of the protected area perimeter barrier, an 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 (10 CFR 73.55(e)(8)(iv)).

F. Locate vital equipment and designated vital areas for meeting the following design criteria (10 CFR 73.55(e)(9)):

i. Vital equipment is located in designated vital areas inside the protected area and is protected by at least two physical barriers (10 CFR 73.55(e)(9)(i)).

ii. Vital area access portals and emergency exits are protected with intrusion detection equipment and locking devices that allow rapid egress during an emergency and satisfy the vital area entry control requirements (10 CFR 73.55(e)(9)(ii)).

iii. Access portals and emergency exits to unoccupied vital areas are locked and alarmed (10 CFR 73.55(e)(9)(iii)).

iv. More than one vital area may be located within a single protected area (10 CFR 73.55(e)(9)(iv)).

v. The reactor control room, spent fuel pool, central alarm station, and secondary alarm station are designated as vital areas (10 CFR 73.55(e)(9)(v)).

vi. Secondary power supply systems for alarm annunciation equipment and non-portable communication equipment are located within the vital area (10 CFR 73.55(e)(9)(vi)).

G. Establish and maintain vehicle control measures that are designed to protect against the DBT of radiological sabotage vehicle bomb assault and meet the following design criteria:

i. A land-based vehicle barrier system (including passive and active barriers) is at a standoff distance adequate to protect personnel, equipment, and systems necessary to prevent significant core damage and spent fuel pool sabotage against the effects of the DBT of radiological sabotage land vehicle bomb assault (10 CFR 73.55(e)(10)(i)(A)).

ii. A secondary power source or a means of mechanical or manual operation exists in the event of a power failure so that active barriers can continue to perform their intended function of denying unauthorized vehicle access beyond the required standoff distance (10 CFR 73.55(e)(10)(i)(B)).

iii. A train derailer is installed, a section of track is removed, or access is restricted to railroad sidings where a site has rail access to the protected area (10 CFR 73.55(e)(10)(i)(D)).

4. 10 CFR 73.55(g) is satisfied, in relevant part, when the applicant describes in sufficient detail how the design of access control measures, required to protect against the threats up to and including the DBT of radiological sabotage, addresses the following design criteria:

A. Locate the access control portal outside of, or at the same place as, the physical barrier system through which it controls access (10 CFR 73.55(g)(1)(i)(A)).

B. Equip access control portals with locking devices, intrusion detection equipment, and surveillance equipment (10 CFR 73.55(g)(1)(i)(B)).

C. Design access control systems to accommodate the potential need for rapid ingress and egress during emergencies (10 CFR 73.55(g)(5)(i)).

D. Implement a numbered photo identification badge system for all individuals authorized for unescorted access to the protected area and vital areas (10 CFR 73.55(g)(6)(ii)).

5. 10 CFR 73.55(h)(3)(i) is satisfied when the applicant describes in sufficient detail how the design of the search system (equipment and configuration) enables security personnel to detect, deter, and prevent introduction of firearms, explosives, incendiary devices, and other items that could be used for radiological sabotage, before granting individuals, vehicles, and material access to protected areas (10 CFR 73.55(h)(3)(i)). Where required, the design of video surveillance equipment is monitored by an individual capable of initiating a response (10 CFR 73.55(h)(2)(v)).

6. 10 CFR 73.55(i) is satisfied, in relevant part, when the applicant describes in sufficient detail how the designs of detection and assessment systems, that satisfy the design requirement of 10 CFR 73.55(b) and provide, at all times, the capability to detect and assess unauthorized access and facilitate the implementation of security response, address the following design criteria:

A. Intrusion detection equipment must annunciate and assessment video equipment must display concurrently, in at least two continuously staffed onsite alarm stations. One of the alarm stations must be protected in accordance with the requirements of a central alarm station (10 CFR 73.55(i)(2)).

B. Visual and audible annunciation of alarm (10 CFR 73.55(i)(3)(i)), along with types and location of alarm (10 CFR 73.55(i)(3)(iii)).

C. Visual display for assessment of the detected activity (10 CFR 73.55(i)(3)(ii)).

D. Alarm devices, including transmission lines to annunciators, are tamper indicating and self-checking (10 CFR 73.55(i)(3)(iv)).

E. 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 (10 CFR 73.55(i)(3)(v)).

F. Uninterruptible power supply for continued operations of intrusion detection and assessment equipment at the protected area perimeter in the event of the loss of normal power (10 CFR 73.55(i)(3)(vii)).

7. 10 CFR 73.55(i)(4) is satisfied when the applicant describes in sufficient detail how both alarm stations are designed to: ensure that a single act cannot disable both alarm stations; ensure the survivability of at least one alarm station with the capability to satisfy the design requirement of 10 CFR 73.55(b); provide, the capability to detect and assess unauthorized access; facilitate the implementation of security response; and meet the following design criteria of 10 CFR 73.55(i):

   A. Both alarm stations are designed to ensure that a single act cannot disable both alarm stations and to ensure the survivability of at least one alarm station where the following functions can be performed: (1) detect and assess alarms; (2) initiate and coordinate response to an alarm; (3) summon offsite assistance; and (4) provide command and control (10 CFR 73.55(i)(4)(i)(A) through (i)(4)(i)(D)).

   B. The central alarm station must be located inside a protected area and the interior of the central alarm station must not be visible from the perimeter of the protected area (10 CFR 73.55(i)(4)(ii)(A)).

   C. Alarm station controls satisfy the requirements to prevent the change of status of a detection point or deactivation of a locking or access control device at a protected or vital area portal by an alarm station operator, without knowledge and concurrence of the alarm station operator in the other alarm station (10 CFR 73.55(i)(4)(ii)(F)).

   D. Both alarm stations are equal and redundant, such that all functions needed to satisfy the requirements of 10 CFR 73.55 are met (10 CFR 73.55(i)(4)(iii)).

8. 10 CFR 73.55(i)(5)(i) is satisfied when the applicant describes in sufficient detail how the physical security systems are designed to provide surveillance, observation, and monitoring that satisfy the design requirements of 10 CFR 73.55(b) and provide, at all times, the capability to detect and assess unauthorized access, facilitate the implementation of security response, and meet the following design criterion:

   A. Unattended openings that intersect a security boundary must be protected by a physical barrier and must be either monitored by intrusion detection equipment or observed by security personnel at a frequency sufficient to detect exploitation (10 CFR 73.55(i)(5)(iii)).

9. 10 CFR 73.55(i)(6) is satisfied when the applicant describes in sufficient detail how the physical security systems are designed to provide illumination that satisfies the requirement of 10 CFR 73.55(b), and meets the following design criteria:

   A. A minimum illumination level of 0.2 foot candles (0.06 meters), 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 (10 CFR 73.55(i)(6)(ii)).

10. 10 CFR 73.55(j) is satisfied, in relevant part, when the applicant describes in sufficient detail how the physical security systems or plant systems are designed to provide continuous communication capability with onsite and offsite resources that satisfy the requirement of 10 CFR 73.55(b) for protection against the DBT of radiological sabotage, and meet the following design criteria:

    A. Capabilities of communications by radio or microwave transmitted two-way voice communication, either directly or through an intermediary, in addition to conventional telephone service between the site and local law enforcement authorities, at both alarm stations (10 CFR 73.55(j)(4)(i)).

    B. A system for communication with the control room in both alarm stations (10 CFR 73.55(j)(4)(ii)).

    C. Independent power sources for nonportable communications equipment so that it can remain operable in the event of the loss of normal power (10 CFR 73.55(j)(5)).

III. REVIEW PROCEDURES

The reviewer will select material from the PS-ITAAC listed in Appendix A as may be appropriate for a particular case.

These review procedures are based on the identified SRP acceptance criteria. For deviations from these specific acceptance criteria, the NRC staff will review the applicant's evaluation of how the proposed alternatives to the SRP criteria provide an acceptable method of complying with the relevant NRC criteria identified in Appendix A.

1. For review of a DC application, the reviewer will follow the guidance described in NUREG-0800, SRP Section 13.6.2, "Physical Security—Design Certification," to verify that any elements of the physical protection program included in the design, including requirements and restrictions (e.g., interface requirements and site parameters), and described in the FSAR meet the acceptance criteria. DCs have referred to the FSAR as the DCD. The reviewer should also consider the appropriateness of identified COL action items; however, to ensure that these COL action items are addressed during a COL application, they should be added to the DC FSAR.

2. The scope of the review of a COL application depends on whether the COL applicant cites a DC, an early site permit, or other NRC approvals (e.g., manufacturing license, site suitability report, or topical report), as well as the scope of the information submitted in connection with such a previous approval.

3. As a key element to address reasonable assurance, the applicant must provide NRC staff with sufficient details to ensure a clear understanding of how the design of the physical security hardware will be integrated into the applicant's site-specific security program.

    A. The NRC staff should review the applicant's test abstracts to determine how the security-related systems for the site-specific PS-ITAAC provided in the FSAR,

Part 10 of the COL application, will be installed and tested to verify that security-related systems, equipment, and component performance is in accordance with the design. These test abstracts should include the objectives, tests, and acceptance criteria that will be included in the test procedures.

B. The staff's review of the applicant's test abstracts should ensure that they describe any planned tests to demonstrate and verify the performance capabilities of security-related systems and design features.

C. The abstracts should include test objectives, prerequisites, test methods, significant parameters and plant performance characteristics to be monitored, and acceptance criteria in sufficient detail to establish the functional adequacy of the security-related systems and design features tested.

The PS-ITAAC Design Commitments outlined below are based on the guidance described in Appendix C.II.1-C, "Developmental Guidance for Physical Security Hardware ITAAC," to Part II of Regulatory Guide (RG) 1.206, "Combined License Applications for Nuclear Power Plants (LWR Edition)" (ADAMS Accession No. ML070720184).

- PS-ITAAC No. 1, Vital Area and Vital Area Barrier:

  The applicant should provide a description of how all vital areas and vital area barriers are located within a protected area so that access to vital equipment requires passage through at least two physical barriers. For characteristics of vital area barriers (e.g., delay against specific threat, resistance to specific threat, and design of access doorways/doors to vital areas), the applicant should indicate that resistance is balanced with respect to being as similar as possible to seismically qualified walls thereof.

- PS-ITAAC No. 2, Protected Area Barrier:

  The applicant should provide a description of how the protected area barrier is separated from any other barrier that is designated as a physical barrier for a vital area unless otherwise identified in the physical security plan; the barrier should meet the definition of a protected area barrier in accordance with 10 CFR 73.2, "Definitions." Penetrations and openings in the protected area barrier such as unattended openings that intersect or cross the protected area boundary are provided the protection required by regulations.

- PS-ITAAC No. 3, Isolation Zone:

  The applicant should describe how the isolation zones are maintained in outdoor areas adjacent to the protected area perimeter barrier and are designed and of sufficient size to permit observation and assessment of activities on either side of the protected area barrier.

- PS-ITAAC No. 4, Protected Area Perimeter Intrusion Detection and Assessment Systems:

  The applicant should provide a description of how the protected area perimeter's intrusion detection and assessment systems have been established to meet the design

and performance requirements of 10 CFR 73.55(b). 10 CFR 73.55(b) requires that these systems be designed to provide, at all times, the capability to detect and assess unauthorized persons and facilitate the effective implementation of the licensee's protective strategy.

- PS-ITAAC No. 5, Illumination:

  The applicant should provide a description of how all areas of the facility are provided with illumination necessary to satisfy the design requirements of 10 CFR 73.55(b) for implementing the protective strategy.

- PS-ITAAC No. 6, Bullet-Resisting Barriers:

  The applicant should provide a description of how the reactor control room, central alarm station, secondary alarm station and the final access control location for access to the protected area meet the bullet-resisting physical barriers requirements of 10 CFR 73.55(e)(5).

- PS-ITAAC No. 7, Vehicle Control Measures:

  The applicant should provide a description of how vehicle control measures (vehicle barriers) are located at an appropriate standoff distance to protect against vehicle bombs in accordance with the design basis threat of radiological sabotage.

- PS-ITAAC No. 8, Personnel, Vehicle, and Material Access-Control Portals and Search Equipment:

  The applicant should provide a description of how the personnel, vehicle, and material access-control portals and search equipment ensure access controls for personnel, vehicles, and materials in a way consistent with the function of each barrier or barrier system, as applicable, at each access control point. Also, the applicant should verify that personnel, vehicle, and material search equipment are designed to prevent the introduction of firearms, explosives, and incendiary devices or other items that could be used to commit radiological sabotage.

- PS-ITAAC No. 9, Picture Badge Identification System:

  The applicant should describe how the picture badge identification system with a numbered photo identification badge system is established for all individuals authorized to have unescorted access to the protected and vital areas. Also, the applicant should verify that supervision and control over the badging process is established to prevent unauthorized bypass of access control equipment located at or outside of the protected area.

- PS-ITAAC No. 10, Access Control for Vital Areas:

  The applicant should provide a description of how all vital area access portals and vital area emergency exits are protected with intrusion detection equipment and locking

devices that allow rapid egress during an emergency and satisfy the vital areas' entry-control requirements pursuant to the regulations.

- PS-ITAAC No. 11, Alarm Station:

  The applicant should provide a description of how alarm annunciation and video assessment equipment display occur concurrently in at least two continuously staffed onsite alarm stations. The description should provide information on the systems' capabilities, interfaces, and performance requirements. Also, the applicant should verify that both alarm stations are designed and equipped to ensure that a single act, in accordance with the design-basis threat of radiological sabotage, cannot disable both alarm stations.

- PS-ITAAC No.12, Secondary Power Supplies for Alarm Annunciation and Communication Equipment:

  The applicant should provide a description of how the secondary power supplies for alarm annunciation equipment and nonportable communication equipment are located in a vital area.

- PS-ITAAC No. 13, Console Display and Alarms for Intrusion Detection Systems:

  The applicant should provide a description of how the console display and alarms for the intrusion detection system are designed in accordance with the requirements of 10 CFR 73.55(i)(3).

- PS-ITAAC No. 14, Intrusion Detection Systems Recording:

  The applicant should provide a description of how the intrusion detection system maintains a record of all alarm annunciations and should confirm that the alarm stations have the capability to record the cause of each alarm and the disposition of each alarm.

- PS-ITAAC No. 15, Emergency Exits from the Protected Area and Vital Areas:

  The applicant should provide a description of how all emergency exits from the protected area and vital areas are protected with intrusion detection equipment and locking devices that allow rapid egress during an emergency and satisfy the vital area entry-control requirements pursuant to the regulations.

- PS-ITAAC No. 16, Communication:

  The applicant should provide a description of how continuous communications with onsite and offsite resources are established and maintained to ensure effective command and control during both normal and emergency situations. The description should also provide information on the systems' capabilities, interfaces, and compliance with the performance requirements of the regulations.

  Additional information on regulatory requirements and criteria guidelines for PS-ITAAC are located in SRP Section 14.3.12, Appendix A.

IV. EVALUATION FINDINGS

The reviewer verifies that the applicant has provided sufficient information and that the review and calculations (if applicable) support conclusions of the following type to be included in the staff's safety evaluation report (SER). The reviewer also states the basis for those conclusions.

1. The reviewer verifies that sufficient information has been provided to satisfy the criteria of SRP Section 14.3.12 and concludes that Tier 1 is acceptable. For a DC application, this is done only to the extent that the DC application describes SSCs as part of the physical protection system. A finding similar to that in the "Evaluation Findings" section of SRP Section 14.3.12 should be provided in a separate section of the SER.

2. For DC and COL reviews, the findings will also summarize the staff's evaluation of requirements and restrictions (e.g., interface requirements and site parameters) and COL action items relevant to this SRP section.

For COL and OL reviews, the findings will also summarize the staff's evaluation of requirements and restrictions (e.g., interface requirements and site parameters), COL action items, and license conditions relevant to this SRP section. The evaluation finding for COL and OL reviews should be substantially equivalent to the following statement (making sure to expand any acronyms that have not previously appeared in the document and omitting the quotation marks at the beginnings and ends of paragraphs).

> "The NRC staff reviewed the [insert "COLA"] for [insert plant name], which establishes the basis for licensing in its descriptions of PS-ITAAC (i.e., [insert "COLA"], provided in Part 10, of the COL Application) and [insert the numbers and titles of cited technical reports or other documents on the docket and the cited certified design where applicable] for the physical protection of the proposed operations of [insert plant name]. The staff concludes the following:
>
> - "The COL applicant meets the requirements of [insert "10 CFR 52.79(a)(35)(i) and (ii), which state" or "10 CFR 50.34.___, which states", as applicable] that information submitted for [insert "a COL"] must describe how the applicant will meet the requirements of 10 CFR Part 73 and provide descriptions (i.e., schedule and milestones) of the implementation and maintenance of the licensing basis for security."
>
> - "The licensing bases, along with design bases for security SSCs relied on to protect [insert plant name] against threats up to and including the DBT, is adequately described in the COLA, which includes the Security Plan and technical reports and regulatory guidance that are incorporated by reference (i.e., FSAR Parts 1, 2, 7, 8, and 10; the PSP, T&QP, and SCP; and [insert the numbers and titles of cited technical reports or other documents on the docket and the cited certified design where applicable])."
>
> - "As required by paragraph 10 CFR 52.103(g) of 10 CFR 52.103, "Operation Under a Combined License," the licensee shall not operate the facility until the Commission makes a finding that the acceptance criteria in the COL are met, except for those acceptance criteria that the Commission found were met under

10 CFR 52.97(a)(2). If the COL is for a modular design, each reactor module may require a separate finding as construction proceeds."

- "The [insert "COL"] applicant adequately described in the [insert "COLA"], and established the licensing basis for, how it will meet the prescriptive requirements of 10 CFR Part 73."

- "Specifically, the [insert "COL"] applicant adequately described the licensing basis that integrates the design of the engineered physical security systems, operational requirements, and management system for a physical protection program (as described in the [insert "COLA"]) for the adequate protection of [insert plant name]."

"The NRC staff has determined that these PS-ITAAC include the necessary programmatic elements that, when effectively implemented, will provide the required high assurance of protection against the DBT. The burden to effectively implement these plans remains with the applicant. Effective implementation depends on the procedures and practices that the applicant develops to satisfy the programmatic elements of its Security Plans. As required by Section 3 of the applicant's Security Plans, a performance evaluation program will be implemented that periodically tests and evaluates the effectiveness of the overall protective strategy. This program requires that deficiencies be corrected. The staff concludes that the licensing basis described in the [insert "COLA"], if the facility is adequately designed, constructed, required equipment installed, maintained, and implemented as described in facility procedures, satisfies the requirement for achieving the objective of high assurance of the protection of [insert plant name] against threats up to and including the DBT for radiological sabotage, as well as the requirement that the activities involving special nuclear material are not inimical to the common defense and security and do not constitute an unreasonable risk to public health and safety.

"The staff concludes that the [insert "COL"] applicant meets the applicable standards and requirements of the Atomic Energy Act of 1954 and NRC regulations for security, and that there is reasonable assurance that the facility will be constructed and will operate in conformity with the license, the provisions of the Atomic Energy Act of 1954, and NRC regulations. The staff further concludes that the issuance of the license will not be inimical to the common defense and security or to the health and safety of the public."

V. IMPLEMENTATION

The staff will use this SRP section to evaluate the ITAAC specified in DC applications and COL applications submitted by applicants pursuant to 10 CFR Part 52, "Licenses, Certifications, and Approvals for Nuclear Power Plants."

Except when the applicant proposes an acceptable alternative method for complying with specified portions of the Commission's regulations, the staff will use the method described herein to evaluate conformance to Commission regulations.

The provisions of this SRP section apply to reviews of applications submitted six (6) months or more after the date of issuance of this SRP section, unless superseded by a later revision.

VII. REFERENCES

The following RGs, NUREGs, and industry standards provide guidance related to the design of physical security systems. In general, they describe methods or approaches and technical bases that may be applied for meeting the requirements described within this SRP:

1. U.S. *Code of Federal Regulations*, "Licenses, Certifications, and Approvals for Nuclear Power Plants," 10 CFR Part 52, Chapter I, Title 10, "Energy."

2. U.S. *Code of Federal Regulations,* "Requirements for Physical Protection of Licensed Activities in Nuclear Power Reactors Against Radiological Sabotage," § 73.55, Chapter I, Title 10, "Energy."

3. Underwriters Laboratories, Inc., "Standard for Bullet-Resisting Equipment," UL 752, September 2005.

4. U.S. Department of Energy, "Technology Transfer Manuals: Interior Intrusion Detection," SAND99 2388, Sandia National Laboratories. 1999. Not publicly available.

5. U.S. Department of Energy, "Technology Transfer Manuals: Video Assessment," SAND99 2389, Sandia National Laboratories. 1999. Not publicly available.

6. U.S. Department of Energy, "Technology Transfer Manuals: Alarm Communication," SAND99 2390, Sandia National Laboratories. 1999. Not publicly available.

7. U.S. Department of Energy, "Technology Transfer Manuals: Exterior Intrusion Detection," SAND99 2391, Sandia National Laboratories. 1999. Not publicly available.

8. U.S. Department of Energy, "Technology Transfer Manuals: Protecting Secure Communications," SAND99 2392, Sandia National Laboratories. 1999. Not publicly available.

9. U.S. Department of Energy, "Technology Transfer Manuals: Explosives Protection," SAND99 2486, Sandia National Laboratories. 1999. Not publicly available.

10. U.S. Department of Energy, "Technology Transfer Manuals: Entry Control and Contraband Detection Systems," SAND2000 2142, Sandia National Laboratories. 2000. Not publicly available.

11. U.S. Department of Energy, "Technology Transfer Manuals: Access Delay Technology," Volume 1, SAND2001 2168, Sandia National Laboratories. 2001. Not publicly available.

12. U.S. Department of Energy, "Technology Transfer Manuals: Nuclear Power Plant Security Assessment Technical Manual," SAND2007 5591, Sandia National Laboratories. 2007. Not publicly available.

13. U.S. Department of Justice, National Institute of Justice, "Ballistic Resistant Protective Materials," NIJ Standard 0108.01, September 1985, available at http://www.ncjrs.gov/pdffiles1/nij/099859.pdf.

14. U.S. Nuclear Regulatory Commission, “Standard Format and Content of Safety Analysis Reports for Nuclear Power Plants (LWR Edition),” Regulatory Guide 1.70, ADAMS Accession No. ML011340122.

15. U.S. Nuclear Regulatory Commission, “Combined License Applications for Nuclear Power Plants (LWR Edition),” Regulatory Guide 1.206, ADAMS Accession No. ML070720184.

16. U.S. Nuclear Regulatory Commission, “Entry/Exit Control for Protected Areas, Vital Areas, and Material Access Areas,” Regulatory Guide 5.7, ADAMS Accession No. ML003739976.

17. U.S. Nuclear Regulatory Commission, “Vital Area Access Controls, Protection of Physical Security Equipment, and Key and Lock Controls,” Regulatory Guide 5.65, ADAMS Accession No. ML003739336.

18. U.S. Nuclear Regulatory Commission, “Protection Against Malevolent Use of Vehicles at Nuclear Power Plants,” Regulatory Guide 5.68, ADAMS Accession No. ML003739379.

19. U.S. Nuclear Regulatory Commission, “Guidance for the Application of the Radiological Sabotage Design-Basis Threat in the Design, Development and Implementation of a Physical Security Program that Meets 10 CFR 73.55 Requirements” (as it relates to the design of physical security systems), Regulatory Guide 5.69, not publicly available.

20. U.S. Nuclear Regulatory Commission, “Cyber Security Programs for Nuclear Facilities,” Regulatory Guide 5.71, ADAMS Accession No. ML090340159.

21. U.S. Nuclear Regulatory Commission, “Managing the Safety/Security Interface,” Regulatory Guide 5.74, ADAMS Accession No. ML091690036.

22. U.S. Nuclear Regulatory Commission, “Physical Protection Programs at Nuclear Power Reactors,” Regulatory Guide 5.76, not publicly available.

23. U.S. Nuclear Regulatory Commission, “Target Set Identification and Development for Nuclear Power Reactors,” Regulatory Guide 5.81, not publicly available.

24. U.S. Nuclear Regulatory Commission, “High Security Protected and Vital Area Barrier/Equipment Penetration Manual,” Regulatory Issue Summary 2003-06, not publicly available.

25. U.S. Nuclear Regulatory Commission, “Intrusion Detection Systems and Subsystems: Technical Information for NRC Licensees,” NUREG-1959, April 25, 2011, ADAMS Accession No. ML11112A009.

26. U.S. Nuclear Regulatory Commission, “Access Control Systems: Technical Information for NRC Licensees,” NUREG-1964, April 2011, ADAMS Accession No. ML11115A078.

27. U.S. Nuclear Regulatory Commission, “Vehicle Barriers: Emphasis on Natural Features,” NUREG/CR-4250, July 1985, not publicly available.

28. U.S. Nuclear Regulatory Commission, “Entry/Exit Control Components for Physical Protection Systems,” NUREG/CR-5899, not publicly available.

29. U.S. Nuclear Regulatory Commission, “Protection against Malevolent Use of Vehicles at Nuclear Power Plants,” NUREG/CR-6190, Revision 1, March 17, 2004, not publicly available.

30. U.S. Nuclear Regulatory Commission, “Nuclear Power Plant Security Assessment Guide,” NUREG/CR-7145, April 2013, ADAMS Accession No. ML13122A181.

31. U.S. Nuclear Regulatory Commission, “Staff Requirements - SECY-06-0204 - Proposed Rulemaking - Security Assessment Requirements for New Nuclear Power Reactor Designs,” SRM-SECY-06-0204, April 24, 2007, ADAMS Accession No. ML071140119.

32. U.S. Nuclear Regulatory Commission, “Construction Inspection Program: Inspections of Inspections, Tests, Analyses, and Acceptance Criteria (ITAAC) Related Work,” Inspection Manual Chapter 2503, ADAMS Accession No. ML12110A239.

33. U.S. Nuclear Regulatory Commission, “Security Inspection Program for Construction,” Inspection Manual Chapter 2200, including “Security Construction Inspection Program,” Appendix A, not publicly available.

34. U.S. Nuclear Regulatory Commission, “Inspection of ITAAC-Related Security Structures, Systems, and Components,” Inspection Procedure 65001.17, not publicly available.

35. U.S. Nuclear Regulatory Commission, “Lessons Learned to Improve Inspections, Tests, Analyses, and Acceptance Criteria Submittal,” Regulatory Issue Summary 2008-05, Revision 1, September 23, 2010, ADAMS Accession No. ML102500244.

36. Letter from the Nuclear Energy Institute, “Security ITAAC Related to New Plant Construction,” December 19, 2009, ADAMS Accession No. ML090630433, not publicly available.

37. Letter from the U.S. Nuclear Regulatory Commission, “Physical Security Hardware Inspections, Training, Analysis, and Acceptance Criteria (ITAAC) Related to New Plant Construction,” March 26, 2009, ADAMS Accession No. ML090630299, not publicly available.

38. U.S. Nuclear Regulatory Commission, “Update to Reflect Revised DBT,” March 2004 amendment to NUREG/CR-4250, “Vehicle Barriers Emphasis on Natural Features,” July 1985, not publicly available.

39. U.S. Army Corps of Engineers, PDC-TR-06-05, “Evaluating Adequacy of Landform Obstacles as Vehicle Barriers,” August 2007; ADAMS Accession No. ML080850043, not publicly available.

PAPERWORK REDUCTION ACT STATEMENT

The information collections contained in the Standard Review Plan (SRP) are covered by the requirements of 10 CFR Part 50, 10 CFR Part 52 and 10 CFR Part 73, and were approved by the Office of Management and Budget, approval numbers 3150-0011, 3150-0151 and 3150-0002.

PUBLIC PROTECTION NOTIFICATION

The NRC may not conduct or sponsor, and a person is not required to respond to, a request for information or an information collection requirement unless the requesting document displays a currently valid OMB control number.

APPENDIX A: PHYSICAL SECURITY HARDWARE – INSPECTIONS, TESTS, ANALYSES, AND ACCEPTANCE (PS-ITAAC) CRITERIA TABLE

PS-ITAAC No.1, Vital Area and Vital Area Barrier Requirements

Title 10 of the *Code of Federal Regulations* (10 CFR),§ 73.55(e)(9)(i). "Vital equipment must be located only within vital 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."

10 CFR 73.55(e)(9)(iv). "More than one vital area may be located within a single protected area."

10 CFR 73.55(e)(9)(v). "At a minimum, the following shall be considered vital areas: (A) The reactor control room; (B) The spent fuel pool; (C) The central alarm station; and (D) The secondary alarm station in accordance with § 73.55(i)(4)(iii)."

10 CFR 73.2, "Definitions": "*Vital area* means any area which contains vital equipment."

"*Vital equipment* means any equipment, system, device, or material, the failure, destruction, or release of which could directly or indirectly endanger the public health and safety by exposure to radiation. Equipment or systems which would be required to function to protect public health and safety following such failure, destruction, or release are also considered to be vital."

Design Commitment	Inspections, Tests, Analyses	Acceptance Criteria
1(a). Vital equipment will be located only within a vital area.	1(a). All vital equipment will be inspected to verify it is located within a vital area.	1(a). All vital equipment is located only within a vital area.
1(b). Access to vital equipment will require passage through at least two physical barriers.	1(b). All vital equipment physical barriers will be inspected to verify that access to the vital equipment requires passage through at least two physical barriers.	1(b). All vital equipment is located within a vital area which is located in the protected area such that access to the vital equipment requires passage through at least two physical barriers.

Criteria Guidelines

a. All vital areas are located inside the protected area.

b. Access to all vital equipment requires passage through the protected area barrier and a vital area barrier.

c. Vital areas are constructed in accordance with the NRC regulations and design specifications (i.e., design specifications for walls, floors and ceilings are met).

d. All openings (such as heating, overhead ventilation and cooling vents and windows) in vital area barriers are secured and monitored to prevent exploitation of the opening.

e. Physical barriers at vital area portals are consistent with NRC regulations and what was identified in the design certification and are installed in accordance with design specifications.

f. At a minimum, the reactor control room, the spent fuel pool, the central alarm station, and the secondary alarm station are designated as vital areas.

g. All vital equipment is located in a vital area.

Additional guidance is provided in Regulatory Guide (RG) 5.76, "Physical Protection Programs at Nuclear Power Reactors", July 2009; RG 5.69, "Guidance for the Application of Radiological Sabotage Design-Basis Threat in the Design, Development, and Implementation of a Physical Security Program that Meets 10 CFR 73.55 Requirements," April 2007; "Nuclear Power Plant Security Assessment Guide," NUREG-CR-7145, issued April 2013; and Department of Energy, Sandia National Laboratories, Technology Transfer Manual SAND 2007-5591, "Nuclear Power Plant Security Assessment Technical Manual," September 2007. (None of these documents are publicly available.)

PS-ITAAC No.2, Protected Area Barrier Requirements

10 CFR 73.55(e)(3)(i). "Physical barriers must be designed and constructed to: (A) Protect against the design basis threat of radiological sabotage; (B) Account for site-specific conditions; and (C) Perform their required function in support of the licensee physical protection program."

10 CFR 73.55(e)(3)(ii). "Physical barriers must provide deterrence, delay, or support access control."

10 CFR 73.55(e)(8)(i). "The protected area perimeter must be protected by physical barriers that are designed and constructed to: (A) Limit access into the protected area to only those personnel, vehicles, and materials required to perform official duties; (B) Channel personnel, vehicles, and materials to designated access control portals; and (C) Be separated from any other barrier designated as a vital area physical barrier, unless otherwise identified in the Physical Security Plan."

10 CFR 73.55(e)(8)(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."

10 CFR 73.55(i)(5)(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."

Design Commitment	Inspections, Tests, Analyses	Acceptance Criteria
2(a). Physical barriers for the protected area perimeter will not be part of vital area barriers unless otherwise identified in the Physical Security Plan."	2(a). The protected area perimeter barriers will be inspected.	2(a). Physical barriers at the perimeter of the protected area are separated from any other barrier designated as a vital area barrier unless otherwise identified in the Physical Security Plan."
2(b). Penetrations through the protected area barrier will be secured and monitored.	2(b). All penetrations through the protected area barrier will be inspected.	2(b). All penetrations through the protected area barrier are secured and monitored by intrusion detection equipment.
2(c). Unattended openings that intersect a security boundary, such as underground pathways, will be protected by a physical barrier and monitored by intrusion detection equipment or provided surveillance at a frequency sufficient to detect exploitation.	2(c). All unattended openings within the protected area barriers will be inspected.	2(c). All unattended openings (such as underground pathways) that intersect a security boundary (such as the protected area barrier), are protected by a physical barrier and monitored by intrusion detection equipment or provided surveillance at a frequency sufficient to detect exploitation.

Criteria Guidelines

a. The protected area barrier being constructed is consistent with what was identified in the design specifications and is constructed and installed in accordance with design specifications, including the incorporated vehicle access portals (i.e., sally ports).

b. The protected area barrier is separated from vital area barriers unless otherwise specified in the security plans.

c. The protected area barrier meets the design characteristics defined in the entry for "Physical Barriers" in 10 CFR 73.2, "Definitions."

(1) "Fences constructed of No. 11 American Wire Gauge, or heavier wire fabric, topped by three strands or more of barbed wire or similar material on brackets angled inward or outward between 30 and 45 [degrees] from the vertical, with an overall height of not less than eight feet, including the barbed topping;"

(2) "Building walls, ceilings and floors constructed of stone, brick, cinder block, concrete, steel or comparable materials (openings in which are

secured by grates, doors, or covers of construction and fastening of sufficient strength that the integrity of the wall is not lessened by any opening), or walls of similar construction, not part of a building, provided with a barbed topping described in paragraph (1) of this definition of a height of not less than 8 feet; or"

(3) "Any other physical obstruction constructed in a manner and of materials suitable for the purpose for which the obstruction is intended."

d. All building walls, ceilings, and floors of buildings which comprise a portion of the protected area barrier provide a level of protection (i.e., are constructed of materials) consistent with the characteristics defined in the entry for "Physical Barriers" in 10 CFR 73.2, "Definitions."

e. All penetrations and openings through the protected area barrier are secured and monitored to deter, delay and detect exploitation of the penetration or opening.

f. All unattended openings (such as underground pathways) that intersect a security boundary (such as the protected area barrier) are protected by a physical barrier and monitored by intrusion detection equipment or observed at a frequency sufficient to detect exploitation.

Additional guidance is provided in RG 5.76, "Physical Protection Programs at Nuclear Power Reactors", July 2009; RG 5.69, "Guidance for the Application of Radiological Sabotage Design-Basis Threat in the Design, Development, and Implementation of a Physical Security Program that Meets 10 CFR 73.55 Requirements", April 2007; NUREG/CR-0181, "Barrier Penetration Database," July 1987; and NRC-endorsed Nuclear Energy Institute (NEI) 09-05, "Guidance on the Protection of Unattended Openings that Intersect a Security Boundary." None of these documents is publicly available, although a supplement to NEI 09-05 is (as Agencywide Documents Access and Management System (ADAMS) Accession No. ML13022A403).

PS-ITAAC No. 3, Isolation Zone Requirements

10 CFR 73.55(e)(7)(i). "An isolation zone must be maintained in outdoor areas adjacent to the protected area perimeter barrier. The isolation zone shall be: (A) Designed and of sufficient size to permit observation and assessment of activities on either side of the protected area barrier; (B) Monitored with intrusion detection equipment designed to satisfy the requirements of § 73.55(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 (C) Monitored with assessment equipment designed to satisfy the requirements of § 73.55(i) and provide real-time and play-back/recorded video images of the detected activities before and after each alarm annunciation."

10 CFR 73.55(e)(7)(ii). "Obstructions that could prevent the licensee's capability to meet the observation and assessment requirements of this section must be located outside of the isolation zone."

10 CFR 73.55(e)(8)(iv). "Where building walls or roofs comprise a portion of the protected area perimeter barrier, an 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."

10 CFR 73.2, "Definitions": "*Isolation zone* means any area adjacent to a physical barrier, clear of all objects which could conceal or shield an individual."

"*Physical barrier* means: (1) Fences constructed of No. 11 American wire gauge, or heavier wire fabric, topped by three strands or more of barbed wire or similar material on brackets angled inward or outward between 30 and 45 [degrees] from the vertical, with an overall height of not less than eight feet, including the barbed topping; (2) Building walls, ceilings and floors constructed of stone, brick, cinder block, concrete, steel or comparable materials (openings in which are secured by grates, doors, or covers of construction and fastening of sufficient strength such that the integrity of the wall is not lessened by any opening), or walls of similar construction, not part of a building, provided with a barbed topping described in paragraph (1) of this definition of a height of not less than 8 feet; or (3) Any other physical obstruction constructed in a manner and of materials suitable for the purpose for which the obstruction is intended."

"*Protected area* means an area encompassed by physical barriers and to which access is controlled."

Design Commitment	Inspections, Tests, Analyses	Acceptance Criteria
3(a). Isolation zones will exist in outdoor areas adjacent to the physical barrier at the perimeter of the protected area that allows 20 feet on either side of the barrier to permit observation and assessment.	3(a). The outdoor areas adjacent to the protected area perimeter barrier will be inspected.	3(a). The isolation zones exist in outdoor areas adjacent to the physical barrier at the perimeter of the protected area are constructed so that 20 feet on either side of the barrier permits observation and assessment of activities in the event of its penetration or attempted penetration.
3(b). Isolation zones will be monitored with intrusion detection and assessment equipment that is designed to provide detection and assessment of activities within the isolation zone.	3(b). The intrusion detection equipment for monitoring the isolation zones will be tested.	3(b). Isolation zones are monitored by intrusion detection and assessment equipment capable of providing detection and assessment of activities within the isolation zone.

Design Commitment	Inspections, Tests, Analyses	Acceptance Criteria
3(c). Areas where permanent buildings do not allow sufficient observation distance between the intrusion detection system and the protected area barrier (e.g., the building walls are immediately adjacent to, or are an integral part of, the protected area barrier) will be monitored with intrusion detection and assessment equipment that is designed to detect the attempted or actual penetration of the protected area perimeter barrier before completed penetration of the barrier and to permit assessment of detected activities.	3(c). Inspections of areas of the protected area perimeter barrier that do not have isolation zones will be performed.	3(c). Areas where permanent buildings do not allow sufficient observation distance between the intrusion detection system and the protected area barrier (e.g., the building walls are immediately adjacent to, or an integral part of, the protected area barrier) are monitored with intrusion detection and assessment equipment that detects attempted or actual penetration of the protected area perimeter barrier before completed penetration of the barrier and permits assessment of detected activities.

Criteria Guidelines

a. Isolation zones are established in outdoor areas adjacent to the protected area barrier in accordance with the applicant's security plans.

b. Isolations zones are of sufficient size to provide the ability to observe and assess activities on either side of the protected area barrier (i.e., 20 feet (6.1 meters) on either side).

c. The isolation zone is monitored by intrusion detection and assessment equipment in a way consistent with the requirements of 10 CFR 73.55(i)(1).

d. Any areas of the protected area perimeter where an isolation zone is not required (i.e., in areas where building walls or roofs comprise a portion of the protected area barrier) are equipped with intrusion detection and assessment equipment to meet the detection and assessment requirements of 10 CFR 73.55.

e. Isolation zone is clear of obstructions that prevent the capability of observation and assessment.

Additional guidance is provided in RG 5.76, "Physical Protection Programs at Nuclear Power Reactors," July 2009; NUREG-1959, "Intrusion Detection Systems and Subsystems: Technical Information for NRC Licensees," March 2011; and Department of Energy, Sandia National Laboratories, Technology Transfer Manuals SAND99-2389, "Video Assessment," and SAND99-2391, "Exterior Intrusion Detection." Of these

documents, only NUREG-1959 is publicly available (as ADAMS Accession No. ML11112A009).

PS-ITAAC No. 4, Protected Area Perimeter Intrusion Detection and Assessment Systems Requirements

10 CFR 73.55(e)(7)(i). "An isolation zone must be maintained in outdoor areas adjacent to the protected area perimeter barrier. The isolation zone shall be: (A) Designed and of sufficient size to permit observation and assessment of activities on either side of the protected area barrier; (B) Monitored with intrusion detection equipment designed to satisfy the requirements of § 73.55(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 (C) Monitored with assessment equipment designed to satisfy the requirements of § 73.55(i) and provide real-time and play-back/recorded video images of the detected activities before and after each alarm annunciation."

10 CFR 73.55(i)(1). "The licensee shall establish and maintain intrusion detection and assessment systems that satisfy the design requirements of § 73.55(b) and provide, at all times, the capability to detect and assess unauthorized persons and facilitate the effective implementation of the licensee's protective strategy."

10 CFR 73.55(i)(2). "Intrusion detection equipment must annunciate and video assessment equipment shall display concurrently, in at least two continuously staffed onsite alarm stations [...]."

10 CFR 73.55(i)(3). "The licensee's intrusion detection and assessment systems must be designed to: [...] (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."

10 CFR 73.55(e)(3)(i). "Physical barriers must be designed and constructed to: (A) Protect against the design basis threat of radiological sabotage; (B) Account for site-specific conditions; and (C) Perform their required function in support of the licensee physical protection program."

Design Commitment	Inspections, Tests, Analyses	Acceptance Criteria
4(a). The perimeter intrusion detection system will be designed to detect penetration or attempted penetration of the protected area perimeter barrier before completed penetration of the barrier, and for subsequent alarms to annunciate concurrently in at least two continuously manned onsite	4(a). Tests of the intrusion detection system will be performed.	4(a). The intrusion detection system can detect penetration or attempted penetration of the protected area perimeter barrier before completed penetration of the barrier, and subsequent alarms annunciate concurrently in at least two continuously manned onsite alarms stations (central and secondary alarm stations).

Design Commitment	Inspections, Tests, Analyses	Acceptance Criteria
alarm stations (central and secondary alarm stations).		
4(b). The perimeter assessment equipment will be designed to provide video image recording with realtime display and playback capability that can enable assessment of detected activities before and after each alarm annunciation at the protected area perimeter barrier.	4(b). Tests of the video assessment equipment will be performed.	4(b). The perimeter assessment equipment is capable of realtime display of video images and playback of recorded video images that enables assessment of detected activities before and after each alarm annunciation at the protected area perimeter barrier.
4(c). The intrusion detection and assessment equipment at the protected area perimeter will be designed to remain operable from an uninterruptible power supply in the event of the loss of normal power.	4(c). Tests of the uninterruptible power supply will be performed.	4(c). All Intrusion detection and assessment equipment at the protected area perimeter remains operable from an uninterruptible power supply on the loss of normal power.

Criteria Guidelines

a. Normal power supply for intrusion detection and assessment equipment at the protected area perimeter possesses the capability to provide adequate power to operate these systems.

b. Intrusion detection and assessment equipment at the protected area perimeter remains operable from an uninterruptible power supply (UPS) in the event of a loss of normal power.

c. The UPS for intrusion detection and assessment equipment possesses the capability to provide adequate power to operate these systems.

d. The power transfer from the operating power supply to the UPS enables the intrusion detection and assessment systems to remain operable without disruption.

e. The protected area perimeter intrusion detection system must perform as designed and is capable of detecting both attempted and actual penetration of the protected area barrier before completed penetration of the protected area barrier.

f. The video assessment system assets at the protected area perimeter must perform as designed and provide realtime video images and playback of

recorded video images of detected activities before and after each alarm annunciation.

g. Perimeter intrusion detection and assessment systems will be tested in accordance with the applicant's testing procedures.

Additional guidance is provided in RG 5.76, "Physical Protection Programs at Nuclear Power Reactors," July 2009; NUREG-1959, "Intrusion Detection Systems and Subsystems: Technical Information for NRC Licensees," March 2011; and Department of Energy, Sandia National Laboratories, Technology Transfer Manuals SAND-2388, "Interior Intrusion Detection"; SAND99-2389, "Video Assessment"; and SAND99-2391, "Exterior Intrusion Detection." Of these documents, only NUREG-1959 is publicly available (as ADAMS Accession No. ML11112A009).

PS-ITAAC No. 5, Illumination Requirements

10 CFR 73.55(i)(6)(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 protective strategy."

Design Commitment	Inspections, Tests, Analyses	Acceptance Criterion
5. Isolation zones and exterior areas within the protected area will be provided with illumination to permit assessment in the isolation zones and observation of activities within exterior areas of the protected area.	5. The illumination in isolation zones and exterior areas within the protected area will be tested.	5. Illumination in isolation zones and exterior areas within the protected area is 0.2 foot (0.06 meters) candles measured horizontally at ground level or alternatively augmented, sufficiently to permit assessment and observation.

Criterion Guidelines

a. The normal power supply for illumination in the isolation zones at the protected area perimeter, which the applicant requires for assessment, possesses the capability to provide adequate power to operate these systems.

b. Illumination in the isolation zones at the protected area perimeter, which the applicant requires for assessment, remains operable from an uninterruptible power supply in the event of a loss of normal power.

c. The uninterruptible power supply for the illumination equipment, which the applicant requires for assessment, possesses the capability to provide adequate power to operate these systems.

d. The power transfer from the operating power supply to the uninterruptible power supply enables the illumination equipment the applicant requires for assessment to remain operable without disruption.

e. Illumination equipment in the isolation zones at the protected area perimeter, which the licensee requires for assessment, provides an illumination level of 0.2 foot-candles (0.06 meters) measured horizontally at ground level or the necessary illumination for the specific assessment methodology (e.g., low-light technology) being implemented to provide assessment.

f. Illumination equipment located in the exterior areas of the protected area provides an illumination level of 0.2 foot candles (0.06 meters) measured horizontally at ground level or the necessary illumination to implement the protective strategy.

g. Illumination equipment and assessment equipment (such as cameras that possess low-light capabilities) used to augment or in lieu of illumination equipment will be tested in accordance with the applicant's testing procedure.

Additional guidance is provided in RG 5.76, "Physical Protection Programs at Nuclear Power Reactors," July 2009 (not publicly available), and NUREG-1959, "Intrusion Detection Systems and Subsystems: Technical Information for NRC Licensees," March 2011 (ADAMS Accession No. ML11112A009).

PS-ITAAC No. 6, Bullet-Resisting Barriers Requirements

10 CFR 73.55(e)(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."

10 CFR 73.55(i)(4)(iii). "Applicants for an operating license under the provisions of [10 CFR] part 50 of this chapter, or holders of a COL under the provisions of [10 CFR] part 52 of this chapter, shall construct, locate, 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."

Note: 10 CFR 73.55(a)(6) states, "Applicants for an operating license under the provisions of [10 CFR] part 50 of this chapter, or holders of a COL under the provisions of [10 CFR] part 52 of this chapter, that do not reference a standard design certification or reference a standard design certification issued after May 26, 2009 shall meet the requirement of 10 CFR 73.55(i)(4)(iii)."

10 CFR 73.2, "Definitions": "*Bullet/resisting* means protection against complete penetration, passage of fragments of projectiles, and spalling (fragmentation) of the protective material that could cause injury to a person standing directly behind the bullet-resisting barrier."

Design Commitment	Inspections, Tests, Analyses	Acceptance Criterion
6. The external walls, doors, ceiling, and floors in the main control room, central alarm station, secondary alarm station, and the location of the last access control function for access to the protected area will be bullet-resistant, to Underwriters Laboratories Ballistic Standard 752, "The Standard of Safety for Bullet-Resisting Equipment," or National Institute of Justice Standard 0108.01, "Ballistic Resistant Protective Materials," or other NRC-approved standard; and comply with the corresponding level or type of protection associated with that standard which meets or exceeds the characteristics of the design basis threat projectile as described in 10 CFR 73.1 and applicable NRC Order EA-03-086, Dated April 29, 2003.	6. Type test, analysis, or a combination of type test and analysis of the external walls, doors, ceiling, and floors in the main control room, central alarm station, secondary alarm station, and the location of the last access control function for access to the protected area will be performed.	6. A report exists and concludes that the walls, doors, ceilings, and floors in the main control room, central alarm station, secondary alarm station, and the last access control function for access to the protected area are bullet-resistant to Underwriters Laboratories Ballistic Standard 752, or National Institute of Justice Standard 0108.01, or other NRC-approved standard; and comply with the corresponding level or type of protection associated with that standard which meets or exceeds the characteristics of the design basis threat projectile as described in 10 CFR 73.1 and applicable NRC Order EA-03-086, Dated April 29, 2003.

Criterion Guideline

The control room, central alarm station, secondary alarm station and the final access control location are constructed in accordance with the design specifications that demonstrate bullet-resistant capabilities.

Additional guidance is provided in RG 5.76, "Physical Protection Programs at Nuclear Power Reactors," July 2009 (not publicly available), and Underwriters Laboratory UL 752, "Ballistic Standards."

PS-ITAAC No. 7, Vehicle Control Measures Requirements

10 CFR 73.55(e)(10). "Vehicle control measures. Consistent with the physical protection program design requirements of § 73.55(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."

10 CFR 73.55(e)(10)(i). "Land vehicles. Licensees shall: (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. (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. (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. (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."

Design Commitment	Inspections, Tests, Analyses	Acceptance Criteria
7(a). The vehicle barrier system will be designed, installed, and located at the necessary stand-off distance to protect against the design-basis threat vehicle bombs.	7(a). Type test, inspections, and analysis will be performed for the vehicle barrier system.	7(a). A validated report reviewed in accordance with NUREG/CR-6190 exists and concludes that the vehicle barrier system will protect against the design-basis threat vehicle bombs based on the stand-off distance for the system.
7(b). 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 stand-off distance.	7(b). Tests of installed systems and equipment will be performed.	7(b). The secondary power source, or a means of mechanical or manual operation in the event of a power failure, ensure that the active barrier can be placed in the denial position to prevent unauthorized vehicle access beyond the required stand-off distance.

Criteria Guidelines

a. Vehicle barriers (active and passive) are constructed, installed, and secured in place in accordance with the design specifications.

b. The power supplies (primary and secondary) for active vehicle barriers possess the capability to adequately operate these systems.

c. Vehicle barriers are located at appropriate standoff distances to protect vital equipment and controls and certain security systems and components from a vehicle bomb (land-based or waterborne) in accordance with the design-basis threat of radiological sabotage.

d. A blast analysis report with the minimum safe standoff distance to protect against the DBT vehicle bombs is completed and updated on the final design of the plant.

e. Active vehicle barriers operate as designed and will be tested in accordance with the applicant's testing procedures.

Additional guidance is provided in RG 5.76, "Physical Protection Programs at Nuclear Power Reactors," July 2009; RG 5.68, "Protection Against Malevolent Use of Vehicles at Nuclear Power Plants", August 1994; RG 5.69, "Guidance for the Application of Radiological Sabotage Design-Basis Threat in the Design, Development, and Implementation of a Physical Security Program that Meets 10 CFR 73.55 Requirements," April 2007; NUREG/CR-6190, "Protection Against Malevolent Use of Vehicles at Nuclear Power Plants - Updated to Reflect Revised DBT", March 2004; NUREG/CR-4250, "Vehicle Barriers: Emphasis on Natural Features," July 1985; U.S. Army Corps of Engineers, PDC-TR 06-05, "Evaluating Adequacy of Landform Obstacles as Vehicle Barriers," August 2007; and Department of Energy, Sandia National Laboratories, Technology Transfer Manuals SAND99-2486, "Explosives Protection," and SAND2001-2168, "Access Delay Technology, Volume 1." Of these documents, only RG 5.68 is publicly available (as ADAMS Accession No. ML003739379).

PS-ITAAC No. 8, Personnel, Vehicle, and Material Access-Control Portals and Search Equipment Requirements

10 CFR 73.55(h)(2). "Owner controlled area searches. […] (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."

10 CFR 73.55(h)(2)(v). "Vehicle access control points must be equipped with video surveillance equipment that is monitored by an individual capable of initiating a response."

10 CFR 73.55(h)(3)(i). "Protected area searches. Licensees shall search all personnel, vehicles and materials requesting access to protected areas. (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. [...]"

10 CFR 73.55(g)(1)(i)(A) and (B). "Access controls. (1) Consistent with the function of each barrier or barrier system, the licensee shall control personnel, vehicle, and material access, as applicable, at each access control point in accordance with the physical protection program design requirements of § 73.55(b). (i) To accomplish this, the licensee shall: (A) Locate access control portals outside of, or concurrent with, the physical barrier system through which it controls access. (B) Equip access control portals with locking devices, intrusion detection equipment, and surveillance equipment consistent with the intended function."

10 CFR 73.55(g)(5)(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."

	Inspections, Tests, Analyses	Acceptance Criteria
8(a). Access control points will be established and designed to control personnel and vehicle access into the protected area.	8(a). A combination of tests and inspections of installed systems and equipment will be performed.	8(a). Access control points exist for the protected area, are configured to control access, and are equipped with locking devices, intrusion detection equipment, and surveillance equipment consistent with the intended function.
8(b). Access control points will be established and designed with equipment for the detection of firearms, explosives, incendiary devices or other items which could be used to commit radiological sabotage at the protected area personnel access points.	8(b). Tests of installed systems and equipment will be performed.	8(b). Detection equipment exists and is capable of detecting firearms, explosives, incendiary devices, or other items which could be used to commit radiological sabotage at the protected area personnel access control points.

Criteria Guidelines

a. The physical barriers at personnel and material access portals of the protected area are consistent with what was identified in the design specifications and were constructed and installed in accordance with design specifications.

b. Special-purpose detection equipment (e.g., explosive, metal, and X-ray detection equipment) is consistent with what was identified in the design specifications, was installed in accordance with design specifications, and is configured to prevent unauthorized bypass.

c. The special-purpose detection equipment located at protected area personnel access portals provides the capability to detect firearms, explosives, and incendiary devices or other items which could be used to commit radiological sabotage, as applicable, and this equipment will be tested in accordance with the applicant's testing procedures.

d. The special-purpose detection equipment used for material search provides the capability to detect firearms, explosives, and incendiary devices or other items which could be used to commit radiological sabotage, as applicable, and this equipment will be tested in accordance with the applicant's testing procedures.

e. The special-purpose detection equipment used for vehicle search provides the capability to detect firearms, explosives, and incendiary devices or other items which could be used to commit radiological sabotage, as applicable, and this equipment will be tested in accordance with the applicant's testing procedures.

f. Verify, through the observation of testing activities, that the access-control equipment (for personnel, vehicles, and material) at protected area access portals operates as designed, was installed as identified in security plans and implementing procedures, and will be tested in accordance with the applicant's testing procedures.

Additional guidance is provided in RG 5.76, "Physical Protection Programs at Nuclear Power Reactors," July 2009; NUREG-1964, "Access Control Systems: Technical Information for NRC Licensees," April 2011; and Department of Energy, Sandia National Laboratories, Technology Transfer Manual SAND2000-2142, "Entry Control & Contraband Detection Systems." Of these documents, only NUREG-1964 is publicly available (as ADAMS Accession No. ML11115A078).

PS-ITAAC No. 9, Picture Badge Identification System Requirement

10 CFR 73.55(g)(6)(ii). "The licensee shall implement a numbered photo identification badge system for all individuals authorized unescorted access to the protected area and vital areas."

Design Commitment	Inspections, Tests, Analyses	Acceptance Criterion
9. An access control system with a numbered photo identification badge system will be installed and designed for use by individuals who are authorized access to protected areas and vital areas without escort.	9. The access control system and the numbered photo identification badge system will be tested.	9. The access authorization system with a numbered photo identification badge system is installed and provides authorized access to protected and vital areas only to those individuals with authorization for unescorted access.

Criterion Guidelines

a. Access control systems (badging and biometric) are consistent with what was identified in the design specification and are installed in accordance with the design specifications.

b. Supervision and control over the badging process is established at protected area access portals and in other areas outside the protected area that are designated for badging activities.

Additional guidance is provided in RG 5.76, "Physical Protection Programs at Nuclear Power Reactors," July 2009 (not publicly available), and NUREG-1964, "Access Control

Systems: Technical Information for NRC Licensees," April 2011 (ADAMS Accession No. ML11115A078).

PS-ITAAC No.10, Access Control of Vital Areas Requirements

10 CFR 73.55(e)(9)(iii). "Unoccupied vital areas must be locked and alarmed."

10 CFR 73.55(i)(2). "Intrusion detection equipment must annunciate and video assessment equipment shall display concurrently, in at least two continuously staffed onsite alarm stations [...]".

Design Commitment	Inspections, Tests, Analyses	Acceptance Criteria
10. Unoccupied vital areas will be designed with locking devices and intrusion detection devices that annunciate in the central and secondary alarm stations.	10. Tests of unoccupied vital areas' intrusion detection equipment and locking devices will be performed.	10. Unoccupied vital areas are locked and alarmed. Intrusion detection devices detected intrusions in such areas and annunciated in both the central and secondary alarm stations.

Criteria Guidelines

a. All barriers at vital area access portals are equipped with intrusion detection equipment and locking devices.

b. The intrusion detection equipment and locking devices installed on vital area barriers at vital area access portals (personnel doors, equipment doors, vehicle doors, equipment hatches, etc.) are consistent with what was identified in the design specification and are constructed and installed in accordance with design specifications.

c. Vital area barrier intrusion detection equipment and access control devices operate as designed and will be tested in accordance with the applicant's testing procedures.

Additional guidance is provided in RG 5.76, "Physical Protection Programs at Nuclear Power Reactors," July 2009; NUREG-1964, "Access Control Systems: Technical Information for NRC Licensees," April 2011; and Department of Energy, Sandia National Laboratories, Technology Transfer Manual SAND-2388 "Interior Intrusion Detection." Of these documents, only NUREG-1964 is publicly available (as ADAMS Accession No. ML11115A078).

PS-ITAAC No. 11, Alarm Station Requirements

10 CFR 73.55(i)(2). "Intrusion detection equipment must annunciate and video assessment equipment shall display concurrently, in at least two continuously staffed onsite alarm stations [...]."

10 CFR 73.55(i)(4)(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: (A) Detect and assess alarms; (B) Initiate and coordinate an adequate response to an alarm; (C) Summon offsite assistance; and (D) Provide command and control."

10 CFR 73.55(i)(4)(ii). "Licensees shall: (A) Locate the central alarm station inside a protected area. The interior of the central alarm station must not be visible from the perimeter of the protected area. [...] (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."

10 CFR 73.55(i)(4)(iii). "Applicants for an operating license under the provisions of 10 CFR part 50 of this chapter, or holders of a combined license under the provisions of [10 CFR] part 52 of this chapter, shall construct, locate, 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."

Design Commitment	Inspections, Tests, Analyses	Acceptance Criteria
11(a). Intrusion detection equipment and video assessment equipment will annunciate and display concurrently in at least two continuously manned onsite alarm stations (central and secondary alarm stations).	11(a). Tests of intrusion detection equipment and video assessment equipment will be performed.	11(a). Intrusion detection equipment and video assessment equipment annunciate and display concurrently in at least two continuously manned onsite alarm stations (central and secondary alarm stations).
11(b). Central and secondary alarm stations will be located inside the protected area and will be designed so that neither alarm station's interior is visible from the perimeter of the protected area.	11(b). The central and secondary alarm station locations will be inspected.	11(b). Central and secondary alarm stations are located inside the protected area, and neither of the alarm stations' interiors is visible from the perimeter of the protected area.
Table 11(c). The alarm system will not allow the status of a detection point, locking mechanism, or access control device to be changed without the knowledge and concurrence of the alarm station operator in the other alarm station.	11(c). Tests of intrusion detection equipment and access control equipment will be performed.	11(c). The alarm system does not allow the status of a detection point, locking mechanism, or access control device to be changed without the knowledge and concurrence of the alarm station operator in the other alarm station.

Design Commitment	Inspections, Tests, Analyses	Acceptance Criteria
11(d). Central and secondary alarm stations will be designed, equipped, and constructed such that no single act, in accordance with the design-basis threat of radiological sabotage, can simultaneously remove the ability of both the central and secondary alarm stations to (1) detect and assess alarms, (2) initiate and coordinate an adequate response to alarms, (3) summon offsite assistance, and (4) provide effective command and control.	11(d). Tests, inspections, and analysis of the central and secondary alarm stations will be performed.	11(d). A report exists and concludes that the central and secondary alarm stations are designed, equipped, and constructed such that no single act, in accordance with the design-basis threat of radiological sabotage, can simultaneously remove the ability of both the central and secondary alarm stations to (1) detect and assess alarms, (2) initiate and coordinate an adequate response to alarms, (3) summon offsite assistance, and (4) provide effective command and control.
11(e). Both the central and secondary alarm stations will be constructed, located, protected, and equipped to the standards for the central alarm station (alarm stations need not be identical in design but shall be equal and redundant, capable of performing all functions required of alarm stations).	11(e). Inspections and analysis of the central and secondary alarm stations will be performed.	11(e). A report exists and concludes the central and secondary alarm stations are located, constructed, protected, and equipped to the standards of the central alarm station and are functionally redundant. (Stations need not be identical in design.)

Criteria Guidelines

a. The central and secondary alarm stations are located inside the protected area and neither alarm station's interior is visible from the perimeter of the protected area.

b. The security computer systems, intrusion detection equipment, video assessment equipment, communications equipment, and power supplies extending to the alarm stations have no single-point vulnerability (i.e., share no common junctions which would disable any one of these capabilities in both alarm stations).

c. Alarm station operators cannot change the status of a detection point or deactivate a locking or access control device at a protected area or vital area portal without the knowledge and concurrence of the alarm station operator in the other alarm station.

d. The central and secondary alarm stations receive alarm annunciations concurrently and possess video assessment display equipment that provides the capability to view the area of detected activity concurrently.

Additional guidance is provided in RG 5.76, "Physical Protection Programs at Nuclear Power Reactors," July 2009; NUREG-1959, "Intrusion Detection Systems and Subsystems: Technical Information for NRC Licensees", March 2011; and Department of Energy, Sandia National Laboratories, Technology Transfer Manual SAND99-2390 "Alarm Communication". Of these documents, only NUREG-1959 is publicly available (as ADAMS Accession No. ML11112A009).

PS-ITAAC No. 12, Secondary Power Supplies for Alarm-Annunciation and Communication Equipment Requirement

10 CFR 73.55(e)(9)(vi). "At a minimum, the following shall be located within a vital area: (A) The secondary power supply systems for alarm annunciation equipment; and (B) The secondary power supply systems for non-portable communications equipment."

Design Commitment	Inspections, Tests, Analyses	Acceptance Criterion
12. The secondary security power supply system for alarm annunciator equipment and nonportable communications equipment will be located within a vital area.	12. The secondary security power supply system will be inspected.	12. The secondary security power system for alarm annunciator equipment and nonportable communications equipment is located within a vital area.

Criterion Guideline

The secondary power supply for alarm annunciation and nonportable communication equipment is located in a vital area.

Additional guidance is provided in RG 5.76, "Physical Protection Programs at Nuclear Power Reactors", July 2009, not publicly available.

PS-ITAAC No. 13, Console Displays and Alarms for Intrusion Detection Systems Requirements

10 CFR 73.55(i)(3). "The licensee's intrusion detection and assessment systems must be designed to:

(i) Provide visual and audible annunciation of the alarm.

(ii) Provide a visual display from which assessment of the detected activity can be made.

(iii) Ensure that annunciation of an alarm indicates the type and location of the alarm.

(iv) Ensure that alarm devices to include transmission lines to annunciators are tamper indicating and self-checking.

(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.

(vi) Support the initiation of a timely response in accordance with the security plans, licensee protective strategy, and associated implementing procedures."

10 CFR 73.2, "Definitions": "*Intrusion alarm* means a tamper indicating electrical, electromechanical, electrooptical, electronic or similar device which will detect intrusion by an individual into a building, protected area, vital area, or material access area, and alert guards or watchmen by means of actuated visible and audible signals."

Design Commitment	Inspections, Tests, Analyses	Acceptance Criteria
13(a). Security alarm devices, including transmission lines to annunciators, will be tamper-indicating and self-checking (e.g., an automatic indication is provided when failure of the alarm system or a component occurs or when on standby power), and alarm annunciation indicates the type of alarm (e.g., intrusion alarms, emergency exit alarm) and its location.	13(a). All security alarm devices and transmission lines will be tested.	13(a). Security alarm devices, including transmission lines to annunciators, are tamper-indicating and self-checking; an automatic indication is provided when failure of the alarm system or a component occurs or when the system is on standby power; the alarm annunciation indicates the type and location of the alarm.
13(b). Intrusion detection and assessment systems will be designed to provide visual display and audible annunciation of alarms in both the central and secondary alarm stations.	13(b). Intrusion detection and assessment systems will be tested.	13(b). The intrusion detection systems provide a visual display and audible annunciation of all alarms concurrently in at least two continuously manned onsite alarms stations (central and secondary alarm stations).

Criteria Guidelines

a. The intrusion detection system provides a visual and audible annunciation of all alarms in both the central and secondary alarm stations.

b. The intrusion detection and assessment system provides a visual display, in both the central and secondary alarm stations, from which an assessment of the detected activity can be made.

c. Alarm annunciations received, in both the central and secondary alarm stations, indicate the type and location of the alarm.

d. Alarm devices, including transmission lines to annunciators, are tamper-indicating and self-checking.

e. All automatic indication must be received in the central and secondary alarm stations when the alarm system or a component of the system fails or when the system is operating on backup power.

Additional guidance is provided in RG 5.76, "Physical Protection Programs at Nuclear Power Reactors," July 2009; NUREG-1959, "Intrusion Detection Systems and Subsystems: Technical Information for NRC Licensees," March 2011; and Department of Energy, Sandia National Laboratories, Technology Transfer Manuals SAND-2388, "Interior Intrusion Detection"; SAND99-2389, "Video Assessment"; SAND99-2390, "Alarm Communication & Display"; and SAND99-2391, "Exterior Intrusion Detection." Of these documents, only NUREG-1959 is publicly available (as ADAMS Accession No. ML11112A009).

PS-ITAAC No. 14, Intrusion Detection Systems' Recording Requirements

10 CFR 73.55(i)(4)(ii)(h). "Maintain a record of all alarm annunciations, the cause of each alarm, and the disposition of each alarm."

10 CFR 73.70(f). "A record at each onsite alarm annunciation location of each alarm, false alarm, alarm check, and tamper indication that identifies the type of alarm, location, alarm circuit, date, and time. In addition, details of response by facility guards and watchmen to each alarm, intrusion, or other security incident shall be recorded. The license[e] shall retain each record for three years after the record is made."

Design Commitment	Inspections, Tests, Analyses	Acceptance Criterion
14. Intrusion detection systems' recording equipment will record onsite security alarm annunciations, including each alarm, false alarm, alarm check, and tamper indication and the type of alarm, location, alarm circuit, date, and time.	14. The intrusion detection systems' recording equipment will be tested.	14. Intrusion detection systems' recording equipment is capable of recording each onsite security alarm annunciation, including each alarm, false alarm, alarm check, and tamper indication and the type of alarm, location, alarm circuit, date, and time.

Criterion Guideline

The intrusion detection system shall maintain a record of alarm annunciations and the alarm stations shall have the capability to record the cause of each alarm and the disposition of each alarm.

Additional guidance is provided in RG 5.76, "Physical Protection Programs at Nuclear Power Reactors," July 2009; NUREG-1959, "Intrusion Detection Systems and Subsystems: Technical Information for NRC Licensees," March 2011; and Department of Energy, Sandia National Laboratories, Technology Transfer Manuals SAND99-2391, "Exterior Intrusion Detection": SAND-2388, "Interior Intrusion Detection"; and SAND99-2389, "Video Assessment". Of these documents, only NUREG-1959 is publicly available (as ADAMS Accession No. ML11112A009).

PS-ITAAC No. 15, Emergency Exits from the Protected Area and Vital Areas Requirements

10 CFR 73.55(e)(8)(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."

10 CFR 73.55(e)(9)(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."

Design Commitment	Inspections, Tests, Analyses	Acceptance Criterion
15. Emergency exits through the protected area perimeter and vital area boundaries will be alarmed with intrusion detection devices and secured by locking devices that allow prompt egress during an emergency.	15. Tests of emergency exits through the protected area perimeter and vital area boundaries will be performed.	15. Emergency exits through the protected area perimeter and vital area boundaries are alarmed with intrusion detection devices and secured by locking devices that allow prompt egress during an emergency.

Criterion Guidelines

a. All intrusion detection equipment and locking devices installed on emergency exits (personnel doors, equipment doors, vehicle doors, etc.) from the protected area and vital areas are consistent with what was identified in the design specification and are constructed or installed in accordance with design specifications.

b. All vital area emergency exits are equipped with intrusion detection equipment.

c. All emergency exits from the protected area and vital areas are equipped with locking devices that allow prompt egress during an emergency.

d. All vital area emergency exits remain locked and alarmed when the area is unoccupied.

e. The intrusion detection equipment and access-control devices for all emergency exits from the protected area and vital areas operate as designed and are tested in accordance with the applicant's testing procedures.

Additional guidance is provided in RG 5.76, "Physical Protection Programs at Nuclear Power Reactors," July 2009, and Department of Energy, Sandia National Laboratories, Technology Transfer Manuals SAND-2388, "Interior Intrusion Detection"; SAND99-2389, "Video Assessment," and SAND99-2391, "Exterior Intrusion Detection." None of these documents is publicly available.

PS-ITAAC No. 16, Communication Requirements

10 CFR 73.55(j)(3). "All on-duty security force personnel shall be capable 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."

10 CFR 73.55(j)(4). "The following continuous communication capabilities must terminate in both alarm stations required by this section: (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, and (ii) A system for communication with the control room."

10 CFR 73.55(j)(5). "Non-portable communications equipment must remain operable from independent power sources in the event of the loss of normal power."

Design Commitment	Inspections, Tests, Analyses	Acceptance Criteria
16(a). The central and secondary alarm stations will have conventional (landline) telephone service with the control room and local law enforcement authorities.	16(a). Tests of the central and secondary alarm stations' conventional (landline) telephone service will be performed.	16(a). The central and secondary alarm stations are equipped with conventional (landline) telephone service with the control room and local law enforcement authorities.
16(b). The central and secondary alarm stations will be capable of continuous communication with on-duty security force personnel.	16(b). Tests of the central and secondary alarm stations' continuous communication capabilities will be performed.	16(b). The central and secondary alarm stations are capable of continuous communication with on-duty watchmen, armed security officers, armed responders, or other security personnel who have responsibilities within the physical protection program and during contingency response events.
16(c). Nonportable communications equipment in the central and secondary	16(c). Tests of the nonportable communications equipment will be performed.	16(c). All nonportable communication devices (including conventional

Design Commitment	Inspections, Tests, Analyses	Acceptance Criteria
alarm stations will remain operable from an independent power source in the event of the loss of normal power.		telephone systems) in the central and secondary alarm stations remain operable (without disruption) during the loss of normal power.

Criteria Guidelines

a. All nonportable communication devices (including conventional telephone landline systems) in the central and secondary alarm stations are wired to an independent power supply that enables those systems to remain operable (without disruption) during the loss of normal power.

b. All independent power supply for nonportable communication equipment possesses the capability to provide adequate power to operate these systems.

c. All power transfer from the operating power supply to the independent power supply enables the nonportable communication equipment to remain operable without disruption.

d. All continuous communication capability with onsite and offsite resources (i.e., both (1) radio or microwave transmitted two-way voice communications and conventional telephone between the site and local law enforcement and (2) a system for communication with the control room) terminates in both central and secondary alarm stations and the equipment in the central and secondary alarm stations is in accordance with the regulations.

e. All on-duty security force personnel are capable of maintaining continuous communication with an individual in each of the central and secondary alarm stations

f. The central and secondary alarm stations maintain continuous communication with local law enforcement authorities.

Additional guidance is provided in RG 5.76, “Physical Protection Programs at Nuclear Power Reactors,” July 2009, and Department of Energy, Sandia National Laboratories, Technology Transfer Manual SAND99-2392, “Protecting Secure Communications.” Neither of these documents is publicly available.

Standard Review Plan Section 14.3.12
Description of Changes

Section 14.3.12 "Physical Security Hardware: Inspections, Tests, Analyses, and Acceptance Criteria"

This Revision 2 to SRP Section 14.3.12 updates Revision 1 of this section, dated May 2010, to incorporate the requirements for vehicle control measures under 10 CFR 73.55 (e)(10)(i)(B) and incorporate recommendations from NRC Regulatory Issue Summary 2008-05, "Lessons Learned to Improve Inspections, Tests, Analyses, and Acceptance Criteria Submittal" Revision 1, September 23, 2010 (ADAMS Accession number ML102500244).

The technical changes in accordance with the new 10 CFR Part 73 Rule are incorporated in each section of this revision (Revision 1, dated April 2010) of the SRP as applicable.