

**5.0 Physical Security ITAAC**

This set of ITAAC is tailored to the ABWR reactor design and Security Program requirements for STP 3 & 4. Table 5.0-1 addresses security requirements associated with the generic PS-ITAAC contained in NUREG-0800 14.3.12, "Physical Security Hardware." Table 5.0-1 provides the Security ITAAC proposed for STP 3 & 4.

5.0-2

**PS-ITAAC #1 Vital Area and Vital Area Barrier Requirements:**

<b>Design Commitment</b>	<b>Inspections, Tests, Analysis</b>	<b>Acceptance Criteria</b>
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.

**PS-ITAAC #2 Protected Area Barrier Requirements:**

Design Commitment	Inspections, Tests, Analysis	Acceptance Criteria
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.

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**PS-ITAAC #3 Isolation Zone Requirements:**

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

**PS-ITAAC #4 Protected Area Perimeter Intrusion Detection and Assessment Systems Requirements:**

<b>Design Commitment</b>	<b>Inspections, Tests, Analysis</b>	<b>Acceptance Criteria</b>
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).	4(a). Tests, inspections, or a combination of tests and inspections of the intrusion detection system will be performed.	4(a). The intrusion detection system can detect penetration or attempted penetration of the protected area perimeter barrier before completed penetration of the barrier, and subsequent alarms annunciate concurrently in at least two continuously manned onsite alarms stations (central and secondary alarm stations).
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.	4(b). Tests, inspections, or a combination of tests and inspections of the video assessment equipment will be performed.	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 annunciation at the protected area perimeter barrier.
4(c). The intrusion detection and assessment equipment at the protected area perimeter will be designed to remain operable from an uninterruptible power supply in the event of the loss of normal power.	4(c). Tests, inspections, or a combination of tests and inspections of the uninterruptible power supply will be performed.	4(c). All Intrusion detection and assessment equipment at the protected area perimeter remains operable from an uninterruptible supply in the event of the loss of normal power.  Reference Interdiction Capability Evaluation

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**PS-ITAAC #5 Illumination Requirements:**

10 CFR 73.55(i)(6)(ii). "The licensee shall provide a minimum illumination level of 0.2 foot-candles, measured horizontally at ground level, in the isolation zones and appropriate exterior areas within the protected area."

Design Commitment	Inspections, Tests, Analysis	Acceptance Criteria
5. Isolation zones and exterior areas within the protected area will be provided with illumination to permit assessment in the isolation zones and observation of activities within exterior areas of the protected area.	5. The illumination in isolation zones and exterior areas within the protected area will be inspected.	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.

**PS-ITAAC #6 Bullet-Resisting Barriers Requirements:**

Design Commitment	Inspections, Tests, Analysis	Acceptance Criteria
6. The external walls, doors, ceiling, and floors in the main control room, central alarm station, secondary alarm station, and the last access control function for access to the protected area 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 main control room, central alarm station, 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 main control room, central alarm station, secondary alarm station, and the last access control function for access to the protected area are bullet resistant to at least Underwriters Laboratories Ballistic Standard 752, Level 4, or National Institute of Justice Standard 0108.01, Type III.

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**PS-ITAAC #7 Vehicle Control Measures Requirements:**

Design Commitment	Inspections, Tests, Analysis	Acceptance Criteria
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 design-basis threat vehicle bombs based on the standoff distance for the system.  Reference Interdiction Capability Evaluation



**PS-ITAAC #8 Personnel, Vehicle, and Material Access Control Portals and Search Equipment Requirements:**

<b>Design Commitment</b>	<b>Inspections, Tests, Analysis</b>	<b>Acceptance Criteria</b>
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.

**STP 3 & 4****Inspections, Tests, Analyses, Acceptance Criteria****PS-ITAAC #9 Picture Badge Identification System Requirements:**

<b>Design Commitment</b>	<b>Inspections, Tests, Analysis</b>	<b>Acceptance Criteria</b>
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.

**STP 3 & 4****Inspections, Tests, Analyses, Acceptance Criteria****PS-ITAAC #10 Vital Areas Access Control Requirements:**

<b>Design Commitment</b>	<b>Inspections, Tests, Analysis</b>	<b>Acceptance Criteria</b>
10. Unoccupied vital areas will be designed with locking devices and intrusion detection devices that annunciate in the central and secondary alarm stations.	10. Tests, 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 both the central and secondary alarm stations.

**PS-ITAAC #11 Alarm Station Requirements:**

Design Commitment	Inspections, Tests, Analysis	Acceptance Criteria
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).  Reference Interdiction Capability Evaluation
11(b). Central and secondary alarm stations will be located inside the protected area and will be designed so that the interiors of both alarm stations are not visible from the perimeter of the protected area.	11(b). The central and secondary alarm station locations will be inspected.	11(b). Central and secondary alarm stations are located inside the protected area, and the interiors of both alarm stations are not visible from the perimeter of the protected area.  Reference Interdiction Capability Evaluation
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.  Reference Interdiction Capability Evaluation
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.)  Reference Interdiction Capability Evaluation

**STP 3 & 4****Inspections, Tests, Analyses, Acceptance Criteria****PS-ITAAC #12 Secondary Power Supplies for Alarm Annunciation and Communication Equipment Requirements:**

<b>Design Commitment</b>	<b>Inspections, Tests, Analysis</b>	<b>Acceptance Criteria</b>
12. The secondary security power supply system for alarm annunciator equipment and nonportable communications equipment will be located within a vital area.	12. The secondary security power supply system will be inspected.	12. The secondary security power system for alarm annunciator equipment and nonportable communications equipment is located within a vital area.

**PS-ITAAC #13 Intrusion Detection Systems Console Display Requirements:**

Design Commitment	Inspections, Tests, Analysis	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 both the central and secondary alarm stations.	13(b). Intrusion detection and assessment systems will be tested.	13(b). The intrusion detection systems provide a visual display and audible annunciation of all alarms concurrently in at least two continuously manned onsite alarms stations (central and secondary alarm stations).

**PS-ITAAC #14 Intrusion Detection Systems Recording Requirements:**

Design Commitment	Inspections, Tests, Analysis	Acceptance Criteria
14. 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.	14. The intrusion detection systems recording equipment will be tested.	14. Intrusion detection systems recording equipment is capable of recording each onsite security alarm annunciation including 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:**

<b>Design Commitment</b>	<b>Inspections, Tests, Analysis</b>	<b>Acceptance Criteria</b>
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.



**PS-ITAAC #16 Communication Requirements:**

<b>Design Commitment</b>	<b>Inspections, Tests, Analysis</b>	<b>Acceptance Criteria</b>
16(a). The central and secondary alarm stations will have conventional (land line) telephone service with the control room and local law enforcement authorities.	16(a). Tests, inspections, or a combination of tests and inspections of the central and secondary alarm stations' conventional (land line) telephone service will be performed.	16(a). The central and secondary alarm stations are equipped with conventional (land line) telephone service with the control room and local law enforcement authorities.
16(b). The central and secondary alarm stations will be capable of continuous communication with on-duty security force personnel.	16(b). Tests, inspections, or a combination of tests and inspections of the central and secondary alarm stations' continuous communication capabilities will be performed.	16(b). The central and secondary alarm stations are capable of continuous communication with on-duty watchmen, armed security officers, armed responders, or other security personnel who have responsibilities within the physical protection program and during contingency response events.
16(c). Nonportable communications equipment in the central and secondary alarm stations 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 nonportable communications equipment will be performed.	16(c). All nonportable communication devices (including conventional telephone systems) in the central and secondary alarm stations are wired to an independent power supply that enables those systems to remain operable (without disruption) during the loss of normal power.

