

13. CONDUCT OF OPERATIONS

13.3 Emergency Planning

13.3.1 Introduction

In Revision 17 to the AP1000 Design Control Document (DCD), Westinghouse Electric Company, LLC (Westinghouse) proposed changes to the annex building Technical Support Center (TSC). The specific DCD changes include (1) renaming the TSC area in the annex building from the Main TSC Operations Area to the Control Support Area (CSA); (2) removing the identification of the specific TSC location from Tier 1 DCD information; (3) identifying the TSC location in the CSA as Tier 2; and (4) providing additional Tier 1 and Tier 2 DCD conforming changes to reflect the new TSC and CSA designations. The technical justification for the proposed changes is provided in Westinghouse's Technical Report (TR) 107, "AP1000 Technical Support Center," APP-GW-GLR-107, Revision 1 dated June 14, 2007 (TR-107).

13.3.2 TSC/OSC/Decontamination Facility

Pursuant to Title 10 CFR 52.48, "Standards for Review of Applications," the staff reviewed AP1000 DCD Revision 17 for compliance with the standards set out in 10 CFR 50.47(b)(8) and Section IV.E of Appendix E to 10 CFR Part 50; as those standards are technically relevant to the proposed generic DCD changes for the TSC area. Associated TSC guidance is contained in Standard Review Plan (SRP) (NUREG-0800) Sections 13.3, "Emergency Planning," and 14.3.10, "Emergency Planning – Inspections, Tests, Analyses, and Acceptance Criteria," NUREG-0654/FEMA-REP-1, Revision 1, "Criteria for Preparation and Evaluation of Radiological Emergency Response Plans and Preparedness in Support of Nuclear Power Plants," NUREG-0696, "Functional Criteria for Emergency Response Facilities," and Supplement 1 to NUREG-0737, "Requirements for Emergency Facilities." The specific criterion that applies to the changes evaluated in this section is 10 CFR 52.63(a)(1)(iii), in that the proposed changes reduce unnecessary regulatory burden and maintain protection to public health and safety and the common defense and security.

13.3.2.1 General Description of Facilities

The TSC provides an area and resources for use by personnel providing plant management and technical support to the plant operating staff during emergency evolutions. In addition, the TSC relieves operators of peripheral duties and communications not directly related to reactor system manipulations and prevents congestion in the control room. Revision 17 of the AP1000 DCD identifies the TSC as the Main TSC Operations Area (Room 40403) in the annex building at Elevation 117'-6", adjacent to the passage from the annex building to the nuclear island control room.

In Section 13.3, "Emergency Planning," of NUREG-1793, the staff evaluated the TSC information in Revision 15 of the AP1000 DCD and found that it meets the applicable regulatory requirements in 10 CFR 50.47(b)(8) and Section IV.E of Appendix E to 10 CFR Part 50. Appendix D of 10 CFR Part 52 constitutes the standard design certification for the AP1000 design and incorporates by reference the associated generic DCD, which contains the Tier 1 and Tier 2 information.

As described in TR-107, the name of the AP1000 annex building TSC (i.e., Main TSC Operations Area) is changed to the CSA, and the DCD is modified to reflect the change. In addition, the identification of the specific TSC location is removed from Tier 1 DCD Section 3.1, "Emergency Response Facilities," and Table 3.1-1, "Inspections, Tests, Analyses, and Acceptance Criteria" (ITAAC). However, TR-107 does not affect the TSC functional requirements and criteria, which are retained and must be met regardless of its actual location. The changes are intended to facilitate a combined license (COL) applicant describing a site-specific location for its TSC, independent of the AP1000 annex building, without the need for an exemption to a Tier 1 AP1000 TSC location. These changes will also ease the NRC's review burden by eliminating the need for such individual COL applicants to apply for exemptions from the standardized DCD wording.

The changes in TR-107 provide flexibility, in that they will allow COL applicants who reference the AP1000 certified design to either use the CSA as the TSC (without departing from the DCD), or designate an alternative TSC location in accordance with the change process in Section VIII of Appendix D to 10 CFR Part 52. The CSA is designed so that it may be used as a TSC, if desired. The generic DCD location for the TSC is maintained in the annex building CSA, but is now designated as Tier 2* information in Tier 2 DCD Section 18.8.3.5, "Technical Support Center Mission and Major Tasks," rather than Tier 1 information in DCD Section 3.1. The other DCD Tier 1 requirements associated with the TSC are unaffected by this change, and will be subject to the applicable Tier 1 change control process.

The staff's position is that the DCD Section 18.8.3.5 change should be to Tier 2, rather than Tier 2*. (A change of Tier 1 to Tier 2 would be governed by the same regulatory basis, described above, as a change from Tier 1 to Tier 2*.) This is because the NRC has previously used the Tier 2* designation for DCD information where there is a reasonable expectation of a change over the lifetime of the facility, e.g., a fuel change. The nature of the information is such that the NRC must review and approve the proposed change prior to the change being made. As another example, the Tier 2* designation would be appropriate for information relating to detailed design methodologies and evaluation criteria. Such examples could result in design changes where the safety of the completed design may not be readily apparent. In regard to the AP1000 DCD, once the TSC is built, it is unlikely that it will be moved. Thus, the staff concludes that the Tier 2 designation for the TSC location is more appropriate than Tier 2*. For a Tier 2 TSC DCD location designation, a proposed change to the TSC location (i.e., to a location other than the CSA) by an applicant (or licensee) would require a departure from the certified design.

The staff has determined that the applicant must change the TSC location designations in the DCD from Tier 2* to Tier 2. The other DCD Tier 1 requirements associated with the TSC are unaffected by this change, and will be subject to the applicable Tier 1 change control process. The staff identified resolution of this issue as **Open Item (OI)-TR107-NSIR-07**.

In its January 27, 2010, response to OI-TR107-NSIR-07, Westinghouse changed the TSC location designation in DCD Section 18.8.3.5 from Tier 2* to Tier 2. For the reasons discussed above, the staff finds the change acceptable, and OI-TR107-NSIR-07 is therefore resolved; subject to confirmation that the Tier 2* to Tier 2 change is reflected in a subsequent DCD revision. The staff has identified resolution of this issue as **Confirmatory Item (CI)-TR107-NSIR-07**.

The staff finds that the NUREG-1793 evaluation of the TSC information in Revision 15 of the AP1000 DCD (discussed above) is still valid because the TSC location in the annex building is

unchanged by TR-107, as reflected in Revision 17 of the AP1000 DCD. As discussed above, TR-107 simply changes the name of the TSC area to CSA, changes the TSC location designation (in the CSA) from Tier 1 to Tier 2, and makes additional Tier 1 and Tier 2 DCD conforming changes to reflect the new TSC and CSA designations. Therefore, the staff finds that the proposed TR-107 DCD changes to the TSC area are acceptable, because the TSC will continue to meet the applicable requirements that are technically relevant to the AP1000 standard design.

13.3.3 Conclusion

Based on the above evaluation, the staff concludes that the design changes in TR-107, which are reflected in Revision 17 of the AP1000 DCD, are acceptable because they meet the requirements in 10 CFR 50.47(b)(8) and Section IV.E of Appendix E to 10 CFR Part 50.

13.5 Plant Procedures

13.5.1 Summary of Technical Information

In Revision 17 to the AP1000 DCD, Westinghouse proposed to partially resolve COL Item 13.5-1 in TR-70, "Plant Operations, Surveillance, and Maintenance Procedures" (APP-GW-GLR-040), Revision 1 and in the DCD by addressing; normal operating, abnormal operating, emergency operating, refueling and outage planning, alarm response, administrative, maintenance, inspection, test, and surveillance procedures, as well as the procedures that address the operation of post-72-hour equipment. The COL applicant will still address operational and maintenance programmatic issues to resolve COL Item 13.5-1.

13.5.2 Evaluation

SRP Section 13.5.2.1 states that the applicant should describe its program for developing the operating procedures and that the staff will review the applicant's program for developing and implementing the operating procedures. The staff reviewed TR-70, Revision 1, and its associated references, and determined that it described a process to manage the development, review, and approval of these procedures but did not clearly provide the requested description. The staff submitted requests for additional information (RAI)-SRP13-COLP-01 to ask that Westinghouse clarify the program description for developing and implementing the operating procedures. In a letter dated July 29, 2008, Westinghouse stated that TR-70, Revision 1, described the program. Subsequent to the submission of TR-70, Revision 0, the staff met with Westinghouse to discuss procedure development issues related to the AP1000 design and to allow the staff an opportunity to audit a variety of AP1000 operations procedures. TR-70, Revision 1, addresses issues discussed in this meeting, as well as the concerns regarding NUREG-0711, "Human Factors Engineering Program Review Model," issued February 2004, that were discussed and later addressed in the staff letter, "Summary of the April 11 and 12, 2007, Meeting to Discuss AP1000 Plant Operating Procedures," dated May 11, 2007. Along with TR-70, Revision 1, Westinghouse submitted the "AP1000 Writer's Guidelines for the Normal and Two-Column Format Procedures" (APP-GW-GJP-100 and 200). After reviewing the AP1000 Writer's Guidelines, which clarified procedure development, the staff finds TR-70 Revision 1 acceptable because the Westinghouse program description for developing and implementing the operating procedures meets the guidance in SRP Chapter 13.5.2.1.

Similarly, with respect to the development of emergency operating procedures (EOPs), SRP Section 13.5.2.1 states that the applicant should describe its program for developing EOPs, as well as the required content of the EOPs, and that the staff will review the applicant's program for developing and implementing the EOPs. The staff reviewed TR-70 and its associated references and determined that it described a process to manage the development, review, and approval of these procedures but did not clearly provide the requested description. The staff submitted RAI-SRP13-COLP-02 to ask Westinghouse to describe the program for developing and implementing the EOPs. In a letter dated July 29, 2008, Westinghouse stated that TR-70, Revision 1, described the program. Subsequent to the submission of TR-70, Revision 0, the staff met with Westinghouse to discuss procedure development issues related to the AP1000 design and to allow the staff an opportunity to audit a variety of the AP1000 operations procedures. TR-70, Revision 1, addresses issues discussed in this meeting, as well as the concerns regarding NUREG-0711 that were discussed and later addressed in the staff letter dated May 11, 2007 (ADAMS Accession Number ML071160237). Along with TR-70, Revision 1, Westinghouse submitted the "AP1000 Writer's Guidelines for the Normal and Two-Column Format Procedures" (APP-GW-GJP-100 and 200). After reviewing the AP1000 Writer's Guidelines, which clarified procedure development, the staff finds TR-70 Revision 1 acceptable because the Westinghouse program description for developing and implementing the EOPs meets the guidance in SRP Chapter 13.5.2.1.

The staff reviewed DCD, Section 13.5.1, which references TR-70, Revision 1, and its associated references, which the applicant submitted as a basis for closing this COL action item. During this review, the staff noted that the DCD addressed safety-related logic circuitry but did not specify which organization had responsibility for it. The staff submitted RAI-SRP13-COLP-03 and RAI-SRP13-COLP-04 to ask Westinghouse to specify which organization had responsibility for safety-related logic circuitry and freeze seals respectively. In a letter dated July 29, 2008, Westinghouse stated that it had responsibility for these issues, as described in TR-70, Revision 1. The staff finds this acceptable because the Westinghouse program for developing and implementing the operating procedures includes a complete description of the safety-related logic circuitry and freeze seals and thus meets the guidance in SRP Chapter 13.5.2.1.

The staff reviewed DCD, Section 13.5.1, which states that TR-70 partially addresses the requested COL information, which includes normal operating, abnormal operating, emergency operating, refueling and outage planning, alarm response, administrative, maintenance, inspection, test, and surveillance procedures, as well as the procedures that address the operation of post-72-hour equipment, and that the COL applicant will address operational and maintenance issues. The staff was not clear as to which operational and maintenance issues the COL applicant is responsible for or how they differ from those addressed in TR-70. The staff submitted RAI-SRP13-COLP-05 to ask Westinghouse to clarify these issues. In a letter dated July 29, 2008, Westinghouse stated that it was responsible for the development, review and approval of normal operating, abnormal operating, emergency operating, refueling and outage planning, alarm response, administrative, maintenance, inspection, test, and surveillance procedures, as well as the procedures that address the operation of post-72-hour equipment, and that the COL applicant was responsible for maintaining those procedures after their approval and acceptance, as well as for operator training in those procedures. The procedures developed and approved by Westinghouse are generic procedures. Site-specific procedures will be approved and maintained by the COL applicant. The staff finds this acceptable because the allocation for responsibility for developing and implementing the operating procedures meets the guidance in SRP Chapter 13.5.2.1.

The staff reviewed DCD, Section 13.5.1, which states that TR-70 submitted several reports to the staff. To the staff, the word “submit” means “docketed”; thus, this is not an appropriate word to use when referring to documents that have not been docketed. The staff submitted RAI-SRP13-COLP-06 to inform the applicant of this meaning. In a letter dated July 29, 2008, Westinghouse acknowledged the incorrect language and provided corrected text with amended language. The staff finds this acceptable because the Westinghouse program description now uses language that is clear and consistent with the staff’s understanding.

13.5.3 Conclusion

Based on the above evaluation, the staff concludes that the AP1000 design changes are acceptable because they meet the guidance in SRP Section 13.5.2.1. The proposed DCD changes are acceptable, pursuant to 10 CFR 52.63(a)(1)(vii), on the basis that they contribute to the increased standardization of the certification information.

13.6 Physical Security

13.6.1 Summary of Technical Information

This section of the AP100 Safety Evaluation Report (SER) documents the staff’s review of the physical security aspects of the AP1000 DC application submitted to the NRC by Westinghouse.

In Revision 17 of the AP1000 DCD Tier 2 Section 13.6, Westinghouse describes the plant’s physical security program, including those elements of physical protection and mitigative measures identified as being within the scope of the applicant’s design. The description includes the required physical security elements of a design certification (DC) application and references TRs that are part of the DC application, on physical protection and mitigative measures. It describes the design for protecting the plant against acts of radiological sabotage; specifically, the plant layout and protection of vital equipment are in accordance with 10 CFR 73.55, and applicable regulatory guidance. This Safety Evaluation (SE) incorporates the staff reviews of DCD Tier 2, Revision 17, Section 13.6; DCD Tier 1, Revision 17, Section 2.6.9, and Table 2.6.9-1; applicant RAI responses and the ITAAC for the physical security hardware and referenced safeguards TRs.

The applicant responded to several RAIs. The NRC staff found all responses regarding regulatory requirements to be acceptable, including the applicant’s responses to the RAIs associated with physical protection and the OIs. All RAIs and OIs are resolved and discussed in the SE that is designated as including safeguards information (SGI). The DCD and TRs identify vital equipment and vital areas; describe armed responder positions, physical security attributes (e.g., delay barrier(s) within the AP1000 design scope), their characteristics; and analyze adversarial scenarios for design-basis threats (DBTs). Because this information is security sensitive, the comprehensive physical protection SE contains SGI and is not available for public disclosure. Those persons with the correct access authorization and need-to-know may view the SGI version of the physical security SE, hereafter referred to as the “SGI SER of the AP1000,” which is located in the NRC’s Secure Local Area Network.

Westinghouse provided the design description and information related to physical protection in the following parts of the DCD: Section 13.6, and Section 2.6.9, and referenced safeguards technical reports.

In the AP1000 DCD Tier 1, Revision 17 and applicant RAI responses, Section 2.6.9 and Table 2.6.9-1, Westinghouse describes the design features and ITAAC for physical security hardware, and the design commitments for physical security hardware ITAAC within the scope of the AP1000 design.

In the DCD Tier 2, Revision 17, Section 13.6, Westinghouse states that the “AP1000 Interim Compensatory Measures Report,” the “AP1000 Enhancement Report,” and the “AP1000 Safeguards Assessment Report” were separately submitted to establish the design of the AP1000 Security Systems.

In the DCD Tier 2, Revision 17, Section 13.6.1, Westinghouse states that COL applicants referencing the AP1000 design will address site-specific information related to the “Physical Security Plan, Training and Qualification Plan and the Safeguards Contingency Plan,” which are the responsibility of the COL applicant.

The NRC’s regulations for protecting nuclear power reactors in 10 CFR Part 73 include specific security and performance requirements that, when implemented correctly, are designed to protect nuclear power reactors against acts of radiological sabotage, prevent the theft or diversion of special nuclear material, and protect SGI against unauthorized release.

Regulations in 10 CFR 73.1(a)(1) require the establishment of physical protection systems to protect special nuclear material against the DBT for radiological sabotage, and 10 CFR 73.55 describes the required physical protection for licensed activities. Pursuant to 10 CFR 50.34(c)(2) and 10 CFR 52.79(a)(35)(i), applicants must prepare and maintain security plans that describe the security-related actions they will take to protect their facilities against acts of radiological sabotage.

Subpart B of 10 CFR 52.47 requires that information submitted for a DC include performance requirements and design information sufficiently detailed to permit an applicant to prepare procurement specifications and construction and installation specifications. According to 10 CFR Part 52.48, the NRC will review applications filed under 10 CFR Part 52 for compliance with the standards set forth in 10 CFR Part 73.

The AP1000 design descriptions, commitments, and acceptance criteria for the security features, including the plant’s layout and protection of vital equipment, as described in the DC application, are based on meeting the relevant requirements of the following Commission regulations:

- 10 CFR Part 50
- 10 CFR Part 52
- 10 CFR 73.1(a)(1)
- 10 CFR 73.55 Appendix B; Appendix C; Appendix G; and Appendix H
- 10 CFR 73.70(f)
- 10 CFR Part 74
- 10 CFR 100.21(f)

In its review, the staff used revised draft SRP Section 13.6.2 Revision 1, June 2010, to complete its AP1000 physical security design certification review. The following paragraphs in 10 CFR 73.55 contain acceptance criteria related to the staff's review in accordance with SRP Section 13.6.2:

- Section (e) – Physical barriers: The licensee shall locate vital equipment only within a vital area, which, in turn, shall be located within a PA, such that access to vital equipment requires passage through at least two physical barriers (as defined in 10 CFR 73.2) that perform their required function in support of the licensee's physical protection program. The physical barriers at the perimeter shall be separated from any other barrier designated as a physical barrier for a vital area within the PA. Isolation zones in outdoor areas adjacent to the physical barrier at the perimeter of the PA permit observation. An intrusion detection system detects penetration or attempted penetration of the PA barrier. Isolation zones and appropriate exterior areas within the PA are illuminated. The main control room has bullet-resistant external walls, doors, ceiling, and floors. Vehicle control measures, which include vehicle barrier systems, protect against the threat of assault by land vehicles.
- Section (g) – Access control: The licensee shall control all points of personnel and vehicle access into a PA; this includes providing equipment capable of detecting firearms, explosives, incendiary devices, or other items that could be used to commit radiological sabotage, or a visual and physical search, or both. Unoccupied vital areas are locked and alarmed with activated detection systems that annunciate in both the CAS and SAS upon intrusion into a vital area. The individual responsible for the last access control function (controlling admission to the PA) must be isolated within a bullet-resisting structure.
- Section (i) – Detection and assessment systems: All alarms required pursuant to this part must annunciate and display concurrently in at least two continuously staffed onsite alarm stations, at least one of which must be protected in accordance with the requirements of the CAS. The CAS must be inside the PA, and the interior must not be visible from the perimeter of the PA. The applicant must design and equip the continuously staffed CAS and SAS so that a single act cannot disable both. At least one alarm station must maintain the ability to detect and assess alarms, initiate and coordinate an adequate response to an alarm, summon offsite assistance, and provide command and control. The CAS shall be considered a vital area and be bullet resistant, and associated onsite secondary power supplies for alarm annunciators and nonportable communication equipment must be located within vital areas. Alarm devices and transmission lines must be tamper indicating and be self-checking. Alarm annunciation on CAS/SAS computer monitoring stations shall indicate the type of alarm and its location. All emergency exits from protected and vital areas shall be alarmed and secured by locking devices.
- Section (j) – Communication requirements: Each security officer or armed-response individual shall be capable of maintaining constant communications with an individual in each continuously manned alarm station. Conventional telephone and radio- or microwave-transmitted two-way voice communications shall be established with local law enforcement authorities.
- Section (n) – Maintenance, testing, and calibration: Each applicant shall develop test

and maintenance provisions for intrusion alarms, emergency alarms, communications equipment, access-control equipment, physical barriers, and other security-related devices or equipment.

The staff, in its review, used the following regulatory guidance documents:

- Regulatory Guide (RG) 1.91, "Evaluations of Explosions Postulated to Occur on Transportation Routes Near Nuclear Power Plants," issued February 1978
- RG 4.7, "General Site Suitability Criteria for Nuclear Power Stations," issued April 1998
- RG 5.12, "General Use of Locks in the Protection and Control of Facilities and Special Nuclear Materials," issued November 1973
- RG 5.65, "Vital Area Access Controls, Protection of Physical Security Equipment, and Key and Lock Controls," issued September 1986
- RG 5.7, "Entry/Exit Control for Protected Areas, Vital Areas, and Material Access Areas," Revision 1, issued May 1980
- RG 5.44, "Perimeter Intrusion Alarm Systems," Revision 3, issued October 1997
- Information Notice 86-83, "Underground Pathways into Protected Vital Areas, Material Access Areas, and Controlled Access Areas," dated September 19, 1986
- Regulatory Issue Summary 2005-04, "Guidance on Protection of Unattended Openings that Intersect a Security Boundary or Area," April 14, 2005
- "Nuclear Power Plant Security Assessment Format and Content Guide," Information Systems Laboratories, issued September 2007 (Agencywide Documents Access and Management System (ADAMS) Accession Number ML07030054)
- SAND 2007- 5591, "Nuclear Power Plant Security Assessment Technical Manual," Sandia National Laboratories, issued September 2007 (ADAMS Accession Number ML072620172)

The staff, in Section 14.3.12 of this SER, evaluates the following specific acceptance criteria for ITAAC:

- 10 CFR 73.1, as it relates to the prescribed requirements for the establishment and maintenance of a physical protection system and for protection against the DBT of radiological sabotage
- 10 CFR 73.55, as it relates to the requirements for physical protection against radiological sabotage of licensed activities in nuclear power reactors
- 10 CFR 73.70(f), as it relates to the requirements specific to alarm annunciation records
- 10 CFR 52.47(b)(1), which requires that a DC application contain the proposed ITAAC that 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 be built and operated in accordance with the DC; the provisions of the Atomic Energy Act of 1954, as amended (the Act); and NRC regulations

The COL applicant referencing a certified design is responsible for the site-specific security operational programs to meet the requirements in 10 CFR 50.34(c)(2) or 10 CFR 52.79(a)(35)(i) and 10 CFR 52.79(a)(36)(i), (ii), and (iii). This is satisfied, in part, by describing a physical protection system and administrative programs and procedures for implementing a site-specific protective strategy that demonstrates high assurance that the plant is protected against the DBT. The site-specific physical protection system must be reliable and available and must implement defense in depth to provide a high assurance of protection. The following specific and performance requirements describe the security operational programs and the physical protection system: 10 CFR Part 26; 10 CFR 73.55; 10 CFR 73.56; 10 CFR 73.57; 10 CFR 73.70; 10 CFR 73.58; and 10 CFR Part 74. Regulations in 10 CFR 52.79(a)(36)(i) or 10 CFR 50.34(d) and Appendix C to 10 CFR Part 73 require COL applicants to submit the security program and planning for a safeguards contingency. The performance and specific requirements in Appendix B to 10 CFR Part 73 requires COL applicants to submit a training and qualification plan and implement the training and qualification requirements for readiness of security personnel and responders.

Within this context, the DC applicant must address those elements or portions of physical protection systems that are considered within the scope of the design. However, the DC applicant may include descriptions of security systems or hardware, with supporting technical bases, that are beyond the physical configuration for the scope of the design, provided that it is clearly stated that they are within the scope of the DC.

The staff used revised draft SRP Section 14.3.12 Revision 1, "Physical Security Hardware - Inspections, Tests, Analyses, and Acceptance Criteria," January 2010, to review the applicant's ITAAC submittal. Section 14.3.12 of this SER documents the staff's evaluation.

13.6.1.1 Summary of Technical Information - ITAAC

Westinghouse provided design-basis information, including associated tables and figures, in accordance with the selection criteria and methodology for developing DCD Tier 1 information, as described in DCD Tier 2, Section 14.3, to support ITAAC for the AP1000 Systems, Structures, and Components (SSCs).

Westinghouse organized the DCD Tier 1 information in the systems, structures, and topical areas format shown in the DCD Tier 1 Table of Contents. Site specific structures that are not within the scope of the certified design are to be addressed by the COL applicant that references the AP1000 certified design. Along with design and program descriptions of site specific physical protection features, the COL applicant is required to address site security provisions during construction of new reactor(s) that is either inside or co-located to an existing protected area (PA). In addition, the COL applicant would address, as applicable, the controls and measures necessary for transitioning between new and existing physical protection systems and continue to maintain in effect the site security program and controls required for implementing the protective strategy for operating power reactors. ITAAC are addressed by both the DC and by the COL applicants incorporating its site specific ITAAC to meet NRC requirements.

The design bases or supporting security analyses and assumptions related to the design descriptions of security-related features incorporated as AP1000 standard design are provided in Westinghouse's SGI TR-94. The staff reviewed the DCD Tier 1 information provided by the applicant in accordance with revised draft SRP Section 14.3.12, "Physical Security," Revision 1, January 2010.

Westinghouse provided design descriptions and information related to physical protection systems or features in the following portions of the DCD and referenced TRs:

Tier 1, Chapter 2, "System Based Design Descriptions and ITAAC," Section 2.6.9, "Plant Security System," of the DCD describes the design features and ITAAC for security hardware for the AP1000 design. Table 2.6.9-1, "Inspections, Tests, Analyses, and Acceptance Criteria" describes the design commitments for security hardware that are within the scope of the AP1000 design.

Tier 2, Chapter 1, Section 1.2, "General Plant Description," and Section 1.2.1, "Design Criteria, Operating Characteristics, and Safety Considerations," provide descriptions of the scope of the AP1000 design.

Tier 2, Chapter 13, "Conduct of Operations," Section 13.6, "Security," of the AP1000 describes physical protection systems or features incorporated as a part of the AP1000 standard design. Elements of a site-specific security program such as organization structure, training, operational program implementations, plant procedures, site-specific target sets, protective strategy, design features for security, and fitness for duty program are to be described by the COL applicant, along with an implementing schedule.

Section 14.2.9, "Preoperational Test Descriptions," identifies tests to be completed prior to operating conditions. Section 14.2.9.1.14, "Class IE DC Power and Uninterruptible Power Supply Testing" and Section 14.2.9.4.13 "Plant Communications System Testing" addresses security components of plant's lighting and intra-plant communications.

Westinghouse submitted TR-94, APP-GW-GLR-066, "AP1000 Safeguards Assessment Report," which describes the security measures credited in defending the AP1000 against a DBT in support of the application.

Westinghouse submitted TR-96, APP-GW-GLR-067, "AP1000 Interim Compensatory Measures Report," that contains information on compliance with the various sections of the Commission Order on Interim Compensatory Measures that was issued to NRC power reactor licensees on February 25, 2002.

Westinghouse submitted TR-49, APP-GW-GLR-062, "AP1000 Enhancement Report," which describes design areas as physical security enhancements that will enhance the ability of a COL applicant to meet the general performance objective of 10 CFR 73.55.

The information found in these referenced reports are considered SGI and Official Use Only Security-Related Information and are protected in accordance with 10 CFR 2.390 and 10 CFR 73.21.

Westinghouse submitted, in Revision 17 of the AP1000 DCD and applicant RAI responses, proposed changes to physical security hardware ITAAC in DCD Tier 1 Section 2.6.9, Plant Security System. As a result of the staff's review, Westinghouse submitted additional proposed

changes to DCD Tier 1 Section 2.6.9 in its responses to RAI-SRP14.3.12-NSIR-06 and RAI-SRP14.3.12-NSIR-07. The final proposed AP-1000 physical security hardware ITAAC was provided in the response to RAI-SRP14.3.12-NSIR-07 Revision 1.

The NRC regulation for protecting nuclear power reactors is provided in 10 CFR Part 73, "Physical Protection of Plants and Materials." The regulation includes specific security and performance requirements that, when adequately implemented, are designed to protect nuclear power reactors against acts of radiological sabotage, prevent the theft or diversion of special nuclear material, and protect safeguards information against unauthorized release.

The performance requirements for the physical protection of nuclear power reactors are provided in 10 CFR 73.1(a)(1), "Radiological Sabotage," which bounds the adversarial characteristics of the design basis threat (DBT), and 10 CFR 73.55, "Requirements for Physical Protection of Licensed Activities in Nuclear Power Reactors against Radiological Sabotage." Pursuant to 10 CFR 50.34(c)(2), 50.34(d), 50.54(p)(1) and (2), 73.55(c)(4), and as referenced in 10 CFR Part 52, applicants are required to prepare and maintain security plans that describe the security-related actions that they will take to protect their facilities against acts of radiological sabotage.

10 CFR 52.47(b)(1) requires a DC applicant to contain the proposed ITAAC that are necessary and sufficient to provide reasonable assurance that, if the inspections, tests, and analyses (ITA) are performed and the acceptance criteria (AC) are met, a plant that incorporates the design certification is built and will operate in accordance with the design certification.

Regulatory requirements and acceptance criteria related to physical protection systems or hardware are, in part, applicable to design certification (i.e., within scope of the design) or may only be applicable to a COL applicant (outside of a DC design scope) and are identified as follows, as specified in NUREG-0800, revised draft SRP 14.3.12 Revision 1 "Physical Security Hardware – Inspections, Tests, Analyses, and Acceptance Criteria," January 2010.

The COL applicant is required to describe commitments for establishing and maintaining a physical protection system (engineered and administrative controls), organization, programs, and procedures for implementing a site specific strategy that, if adequately implemented, provides a high assurance of protection of the plant against the DBT. The site specific physical protection system described must be reliable and available and implement the concept of defense-in-depth protection in order to provide a high assurance of protection. The security operational programs and the physical protection system are required to meet specific and performance requirements of 10 CFR Parts 26 and 74, and 10 CFR 73.55, 73.56, 73.57, and 73.70. The COL applicant's security program and planning for safeguards contingency are required to meet 10 CFR 50.34(d) and 10 CFR Part 73, Appendix C. The training and qualification program for readiness of security personnel and responders are required to meet performance and specific requirements of 10 CFR Part 73, Appendix B. Within this context, the DC applicant must address those elements or portion of physical protection systems or features that are considered within the scope of the certified portion of the design. The technical basis for physical protection hardware within the scope of the certified portion of the design provides the basis for ITAAC verification and closures. With the exception of the list provided for the confirmatory item, all ITAAC numbers are consistent with the NRC SRP 14.3.12.

13.6.2 Technical Evaluation

The staff reviewed the AP1000 DCD Tier 1, Revision 17, Section 2.6.9 and Table 2.6.9-1; and DCD Tier 2, Revision 17, Section 13.6, applicant RAI responses, and referenced safeguards TRs.

In its review of the referenced safeguards TRs, the staff identified areas in which it needed additional information to complete the review of the applicant's physical security design. The applicant responded to the staff's RAIs as discussed below.

The staff reviewed the Westinghouse submittals to determine if its consideration of physical security in the AP1000 design was acceptable.

The staff identified several RAIs relating to target sets for the purpose of reviewing the Westinghouse physical protection program. Westinghouse provided design details as background information to assist a licensee with the development of site-specific target sets analyses. The staff evaluated the applicant's responses, and found them to be acceptable for the Design Certification review of the AP1000 physical protection program. Westinghouse stated, in TR-94, APP-GW-GLR-066, "AP1000 Safeguards Assessment Report" that target sets were created to aid in the development of the AP1000 physical security system, and that final target sets will be developed by the COL applicant. Upon the completion of its review, the staff determined that the applicant adequately addressed regulations and the SRP acceptance criteria that were identified as within the scope of their design.

Combined License Information Items

The staff reviewed the AP1000 description and commitment for the COL information item that COL applicants referencing the AP1000 certified design must address.

Acceptance Criteria

In 10 CFR 52.47(b)(1), a DC applicant is required to submit the proposed ITAAC that are necessary and sufficient to provide reasonable assurance that, if the inspections, tests, and analyses are performed and the acceptance criteria met, a facility that incorporates the design certification will be built and operated in accordance with the DC, the provisions of the Act, and the NRC's regulations.

In addition to ITAAC, the staff also reviewed the following information that was submitted by an applicant for the physical security design. The following information was provided by an applicant to meet the acceptance criteria identified in section 13.6.3, Regulatory Basis, for physical security design certification.

As required by 10 CFR 73.55(e)(9)(i), a DC applicant shall identify vital areas and a list of vital equipment, by location.

As required by 10 CFR 73.55(e)(9)(v) and (vi), a DC applicant shall identify the control room as a vital area and secondary power supply (for alarm annunciator equipment and nonportable communications) as within a vital area.

As required by 10 CFR 73.55(e)(9)(iii), a DC applicant shall provide the design of the locks and alarms of all unoccupied vital areas.

As required by 10 CFR 73.55(e)(5), a DC applicant shall provide the design describing the bullet resistance of the control room and the central alarm station (CAS).

As required by 10 CFR 73.55(g)(1)(i)(B), a DC applicant should identify locks used to protect the facility and special nuclear material as manipulative resistant.

Technical Evaluation of COL Information

The staff evaluated the COL information item identified in its review of the AP1000 DC application and contained in DCD Tier 2, Revision 17, Section 13.6.1. COL information items and applicant responses are those physical security requirements from the above six acceptance criteria that are either met partially or are not addressed by the DC applicant. The staff's evaluation determines whether the DC applicant adequately describes those physical security requirements so that a COL applicant would be able to address them during the COL licensing process. The DC applicant need not identify as COL information items those physical security elements required by regulation. However, for physical security elements partially met in the DC application, the DC applicant should explicitly identify which part of the requirement was met and which part the COL applicant referencing the design will be required to meet.

In the COL Information Item in DCD Section 13.6.1, Westinghouse states: Combined License applicants referencing the AP1000 certified design will address site-specific information related to the physical security, contingency, and training and qualification plans.

On the basis of the staff review, the COL Information Item appropriately addresses interface requirements between the referenced AP1000 physical protection system design and the COL applicant.

13.6.2.1 Technical Evaluation – ITAAC

Westinghouse submitted the following ITAAC for Detection and Assessment Hardware in Revision 17 to the AP1000 DCD Tier 1, Section 2.6.9, "Plant Security System," which addresses ITAAC consistent with the revised draft SRP Section 14.3.12. The numbering system below, corresponds to the applicable elements of draft SRP Section 14.3.12.

2. Physical barriers for the protected area perimeter are not part of vital area barriers.
3. Isolation zones exist in outdoor areas adjacent to the physical barrier at the perimeter of the protected area that allows 20 feet of observation on either side of the barrier. Where permanent buildings do not allow a 20-foot observation distance on the inside of the protected area, the building walls are immediately adjacent to, or an integral part of, the protected area barrier.
4. An intrusion detection system can detect penetration or attempted penetration of the protected area barrier.
5. Isolation zones and exterior areas within the protected area are provided with illumination to permit observation of abnormal presence or activity of persons or vehicles.
6. The external walls, doors, ceiling, and floors in the main control room, the central alarm station, and the last access control function for access to the protected area are bullet

resistant.

9. An access control system with numbered picture badges is installed for use by individuals who are authorized access to protected areas without escort.
10. Vital areas are locked and alarmed with active intrusion detection systems that annunciate in the central and secondary alarm stations upon intrusion into a vital area.
11. Security alarm annunciation occurs in the central alarm station and in at least one other continuously manned station not necessarily onsite.
14. Equipment exists to record onsite security alarm annunciation, including the location of the alarm, false alarm, alarm check, and tamper indication; and the type of alarm, location, alarm circuit, date, and time.

After the review of the ITAAC for Detection and Assessment Hardware, the staff determined that Westinghouse submitted ITAAC within the DCD that are not within the scope of the DC, and that should be submitted as part of a COL application. In order to complete its review, the staff requested additional information. In RAI-SRP14.3.12-NSIR-06, the staff requested that Westinghouse revise the physical security hardware ITAAC in Tier I of the DCD consistent with the revised draft SRP 14.3.12 Revision 1.

In response to RAI-SRP14.3.12-NSIR-06, Westinghouse proposed to revise DCD Tier 1 Section 2.6.9 to delete any items that are outside the scope of the certified design. Westinghouse removed ITAAC Items 3, 4, and 9, which will be submitted by COL applicants. Westinghouse removed ITAAC Item 2, as the protected area barrier will be addressed by the COL applicant in an ITAAC that will be provided for the site-specific design elements of Plant Security. Westinghouse also revised Item 6.

As a result of changes to regulations for "Power Reactor Security Requirements," effective May 26, 2009, the staff requested additional information. In RAI-SRP14.3.12-NSIR-07 the staff requested that Westinghouse submit revised AP1000 ITAAC that conform to the 10 CFR Part 73 Power Reactor Security Requirements Final Rule.

In response to RAI-SRP14.3.12-NSIR-07, dated October 15, 2009, Westinghouse revised the AP1000 physical security hardware ITAAC to be consistent with the Power Reactor Security Requirements Final Rule of May 26, 2009. ITAAC Item 6 was revised to include the secondary alarm station (SAS). Westinghouse revised ITAAC Item 11 to item 11(a) and included the addition of video assessment capability and the secondary alarm station. Westinghouse added ITAAC items 11(b) and 11(c) as follows:

- 11(b) The central and secondary alarm stations are located inside a protected area, and the interior of both alarm stations is not visible from the perimeter of the protected area.
- 11(c) The central and secondary alarm stations are designed and equipped such that, in the event of a single act, in accordance with the design basis threat of radiological sabotage, the design enables the survivability of equipment needed to maintain the functional capability of either alarm station to assess alarms and communicate with onsite and offsite response personnel.

Based on discussions at a request for additional information closed meeting on November 24, 2009 between Westinghouse and the staff, Westinghouse submitted revised AP1000 physical security hardware ITAAC in its Revision 1 response to RAI-SRP14.3.12-NSIR-07, dated December 16, 2009. Westinghouse revised ITAAC item 6 to add the minimum bullet resistance for the Main Control Room, Central Alarm Station, and SAS. Westinghouse revised ITAAC item 11(a) to add that alarm annunciation and video assessment is displayed concurrently, and that video recording with real time playback capability can provide assessment of activities before and after each alarm. This revision of ITAAC item 11(a) also reads on video image recording in ITAAC item 4(b).

On the basis of its review, the staff finds the revised ITAAC for Detection and Assessment Hardware to be acceptable because it is in conformance with the staff's definition of physical security hardware ITAAC that is within the scope of the design certification, and the ITAAC are sufficient to verify that the hardware, as finally installed and constructed, will function as designed.

Westinghouse submitted the following ITAAC for Delay or Barrier Design Features in Revision 17 to the AP1000 DCD Tier 1, Section 2.69, Plant Security System, which addresses ITAAC consistent with the SRP Section 14.3.12:

1. a) Vital equipment is located only within a vital area.
b) Access to vital equipment requires passage through at least two physical barriers.
7. The vehicle barrier system is installed and located at the necessary stand-off distance to protect against the DBT vehicle bombs.
8. Access control points are established to:
 - a) Control vehicle and personnel access into the protected area.
 - b) Detect firearms, explosives, and incendiary devices at the protected area personnel access points.
13. Security alarm devices including transmission lines to annunciators are 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). Alarm annunciation shall indicate the type of alarm (e.g., intrusion alarms and emergency exit alarm) and location.

As a result of its review of the ITAAC for Delay or Barrier Design Features, the staff determined that Westinghouse submitted ITAAC within the AP1000 DCD that are not within the scope of the design certification and that should be submitted as part of a COL application. In order to complete its review, the staff requested additional information. In RAI-SRP14.3.12-NSIR-06, the staff requested that Westinghouse revise the physical security hardware ITAAC in Tier I of the DCD in accordance with the 2007 version of SRP 14.3.12.

In its response to RAI-SRP14.3.12-NSIR-06, Westinghouse proposed to revise the AP1000 DCD Tier 1 Section 2.6.9 by deleting ITAAC items 8(a) and 8(b). Westinghouse indicated that ITAAC items 8(a) and 8(b), access control points, would be submitted by the COL applicants.

As noted above, as a result of changes to regulations for "Power Reactor Security Requirements," effective May 26, 2009, the staff requested additional information. In RAI-SRP14.3.12-NSIR-07 the staff requested that Westinghouse submit revised AP1000 ITAAC that conform to the 10 CFR Part 73 Power Reactor Security Requirements Final Rule.

In its response to RAI-SRP14.3.12-NSIR-07, dated October 15, 2009, Westinghouse revised the AP1000 physical security hardware ITAAC to be consistent with the Power Reactor Security Requirements Final Rule of May 26, 2009. Westinghouse revised ITAAC item 13 to 13(a) and added ITAAC item 13(b) to include the requirement for intrusion detection and assessment systems to provide visual display and audible annunciation of the alarm in both the CAS and SAS.

Based on discussions at a request for additional information closed meeting on November 24, 2009 between Westinghouse and the staff, Westinghouse submitted revised AP1000 physical security hardware ITAAC in its Revision 1 response to RAI-SRP14.3.12-NSIR-07.

Westinghouse revised ITAAC item 1(b) to state "Access to vital equipment requires passage through the vital area barrier." Because Westinghouse considered the protected area barrier outside of the design scope, it indicated that the requirement in 10 CFR 73.55(e)(9)(i) for two physical barriers would be the responsibility of COL applicants. Westinghouse added ITAAC Item 13(b) as follows:

13(b) Intrusion detection and assessment systems provide visual displays and audible annunciation of alarms in the central and secondary alarm station.

On the basis of its review, the staff finds the revised ITAAC for Delay or Barrier Design Features to be acceptable, because it is in conformance with the staff's definition of physical security hardware ITAAC that is within the scope of the design certification, and sufficient to verify that the hardware, as finally installed and constructed, will function as designed.

Westinghouse submitted the following ITAAC systems, hardware, or features facilitating security response and neutralization in Revision 17 to the AP1000 DCD Tier 1, Section 2.6.9, Plant Security System, which addresses ITAAC consistent with the SRP Section 14.3.12::

12. Secondary security power supply system for alarm annunciator equipment and non-portable communications equipment is located within a vital area.
15. Emergency exits through the protected area perimeter and the vital area boundaries are alarmed.
16. The central and secondary alarm stations:
 - a) have conventional (landline) telephone service and other communication capabilities with local law enforcement authorities and
 - b) are capable of continuous communications with security personnel.

As a result of its review of the ITAAC systems, hardware, and changes to regulations for "Power Reactor Security Requirements," effective May 26, 2009, the staff determined that Westinghouse submitted ITAAC within the AP1000 DCD that are not within the scope of the design certification and that should be submitted as part of a COL application. In order to complete its review, the staff requested additional information. In RAI-SRP14.3.12-NSIR-07 the staff requested that Westinghouse submit revised AP1000 ITAAC that address the 10 CFR Part 73 Power Reactor Security Requirements Final Rule.

In its original and Revision 1 responses to RAI-SRP14.3.12-NSIR-07, Westinghouse revised ITAAC Item 15 to include the requirement for emergency exits through the vital area boundaries

to be equipped with a crash bar to allow for emergency egress.

Westinghouse also removed reference to emergency egress through the protected area perimeter in ITAAC Item 15. As Westinghouse considers the protected area barrier outside the design scope, it will be the responsibility of the COL applicant to complete the requirement in 10 CFR 73.55(e)(8)(iii) for emergency exits through the protected area perimeter.

Westinghouse revised ITAAC Item 16(a) to include communication with the main control room, removed the phrase "other communication capabilities," and added ITAAC Item 16(c) to include the requirement for continued operability of non-portable communications equipment in the CAS and SAS in the event of the loss of normal power, by independent power sources.

On the basis of its review, the staff finds the revised ITAAC for systems, hardware, and features to be acceptable, because it is in conformance with the staff's definition of physical security hardware ITAAC that is within the scope of the design certification, and sufficient to verify that the hardware, as finally installed and constructed, will function as designed.

The staff identified in its review of the proposed changes to the physical security hardware ITAAC in Westinghouse's next revision of the AP1000 DCD Tier 1 and Tier 2 as confirmatory item CI-14.3.12-01 and as described below:

1. The external walls, doors, ceiling, and floors in the main control room, the central alarm station, and the secondary alarm station are bullet-resistant to at least Underwriters Laboratory Ballistic Standard 752, level 4.
3. Secondary security power supply system for alarm annunciator equipment and non-portable communications equipment is located within a vital area.
4. Vital areas are locked and alarmed with active intrusion detection systems that annunciate in the central and secondary alarm stations upon intrusion into a vital area.
5. a) Security alarm annunciation and video assessment information is displayed concurrently in the central alarm station and the secondary alarm station, and the video image recording with real time playback capability can provide assessment of activities before and after each alarm annunciation within the perimeter barrier.

b) The central and secondary alarm stations are located inside the protected area, and the interior of each alarm station is not visible from the perimeter of the protected area.

c) The central and secondary alarm stations are designed and equipped such that, in the event of a single act, in accordance with the design basis threat of radiological sabotage, the design enables the survivability of equipment needed to maintain the functional capability of either alarm station to detect and assess alarms and communicate with onsite and offsite response personnel.
6. The vehicle barrier system is installed and located at the necessary stand-off distance to protect against the DBT vehicle bombs.
7. a) Vital equipment is located only within a vital area.

b) Access to vital equipment requires passage through the vital area barrier.

8. Isolation zones and exterior areas within the protected area are provided with illumination to permit observation of abnormal presence or activity of persons or vehicles.
9. Emergency exits through the vital area boundaries are locked, alarmed and equipped with a crash bar to allow for emergency egress.
13. a) The central and secondary alarm stations have conventional (landline) telephone service with the main control room and local law enforcement authorities.
b) The central and secondary alarm stations are capable of continuous communication with security personnel.
c) Non-portable communication equipment in the central and secondary alarm stations remains operable from an independent power source in the event of loss of normal power.
15. a) Security alarm devices including transmission lines to annunciators are 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). Alarm annunciation shall indicate the type of alarm (e.g., intrusion alarms and emergency exit alarm) and location.
b) Intrusion detection and assessment systems concurrently provide visual displays and audible annunciation of alarms in the central and secondary alarm stations.
16. Equipment exists to record onsite security alarm annunciation, including the location of the alarm, false alarm, alarm check, and tamper indication; and the type of alarm, location, alarm circuit, date, and time.

DCD Tier 1, Revision 17 Table 2.6.9-1, Table 3.3-6, and Tier 2, Chapter 13.6, "Security" will also reflect the changes identified in RAI-SRP14.3.12-NSIR-07 Revision 1 for CI-14.3.12-01.

The staff concludes that Westinghouse has adequately described the Tier 1 physical security hardware ITAAC to be incorporated as part of the standard design. Westinghouse adequately described the plant layout and protection of vital equipment in accordance with the requirements of 10 CFR 73.55 and provided the technical bases for establishing a physical protection system for the protection against acts of radiological sabotage. Westinghouse has adequately described requirements specific to design for alarm annunciation records in accordance with 10 CFR 73.70(f). Westinghouse has provided adequate descriptions of objectives, prerequisites, test methods, data required, and acceptance criteria for security-related ITAAC for the certification the AP1000 design. Therefore, the staff concludes that the AP1000 ITAAC within the scope of SRP Section 14.3.12 are necessary and sufficient to assure that with respect to these ITAAC, if the ITA are performed and the AC met, a facility referencing the certified AP1000 design has been constructed and will be operated in compliance with the DC and applicable regulations.

ITAAC Combined License Information Items

The NRC staff reviewed Westinghouse descriptions and commitments for COL action items for physical security hardware ITAAC that must be addressed by a COL applicant referencing the certified design.

In response to discussions with staff at a request for additional information closed meeting on November 24, 2009, Westinghouse, in its Revision 1 response to RAI-SRP14.3.12-NSIR-07, proposed to include a COL action item in the next revision of the AP1000 DCD, Tier 2, Section 13.6.1, for the COL applicant to address the physical security hardware ITAAC listed above. Pending the Westinghouse submittal of the next revision to the AP1000 DCD, the staff finds this to be acceptable and in conformance with the physical security hardware ITAAC requirements to protect against the DBT of radiological sabotage as stated in 10 CFR 73.1(a).

Based on its review, the staff determined that Westinghouse has submitted an appropriate COL action item for physical security hardware ITAAC. The ITAAC that Westinghouse identified as the responsibility of the COL applicant meet the requirements of 10 CFR 52.47(b)(1) for a COL holder referencing the AP1000 design to build and operate in accordance with the DC, the provisions in the Atomic Energy Act and NRC regulations.

13.6.3 Conclusion

The staff finds that Westinghouse considered and provided descriptions of physical security systems or features in the standard AP1000 design to provide or facilitate the implementation of a physical protection system to protect against acts of radiological sabotage and theft of special nuclear material. The details of this information are provided in the SGI SER for the AP1000 which is stored in the automated database of the NRC's Secure Local Area Network Electronic Safe. Westinghouse adequately described the plant layout for physical protection and identifying vital equipment and areas, in accordance with the requirements of 10 CFR 73.55. The staff evaluated the technical bases and assumptions related to ITAAC for physical security hardware and found them to be adequate.

Westinghouse identified the generic issues in the following documents as being outside the scope of the AP1000 design: Generic Letter 89-007, "Power Reactors Safeguards Contingency Planning for Surface Vehicle Bombs," dated April 28, 1989; Generic Letter 91-010, "Explosives Searches at Protected Area Portals," dated August 27, 1991; and Generic Letter 91-003, "Reporting of Safeguards Events," dated March 6, 1991. The staff has identified the generic issues in the above documents as outside the scope of the design and finds Westinghouse's approach acceptable. The staff review of the design found that Westinghouse addressed in an acceptable method Task Action Plan Item A-29, "Nuclear Power Plant Design for the Reduction of Vulnerability to Industrial Sabotage."

The staff finds that Westinghouse has provided reasonable assurance that the standard AP1000 design, if implemented correctly, will ensure adequate protection against acts of radiological sabotage and theft of special nuclear material. Westinghouse has provided sufficient physical security design information to support the issuance of an amendment to the AP1000 design certification.

The staff reviewed AP1000 DCD, Revision 17, Tier 1 Section 2.6.9 and Tier 2, Section 14.3, and the applicant's responses to RAIs issued on Tier 1 and Tier 2 material, performed in accordance with the SRP Section 14.3.12. Based on its review, the staff determined that the applicant's selection criteria and methodology for the development of Tier 1 information, the implementation of this selection criteria and methodology, and whether the resultant ITAAC are adequate, pending completion of CI-14.3.12-01, for verification that a facility referencing the

AP1000 design has been constructed and will be operated in compliance with the design certification and applicable regulations.

The staff finds that Westinghouse has adequately described the objectives, prerequisites, test methods, data required, and acceptance criteria for physical security hardware ITAAC for the certification of the AP1000 design.