

13.6.A SITE-SPECIFIC INSPECTION, TEST, ANALYSIS, AND ACCEPTANCE CRITERIA FOR PHYSICAL SECURITY

13.6.A.1 Introduction

The Fermi 3 Combined License (COL) application describes in Part 10, "Proposed License Conditions (Including ITAAC)" "Inspection, Test, Analysis, and Acceptance Criteria" of the license conditions for the plant's physical protection systems or features to provide physical protection of the site specific protective strategy and elements of a site security program. The COL application incorporates by reference the standard Economic Simplified Boiling-Water Reactor (ESBWR) design including physical protection systems within the design of the vital island and vital structures. The COL application incorporates by reference the ESBWR plant layout and configurations of barriers, and listed ITAAC related to the site specific design for achieving detection, assessment, communications, delay, and response for physical protection against potential acts of radiological sabotage and theft of special nuclear material.

The design bases or supporting security analyses and assumptions related to the design descriptions of security-related features incorporated as reference from the ESBWR design control document (DCD) is Tier 2 information, including NEDE-33391, "The ESBWR Safeguards Assessment Report," NEDE-33390, "The ESBWR Interim Compensatory Measures Report" and NEDE-33389, "The ESBWR Security Enhancement Report." Descriptions of site specific security structures, programs and contingency measures are located in the Fermi Physical Security Plan, which includes the site physical security plan (PSP), training and qualification plan, and the safeguards contingency plan.

13.6.A.2 Summary of Application

Section 14.3 of the Fermi 3 COL Final Safety Analysis Report (FSAR), Revision 5 incorporates by reference the Table 2.19-1 of the ESBWR DCD Revision 9 and technical reports. Part 10, Revision 4, Section 2.2, of the Fermi COL application incorporates by reference the Physical Security ITAAC (PS-ITAAC) for systems within the scope of the DCD Tier 1. Part 10, Revision 4, Section 2.2.1 also listed the Site Specific Physical Security ITAAC and Design Description.

In addition, in DTE COL FSAR Section 14.3, the applicant provided the following:

COL Information

- STD COL 14.3-2-A

The selection criteria and methodology provided in this section of the referenced DCD were utilized as the site-specific selection criteria and methodology for ITAAC. These criteria and methodology were applied to those site-specific (SS) systems that were not evaluated in the referenced DCD. The entire set of ITAAC for the facility, including DC-ITAAC, EP-ITAAC, PS-ITAAC, and SS-ITAAC, is included in the [COL application] Part 10.

License Condition

- Part 10, License Condition

Operational Program Readiness

The licensee shall submit to the appropriate Director of the NRC, a schedule, no later than 12 months after issuance of the COL, that supports planning for and conduct of NRC inspections of operational programs listed in the operational program FSAR Table 13.4-201. The schedule shall be updated every 6 months until 12 months before scheduled fuel loading, and every month thereafter until either the operational programs in the FSAR table have been fully implemented or the plant has been placed in commercial service, whichever comes first. This schedule shall also address:

- a. The implementation of site specific Severe Accident Management Guidance.
- b. The spent fuel rack coupon monitoring program implementation.

13.6.A.3 Regulatory Basis

The regulatory basis on the information incorporated by reference is addressed in the final safety evaluation report related to the ESBWR DCD. In addition, the acceptance criteria associated with the relevant requirements of the Commission regulations are given in Title 10 of the *Code of Federal Regulations* (CFR) Part 73 "Physical Protection of Plants and Materials". 10 CFR Part 73 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.

Regulation in 10 CFR 52.80(a) requires that information submitted in a COL application include the proposed ITAAC that the licensee shall perform, and the acceptance criteria that are necessary and sufficient to provide reasonable assurance that, if the ITAAC are met, the facility has been constructed and will operate in conformity with the COL, the provisions of the Atomic Energy Act, and the Nuclear Regulatory Commission (NRC's) regulations.

The Fermi 3 design descriptions, commitments, and acceptance criteria for the security features, including the plant's layout and determination of vital equipment and areas, for a certified design that is based on physical protection systems or hardware provided for meeting requirements including the following Commission regulations:

- 10 CFR Part 50, "Domestic Licensing of Production and Utilization Facilities"
- 10 CFR Part 52, "Licenses, Certifications, and Approvals for Nuclear Power Plants"
- 10 CFR 73.1(a)(1), "Radiological Sabotage"

- 10 CFR 73.55, “Requirements for physical protection of licensed activities in nuclear power reactors against radiological sabotage”
- 10 CFR Part 73 Appendix B, “General Criteria for Security Personnel”
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- 10 CFR Part 73 Appendix C, “Nuclear Power Plant Safeguards Contingency Plans”
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- 10 CFR Part 73 Appendix G, “Reportable Safeguards Events”
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- 10 CFR Part 73 Appendix H, “Weapons Qualification Criteria”
- 10 CFR Part 74, “Material Control and Accounting of Special Nuclear Material”
- 10 CFR 100.21(f), “Non-Seismic Siting Criteria”
- Regulatory requirements and acceptance criteria related to physical protection systems or hardware are identified in Section 14.3.12 of NUREG-0800.

Regulatory guidance documents that are applicable to this evaluation are:

- RG 1.91, “Evaluations of Explosions Postulated to Occur at Transportation Routes Near Nuclear Power Plants,” Revision 1
- RG 1.206, “Combined License Applications for Nuclear Power Plants”
- RG 4.7, “General Site Suitability Criteria for Nuclear Power Stations,” Revision 2
- RG 5.7, “Entry/Exit Control for Protected Areas, Vital Areas, and Material Access Areas,” Revision 1
- RG 5.12, “General Use of Locks in the Protection and Control of Facilities and Special Nuclear Materials”
- RG 5.29, “Nuclear Material Control and Accounting for Nuclear Power Reactors”
- RG 5.44, “Perimeter Intrusion Alarm Systems,” Revision 3
- RG 5.62, “Reporting of Safeguards Events,” Revision 1
- RG 5.65, “Vital Area Access Controls, Protection of Physical Security Equipment and Key and Lock Controls,” September 1986.
- RG 5.66, “Access Authorization Program for Nuclear Power Plants”
- Information Notice No. 86-83, “Underground Pathways into Protected Areas, Vital Areas, and Controlled Access Areas,” September 19, 1986.
- Regulatory Information Summary 2005-04, “Guidance on the Protection of Unattended Openings that Intersect a Security Boundary or Area,” April 14, 2005 (Exempt from

public disclosure in accordance with 10 CFR 2.390)

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 demonstrate, if adequately implemented, high assurance of protection of the plant against the design basis threat (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 Part 26, 10 CFR 73.54, 10 CFR 73.55, 10 CFR 73.56, 10 CFR 73.57, and 10 CFR 73.58. Within this context, the DC applicant is required only to address those elements or portion of physical protection system or features that are considered within the scope of design. The technical basis for physical protection hardware within the scope of the design provides the basis for ITAAC verification and closure.

13.6.A.4 Technical Evaluation

As documented in NUREG-1966, NRC staff reviewed Section 14.3 of the ESBWR DCD, Revision 9, and checked to ensure that the combination of the information in the COL FSAR and the information in the ESBWR DCD represents the complete scope of information relating to this review topic.¹ The NRC staff's review confirmed that the information in the application and incorporated by reference addresses the required information relating to ITAAC for physical security. The results of the NRC staff's evaluation of the information incorporated by reference in the Fermi 3 COL application are documented in NUREG-1966 and its supplements.

The staff reviewed the information in the Fermi 3 COL FSAR:

COL Information

- STD COL 14.3-2-A

STD COL 14.3-2-A adds the following after DCD Section 14.3.9.

The selection criteria and methodology provided in this section of the referenced DCD were utilized as the site-specific selection criteria and methodology for ITAAC. These criteria and methodology were applied to those site-specific (SS) systems that were not evaluated in the referenced DCD. The entire set of ITAAC for the facility, including DC-ITAAC, EP-ITAAC, PS-ITAAC, and SS-ITAAC, is included in COLA Part 10.

In Part 10, of the Fermi 3 COL application, Detroit Edison describes the PS-ITAAC for the plant's physical protection systems or features to provide physical protection of the site-specific protective strategy and elements of a site security program. The COL application incorporates by reference Tier 1, Table 2.19-1 of the ESBWR DCD, including plant layout and configurations of barriers, and listed ITAAC related to the site-specific design for achieving detection, assessment, communications, delay, and response for physical protection against potential acts of radiological sabotage and theft of special nuclear material. DCD Tier 1, Table 2.19-1 includes the PS-ITAACs that are in the scope of the ESBWR standard design. Site-specific

¹ See "Finality of Referenced NRC Approvals" in SER Section 1.2.2, for a discussion on the staff's review related to verification of the scope of information to be included in a COL application that references a design certification.

PS-ITAAC that are outside the scope of the ESBWR DCD Tier 1, Table 2.19-1 are provided in Table 2.2.1-1 of Part 10 of the Fermi 3 COL application.

The NRC staff's evaluation of the PS-ITAAC (STD COL 14.3-2-A) is documented in the Sections 13.6.A.4.1 through 13.6.A.4.3 of this SER.

13.6.A.4.1 Detection and Assessment Hardware

The applicant submitted PS-ITAAC, in Revision 4 of the Fermi 3 COL application, Part 10, Table 2.2.1-1, "ITAAC for the Site-Specific Security System." The Fermi 3 COL application incorporates by reference the ESBWR DCD Tier 1, Table 2.19-1, Revision 9, design commitments and ITAAC for the physical security system to be used at Fermi 3.

The physical security system provides physical features to detect, delay, assist response to, and defend against the DBT for radiological sabotage. The physical security system consists of physical barriers and an intrusion detection system. The details of the physical security system are categorized as Safeguards Information. The physical security system provides protection for vital equipment and plant personnel.

The PS-ITAAC reference numbers listed below are from NUREG-0800, SRP 14.3.12, "Physical Security Hardware - Appendix "A"," and are used to provide clarification of the ITAAC related to "Detection and Assessment Hardware."

PS-ITAAC 2. Protected Area Barrier:

- a. Physical barriers for the protected area perimeter will not be part of vital area barriers.
- b. Penetrations through the protected area barrier will be secured and monitored.
- 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.

PS-ITAAC 3. Isolation Zone:

- a. Isolation zones will exist in outdoor areas adjacent to the physical barrier at the perimeter of the protected area and will be designed of sufficient size to permit observation and assessment on either side of the barrier.
- 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.
- 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 assessment of detected activities.

PS-ITAAC 4. Protected Area Perimeter Intrusion Detection and Assessment Systems:

- 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 alarm stations (central and secondary alarm stations).
- b. The perimeter assessment equipment will be designed to provide video image recording with real-time and playback capability that can provide assessment of detected activities before and after each alarm annunciation at the protected area perimeter barrier.
- 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.

PS-ITAAC 6. Bullet Resistant Barriers Requirements:

The external walls, doors, ceiling, and floors in the Secondary Alarm Station, and the last access control function for access to the protected area will be bullet resistant, to at least Underwriters Laboratories Ballistic Standard 752, "The Standard of Safety for Bullet-Resisting Equipment," Level 4, or National Institute of Justice Standard 0108.01, "Ballistic Resistant Protective Materials," Type III.

PS-ITAAC 9. Picture Badge Identification System Requirements:

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.

Accordingly, the NRC staff determined that the Fermi 3 COL application, Part 10, Table 2.2.1-1 has adequately addressed the requirements related to the PS-ITAAC for Detection and Assessment Hardware Items 2(a), 2(b), 2(c), 3(a), 3(b), 3(c), 4(a), 4(B), 4(c), 6 partially, and 9 as identified in Appendix A to Section 14.3.12 of NUREG-0800.

The Fermi 3 COL application, Part 10, Table 13.4-201 and Part 10, Section 3 has adequately addressed the requirements of 10 CFR 73.55(a)(4).

The Fermi 3 COL application, Part 10, Table 2.2.1-1 partially addressed PS-ITAAC 6. The application references the ESBWR DCD, which also partially addressed PS-ITAAC 6. The NRC staff determined the between both the Fermi 3 COL and the ESBWR DCD all elements of the PS-ITAAC 6 are adequately addressed as identified in Appendix A to Section 14.3.12 of NUREG-0800.

The staff has determined that the Detection and Assessment Hardware PS-ITAAC, described in NUREG-0800, Section 14.3.12 has been fully addressed between the Fermi 3 submission and the ESBWR DCD.

13.6.A.4.2 Delay or Barrier Design

The applicant submitted PS-ITAAC, in Revision 4 of the Fermi 3 COL application, Part 10, Table 2.2.1-1, "ITAAC for the Site-Specific Security System". The Detroit Edison Fermi 3 COLA incorporates by reference the ESBWR DCD Tier 1, Table 2.19-1, Revision 9, design commitments and ITAAC for the physical security system to be used at the Fermi 3.

The PS-ITAAC listed below reference numbers are from NUREG-0800, SRP 14.3.12, "Physical Security Hardware - Appendix "A"," and are used to provide clarification of the ITAAC related to "Delay or Barrier Design."

PS-ITAAC 1. Vital Area and Vital Area Barrier:

- a. Vital equipment will be located only within a vital area.
- b. Access to vital equipment will require passage through at least two physical barriers.

PS-ITAAC 8. Personnel, Vehicle, and Material Access Control Portals and Search Equipment:

- a. Access control points will be established and designed to control personnel and vehicle access into the protected area.
- b. Access control points will be established and designed with equipment for the detection of firearms, explosives, and incendiary devices at the protected area personnel access points.

Accordingly, the NRC staff determined that the Fermi 3 COL application, Part 10, Table 2.2.1-1 has adequately addressed, PS-ITAAC for Delay or Barrier Design Items 8(a), 8(b), identified in Appendix A to Section 14.3.12 of NUREG-0800.

The Fermi 3 COL application, Part 10, Table 2.2.1-1 partially addressed PS-ITAAC 1(a) and 1(b). The application references the ESBWR DCD, which also partially addressed PS-ITAAC 1(a) and 1(b). The NRC staff determined that between both the Fermi 3 COL and the ESBWR DCD all elements of the PS-ITAAC 1(a) and 1(b) are adequately addressed as identified in Appendix A to Section 14.3.12 of NUREG-0800.

The staff has determined that PS-ITAAC described in NUREG-0800, Section 14.3.12 has been fully addressed between the Fermi 3 submission and the ESBWR DCD.

13.6.A.4.3 Systems, Hardware, or Features Facilitating Security Response and Neutralization

The applicant submitted PS-ITAAC, in Revision 4 of the Fermi 3 COL application, Part 10, Table 2.2.1-1, "ITAAC for the Site-Specific Security System". The Detroit Edison Fermi 3 COL application incorporates by reference the ESBWR DCD Tier 1, Table 2.19-1, Revision 9, design

commitments and ITAAC for the physical security system to be used as the Fermi 3.

The below listed PS-ITAAC reference numbers are from NUREG-0800, SRP 14.3.12 Physical Security Hardware - Appendix "A" and are used to provide clarification of the ITAAC related to "Systems, Hardware, or Features Facilitating Security Response and Neutralization."

PS-ITAAC 5. Illumination Requirements:

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.

PS-ITAAC 7. Vehicle Control Measures Requirements:

The vehicle barrier system will be designed, installed, and located at the necessary standoff distance to protect against the design-basis threat vehicle bombs.

PS-ITAAC 10. Vehicle Areas Access Control Requirements:

Unoccupied vital areas will be designed with locking devices and intrusion detection devices that annunciate in the Secondary Alarm Station.

PS-ITAAC 11. Alarm Station:

- a. Intrusion detection equipment and video assessment equipment will annunciate and be displayed concurrently in at least two continuously manned onsite alarm stations (Central and Secondary Alarm Stations).
- b. The Secondary Alarm Station will be located inside the protected area and will be designed so that the interior of the alarm station is not visible from the perimeter of the protected area.
- c. 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.
- d. 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).
- e. ITAAC 11(new). In May 2010, Standard Review Plan (SRP) Section 14.3.12 was revised during the review of this application; an additional PS-ITAAC task was added to this section. This new task is addressed by the applicant in Section 15 of the Fermi 3 PSP. The ITAAC

SRP dated January 2010, that was used for review is published in the *Federal Register*. The initial (2007) SRP on date of application meets the requirements under 10 CFR 50.34(h)

PS-ITAAC 12. Secondary Power Supplies for Alarm Annunciation and Communication Equipment Requirements:

The secondary security power supply system for alarm annunciator equipment contained in the Secondary Alarm Station and non-portable communications equipment contained in the Secondary Alarm Station is located within a vital area.

PS-ITAAC 13. Intrusion Detection Systems Console Display:

- 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 location.
- b. Intrusion detection and assessment systems will be designed to provide visual display and audible annunciation of alarms in the Secondary Alarm Station.

PS-ITAAC 14. Intrusion Detection Systems Recording Requirements:

Intrusion detection systems recording equipment will 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.

PS-ITAAC 15. Vital Area Emergency Exits Requirements:

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.

PS-ITAAC 16. Communication:

- a. The Secondary Alarm Station will have conventional (land line) telephone service with the Main Control Room and local law enforcement authorities.
- b. The Secondary Alarm Station will be capable of continuous communication with on-duty security force personnel.
- c. Non-portable communications equipment in the Secondary Alarm Station will remain operable from an independent power source in the event of loss of normal power.

Accordingly, the NRC staff determined that the Fermi 3 COL application, Part 10, Table 2.2.1-1 has adequately addressed, PS-ITAAC for Systems, Hardware, or Features Facilitating Security

Response and Neutralization Items 5, 7, 10 11(a), 11(b), 11(c), 11(d), (Note: 10 CFR 50.34(h), SRP Section 14.3.12 was revised during the review of this application, and an additional PS-ITAAC task was added to this section. This new task is addressed by the applicant in Section 15 of the Fermi 3 PSP), 12, 13(a), 13(b), 15, 16(a), 16(b), 16(c), identified in Appendix A to Section 14.3.12 of NUREG-0800.

The Fermi 3 COL application, Part 10, Table 2.2.1-1 partially addressed PS-ITAAC Items 10, 11(b), 12, 13(a), 13(b), 14, 15, 16(a), 16(b), 16(c). The application references the ESBWR DCD, which also partially addressed PS-ITAAC Items 10, 11(b), 12, 13(a), 13(b), 14, 15, 16(a), 16(b), 16(c). The NRC staff determined that between both the Fermi 3 COL and the ESBWR DCD all elements of the PS-ITAAC Items 10, 11(b), 12, 13(a), 13(b) 14, 15, 16(a), 16(b), 16(c) are adequately addressed as identified in Appendix A to Section 14.3.12 of NUREG-0800.

The staff has determined that Systems, Hardware, or Features Facilitating Security Response and Neutralization PS-ITAAC described in NUREG-0800, Section 14.3.12 has been fully addressed between the Fermi 3 submission and the ESBWR DCD.

License Condition

- Part 10, License Condition

The staff has reviewed the license condition below against the recommendations in SECY-05-0197 as endorsed by the related SRM, dated February 22, 2006. The staff concluded that the proposed license condition conforms to the guidance in SECY-05-0197. In February 2013, DTE submitted a revised FSAR Table 13.4-201 and Part 10, of their COL application, which confirms the addition of the Operational Program Readiness milestone requirements for Physical Security.

In addition the staff proposes the following License Condition for ITAAC for Physical Security:

Operational Program Readiness

The licensee shall submit to the appropriate Director of the NRC, a schedule, no later than 12 months after issuance of the COL, that supports planning for and conduct of NRC inspections of operational programs listed in the operational program FSAR Table 13.4-201. The schedule shall be updated every 6 months until 12 months before scheduled fuel loading, and every month thereafter until either the operational programs in the FSAR table have been fully implemented or the plant has been placed in commercial service, whichever comes first. This schedule shall also address:

- a. The implementation of site specific Severe Accident Management Guidance.
- b. The spent fuel rack coupon monitoring program implementation.

The licensee shall perform and satisfy the ITAAC defined in FSAR Table 2.2.1-1, "ITAAC for the Site-Specific Physical Security," as shown in Attachment 1 of the SER.

13.6.A.5 Post-Combined License Activities

License Condition 13.6A-1: The licensee shall submit to the appropriate Director of the NRC, a schedule, no later than 12 months after issuance of the COL, that supports planning for and conduct of NRC inspections of operational programs listed in the operational program FSAR Table 13.4-201. The schedule shall be updated every 6 months until 12 months before scheduled fuel loading, and every month thereafter until the operational programs in the FSAR table have been fully implemented. This schedule shall also address:

- a. The implementation of site specific Severe Accident Management Guidance.
- b. The spent fuel rack coupon monitoring program implementation.

The licensee shall perform and satisfy the ITAAC defined in FSAR Table 2.2.1-1, "ITAAC for the Site-Specific Physical Security," as shown in Attachment 1 of this SER.

13.6.A.6 Conclusions

The NRC staff's finding related to information incorporated by reference is in NUREG-1966. The NRC staff reviewed the application and checked the referenced DCD. The staff's review confirmed that the applicant addressed the required information relating to PS-ITAAC, and there is no outstanding information expected to be addressed in the Detroit Edison COL FSAR related to this section. The results of the NRC staff's technical evaluation of the information incorporated by reference in the Fermi 3 COL application are documented in NUREG-1966.

The staff concludes that the relevant information presented in the Fermi 3 COL FSAR and the additional information received in the letter dated May 3, 2010, is acceptable based on the applicable regulations specified in Section 13.6.A.4.3 of this SER. The staff based its conclusion on the following:

STD COL 14.3-2-A, as related to PS-ITAAC, is acceptable based on the following discussion. The NRC staff finds that the applicant adequately describes the physical security systems or provides and/or facilitates the implementation of the site-specific protective strategy and security programs as documented in Section 13.6 of this SER. The applicant adequately describes the site-specific PS-ITAAC for meeting the requirements of 10 CFR 73.55 and provides the technical bases for establishing a PS-ITAAC for the protection against acts of radiological sabotage and theft of special nuclear material. The applicant includes systems and features as stated in Fermi 3 COL FSAR, Chapter 13.6 which includes referenced TRs. The applicant has provided adequate descriptions of objectives, prerequisites, test methods, data required, and acceptance criteria for security-related ITAAC for the approval of the Fermi 3 COL.

Attachment 1: FSAR Table 2.2.1-1, “ITAAC for the Site-Specific Physical Security”

Table 2.2.1-1 ITAAC for the Site-Specific Security System		
Design Commitment	Inspections, Tests, Analyses	Acceptance Criteria
1(a). Vital equipment will be located only within a vital area.	1(a). All vital equipment locations will be inspected.	1(a). 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.	1(b). Vital equipment is located within a protected area such that access to the vital equipment requires passage through at least two physical barriers.
2(a). Physical barriers for the protected area perimeter will not be part of vital area barriers.	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.
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 and openings 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.
3(a). Isolation zones will exist in outdoor areas adjacent to the physical barrier at the perimeter of the protected area and will be designed of sufficient size to permit observation and assessment on either side of the barrier.	3(a). The isolation zones in 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 and are of sufficient size to permit observation and assessment of activities on either side of the barrier 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 within the isolation zones will be inspected.	3(b). Isolation zones are equipped with intrusion detection and assessment equipment capable of providing detection and assessment of activities within the isolation zone.

**Table 2.2.1-1
ITAAC for the Site-Specific Security System**

Design Commitment	Inspections, Tests, Analyses	Acceptance Criteria
<p>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 assessment of detected activities.</p>	<p>3(c). Inspections of areas of the protected area perimeter barrier that do not have isolation zones will be performed.</p>	<p>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) 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 assessment of detected activities.</p>
<p>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 alarm stations (central and secondary alarm stations).</p>	<p>4(a). Tests, inspections, or a combination of tests and inspections of the intrusion detection system will be performed.</p>	<p>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 on site alarms stations (central and secondary alarm stations).</p>
<p>4(b). The perimeter assessment equipment will be designed to provide video image recording with real-time and playback capability that can provide assessment of detected activities before and after each alarm annunciation at the protected area perimeter barrier.</p>	<p>4(b). Tests, inspections, or a combination of tests and inspections of the video assessment equipment will be performed.</p>	<p>4(b). The perimeter assessment equipment is capable of real-time and playback video image recording that provides assessment of detected activities before and after each alarm at the protected area perimeter barrier.</p>
<p>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.</p>	<p>4(c). Tests, inspections, or a combination of tests and inspections of the uninterruptible power supply will be performed.</p>	<p>4(c). All 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.</p>
<p>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.</p>	<p>5. The illumination in isolation zones and exterior areas within the protected area will be inspected.</p>	<p>5. Illumination in isolation zones and exterior areas within the protected area is 0.2 foot candles measured horizontally at ground level or alternatively augmented, sufficient to permit assessment and observation.</p>

**Table 2.2.1-1
ITAAC for the Site-Specific Security System**

Design Commitment	Inspections, Tests, Analyses	Acceptance Criteria
6. The external walls, doors, ceiling, and floors in the Secondary Alarm Station, and the last access control function for access to the protected area will be bullet resistant, to at least Underwriters Laboratories Ballistic Standard 752, "The Standard of Safety for Bullet-Resisting Equipment," Level 4, or National Institute of Justice Standard 0108.01, "Ballistic Resistant Protective Materials," Type III.	6. Type test, analysis, or a combination of type test and analysis of the external walls, doors, ceiling, and floors in the Secondary Alarm Station, and 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 Secondary Alarm Station, and the last access control function for access to the protected area are bullet resistant to at least Underwriters Laboratories Ballistic Standard 752, Level 4, or National Institute of Justice Standard 0108.01, Type III.
7. The vehicle barrier system will be designed, installed, and located at the necessary standoff distance to protect against the design-basis threat vehicle bombs.	7. Type test, inspections, analysis or a combination of type tests, inspections, and analysis will be performed for the vehicle barrier system	7. A report exists and concludes that the vehicle barrier system will protect against the threat vehicle bombs based on the standoff distance for the system.
8(a). Access control points will be established and designed to control personnel and vehicle access into the protected area.	8(a). Tests, inspections, or a combination of tests and inspections of installed systems and equipment will be performed.	8(a). Access control points exist for the protected area and are configured to control access.
8(b). Access control points will be established and designed with equipment for the detection of firearms, explosives, and incendiary devices at the protected area personnel access points.	8(b). Tests, inspections, or a combination of tests and inspections of installed systems and equipment will be performed.	8(b). Detection equipment exists and is capable of detecting firearms, explosives, and incendiary devices at the protected area personnel access control points.
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 unescorted access authorization.
10. Unoccupied vital areas will be designed with locking devices and intrusion detection devices that annunciate in the Secondary Alarm Station.	10. Tests, inspections, or a combination of tests and inspections of unoccupied vital area intrusion detection equipment and locking devices will be performed.	10. Unoccupied vital areas are locked, and intrusion is detected and annunciated in the Secondary Alarm Station.
11(a). Intrusion detection equipment and video assessment equipment will annunciate and be displayed concurrently in at least two continuously manned onsite alarm stations (Central and Secondary Alarm Stations).	11(a). Tests, inspections, or a combination of tests and inspections 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).

**Table 2.2.1-1
ITAAC for the Site-Specific Security System**

Design Commitment	Inspections, Tests, Analyses	Acceptance Criteria
11(b). The Secondary Alarm Station will be located inside the protected area and will be designed so that the interior of the alarm station is not visible from the perimeter of the protected area.	11(b). The Secondary Alarm Station location will be inspected.	11(b). The Secondary Alarm Station is located inside the protected area, and the interior of the alarm station is not visible from the perimeter of the protected area.
11(c). 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(c). Tests, inspections, or a combination of tests and inspections of the Central and Secondary Alarm Stations will be performed.	11(c). 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(d). 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(d). Tests, inspections, or a combination of tests and inspections of the Central and Secondary Alarm Stations will be performed.	11(d). 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).
12. The secondary security power supply system for alarm annunciator equipment contained in the Secondary Alarm Station and non-portable communications equipment contained in the Secondary Alarm Station is located within a vital area.	12. The secondary security power supply system will be inspected.	12. The secondary security power supply system for alarm annunciator equipment contained in the Secondary Alarm Station and non-portable communications equipment contained in the Secondary Alarm Station is located within a vital area.

**Table 2.2.1-1
ITAAC for the Site-Specific Security System**

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 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 (e.g., an automatic indication is provided when failure of the alarm system or a component occurs, or when the system is on standby power), and the alarm annunciation indicates the type of alarm (e.g., intrusion alarm, emergency exit alarm) and location.
13(b). Intrusion detection and assessment systems will be designed to provide visual display and audible annunciation of alarms in the Secondary Alarm Station.	13(b). Intrusion detection and assessment systems will be tested.	13(b). The intrusion detection and assessment systems provide a visual display and audible annunciation of alarms in the Secondary Alarm Station (concurrently with the display and annunciation in the Central Alarm Station).
14. No Site-Specific ITAAC specified.	14. No Site-Specific ITAAC specified.	14. No Site-Specific ITAAC specified.
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, inspections, or a combination of tests and inspections 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.
16(a). The Secondary Alarm Station will have conventional (land line) telephone service with the Main Control Room and local law enforcement authorities.	16(a). Tests, inspections, or a combination of tests and inspections of the Secondary Alarm Stations' conventional (land line) telephone service will be performed.	16(a). The Secondary Alarm Station is equipped with conventional (land line) telephone service with the Main Control Room and local law enforcement authorities.
16(a). The Secondary Alarm Station is equipped with conventional (land line) telephone service with the Main Control Room and local law enforcement authorities.	16(b). Tests, inspections, or a combination of tests and inspections of the Secondary Alarm Stations' continuous communication capabilities will be performed.	16(b). The Secondary Alarm Station is 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.

**Table 2.2.1-1
ITAAC for the Site-Specific Security System**

Design Commitment	Inspections, Tests, Analyses	Acceptance Criteria
16(c). Non-portable communications equipment in the Secondary Alarm Station will remain operable from an independent power source in the event of loss of normal power.	16(c). Tests, inspections, or a combination of tests and inspections of the non-portable communications equipment will be performed.	16(c). All non-portable communication devices (including conventional telephone systems) in the Secondary Alarm Station are wired to an independent power supply that enables those systems to remain operable (without disruption) during the loss of normal power.