

## **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.

**Table 5.0-1 ~~Physical Security—Inspection, Test, Analysis, and Acceptance Criteria~~  
(PS-ITAAC)<sup>1</sup>-**

<del>Design Description</del>	<del>Inspections, Tests, Analysis</del>	<del>Acceptance Criteria</del>
<del>(1) Vital equipment shall be located only within a vital area.  (2) Access to vital equipment requires passage through at least two physical barriers.</del>	<del>Inspections will be performed of the location of as installed vital equipment.</del>	<del>(1) Vital equipment is located only within a vital area.  (2) Access to the vital area has at least two physical barriers</del>
<del>Physical barriers for the protected area perimeter are not part of a vital area barrier.</del>	<del>An inspection of the protected area perimeter barrier will be performed.</del>	<del>Physical barriers at the perimeter of the protected area are separated from other barriers designated as a physical barrier.</del>
<del>Isolation zones shall be maintained in outdoor areas adjacent to the physical barrier at the perimeter of the protected area permit observation on either side of the barrier.</del>	<del>An inspection will be performed of the outdoor areas adjacent to the physical barrier at the perimeter of the protected area.</del>	<del>Isolation zones exist in outdoor areas adjacent to the physical barrier at the perimeter of the protected area and are large enough to permit observation of the activities of people on either side of the barrier.</del>
<del>Intrusion detection system detects penetration or attempted penetration of the Protected Area (PA) Barrier.</del>	<del>Tests of the protected area (PA) intrusion detection system will be performed using simulated penetration.</del>	<del>The intrusion detection system detects the simulated penetration of the PA barrier and alarms annunciate in the CAS and SAS.</del>
<del>Exterior areas within the protected area are illuminated.</del>	<del>Tests will be performed of the illumination in the isolation zones of the PA and the external areas within the PA.</del>	<del>Illumination in isolation zones and exterior areas within the protected area is not less than 0.2 footcandle measured horizontally at ground level.</del>
<del>External walls, doors, ceiling and floors in the main control room, central alarm station, and the last access control function for access to the protected area are bullet resistant.</del>	<del>Inspections, analysis or a combination of inspections and analysis of the walls, doors, ceiling and floors will be performed for the main control room, central alarm station, and the last access control function for access to the protected area are bullet resistant.</del>	<del>The walls, doors, ceiling and floors have been constructed and analysis demonstrate the the main control room, central alarm station, and the last access control function for access to the protected area are bullet resistant.</del>

**Table 5.0-1 ~~Physical Security—Inspection, Test, Analysis, and Acceptance Criteria~~  
(PS-ITAAC)<sup>1</sup> ~~(Continued)~~**

<b>Design Description</b>	<b>Inspections, Tests, Analysis</b>	<b>Acceptance Criteria</b>
<del>Vehicle barrier systems protect against use of a land vehicle.</del>	<del>Inspections, analysis or a combination of inspections and analysis of the systems will be performed for vehicle control measures, including vehicle barrier systems.</del>	<del>The vehicle control measures, including vehicle barrier systems, have been constructed and analysis demonstrate the Vehicle Barrier System is capable of protecting against the land vehicle bomb.</del>
<del>Personnel and vehicle control into the protected area at access points protect against the intrusion of firearms, explosives and incendiary devices.</del>	<del>A test of the personnel search and detection equipment and procedures will be performed at the PA boundary.</del>	<del>Search and detection equipment and procedures identify firearms, explosives and incendiary devices prior to entering the Protected Area.</del>
<del>A picture badge identification system exists.</del>	<del>A test of the numbered picture badge identification system will be performed using an unauthorized picture badge.</del>	<del>The picture badge identification system does not allow access to the person with the unauthorized picture badge.</del>
<del>Unoccupied vital areas are equipped with locks that can be locked and alarmed, and activated intrusion detection systems that annunciate in the Central and Secondary Alarm Stations upon intrusion into a vital area.</del>	<del>A combination of tests and inspections will be performed of access points to unoccupied vital areas by personnel who attempt to gain access to the unoccupied vital areas.</del>	<del>(1) Access points to unoccupied vital areas are equipped with locks. (2) The attempts to intrude in the unoccupied vital areas are detected and annunciated in both the CAS and SAS.</del>
<del>Alarm annunciation occurs in the central alarm station and in at least one other continuously manned station not necessarily onsite.</del>	<del>Tests of the installed detection annunciation systems will be performed using simulated intrusion.</del>	<del>Upon simulated intrusion, alarms annunciate in a continuously manned central alarm station located within the protected area and in at least one other continuously manned station.</del>
<del>Secondary security power supply system for alarm annunciator equipment and non-portable communications equipment is located within a vital area.</del>	<del>Inspections will be performed of the location secondary security power supply system and non-portable communication equipment.</del>	<del>Onsite secondary power supply systems for alarm annunciator equipment and non-portable communications equipment are located within a vital area.</del>

**Table 5.0-1 Physical Security—Inspection, Test, Analysis, and Acceptance Criteria (PS-ITAAC)<sup>4</sup>—(Continued)**

<b>Design Description</b>	<b>Inspections, Tests, Analysis</b>	<b>Acceptance Criteria</b>
Alarm devices including transmission lines to annunciators are tamper-indicating and self-checking.—Alarm annunciation indicate the type of alarm and location.	A test will be performed of the alarm devices by tampering with the devices.	(1) Self-detection provision within the alarm devices detect the tampering.  (2) The alarm annunciation system identifies that tampering has occurred and the location of the tampering.
An onsite alarm annunciation system records the location, circuit, date, time and type of each alarm, false alarm, alarm check, and tamper indication.	Tests will be performed of the onsite alarm annunciation system using simulated intrusion and tampering.	The onsite alarm annunciation system records the simulated intrusion and tampering, including the type of alarm, location, alarm circuit, date, and time.
Emergency exits in each protected area and each vital area are alarmed.	A test is performed of each emergency exit in the protected area and vital area by opening the exit doors.	When the emergency exits are opened, an alarm is initiated.
(1) Alarm stations have conventional telephone service with law enforcement authorities. (2) Alarm stations have continuous communication capability with security personnel.	Tests will be performed of the communications systems in the alarm stations.	Through use of the communication systems in the the alarm stations: (1) security personnel communicate with law enforcement authorities and (2) security personnel communicate with security officers, watchmen, and armed response individuals in the field.

<sup>4</sup> Physical Security Hardware—Equipment and/or features used for the physical security attributes of detection, assessment, delay, and response and to protect against the design-basis threat of radiological sabotage as stated in 10 CFR 73.1(a). Examples of physical security system hardware include, but are not limited to, communication systems, assessment and alarm systems, locks, personnel access control, physical equipment barriers, and surveillance devices.

Table 5.0-1 Physical Security— Inspection, Test, Analysis, and Acceptance Criteria (PS-ITAAC)<sup>1</sup>

<u>Design Commitment</u>	<u>Inspections, Tests, Analyses</u>	<u>Acceptance Criteria</u>
<p><u>1. Vital Equipment</u></p> <p><u>(a) Vital equipment is located only within a vital area.</u></p> <p><u>(b) Access to vital equipment requires passage through at least two physical barriers.</u></p>	<p><u>(a) Inspections will be performed to confirm that vital equipment is located within a vital area.</u></p> <p><u>(b) Inspections will be performed to confirm that access to vital equipment requires passage through at least two physical barriers.</u></p>	<p><u>A report exists and concludes that</u></p> <p><u>(a) vital equipment is located only within a vital area, and</u></p> <p><u>(b) access to the vital equipment requires passage through at least two physical barriers.</u></p>
<p><u>2. Physical barriers for the protected area perimeter are not part of vital area barriers.</u></p>	<p><u>An inspection of the protected area perimeter barrier will be performed to verify that physical barriers at the perimeter of the protected area are separated from any other barrier designated as a vital area barrier.</u></p>	<p><u>A report exists and concludes that physical barriers at the perimeter of the protected area are separated from any other barrier designated as a vital area barrier.</u></p>
<p><u>3. Isolation zones exist in outdoor areas adjacent to the physical barrier at the perimeter of the protected area that allow 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.</u></p>	<p><u>An inspection of the isolation zone will be performed to verify that the isolation zones exist in outdoor areas adjacent to the physical barrier at the perimeter of the protected area which allows 20 feet of observation of the activities of people on either side of the barrier except where permanent buildings do not allow a 20 foot observation distance on the inside of the protected area barrier, the inspection will confirm that the building walls are immediately adjacent to, or an integral part of, the protected area barrier.</u></p>	<p><u>A report exists and concludes that isolation zones exist in outdoor areas adjacent to the physical barrier at the perimeter of the protected area and allow 20 feet of observation of the activities of people 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 and the 20 foot observation distance does not apply.</u></p>
<p><u>4. Intrusion detection system can detect penetration or attempted penetration of the protected area barrier.</u></p>	<p><u>Tests, inspections or a combination of tests and inspections of the intrusion detection system will be performed to verify the system can detect penetration or attempted penetration of the protected area barrier and that subsequent alarms annunciate in both the Central Alarm Station and Secondary Alarm Station.</u></p>	<p><u>A report exists and concludes that the intrusion detection system can detect penetration or attempted penetration of the protected area barrier and subsequent alarms annunciate in the Central Alarm Station and Secondary Alarm Station.</u></p>

Table 5.0-1 Physical Security— Inspection, Test, Analysis, and Acceptance Criteria (PS-ITAAC)<sup>1</sup> (Continued)

<u>Design Commitment</u>	<u>Inspections, Tests, Analyses</u>	<u>Acceptance Criteria</u>
<u>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.</u>	<u>Inspection of the illumination in the isolation zones and external areas of the protected area will be performed to confirm sufficient illumination to permit observation.</u>	<u>A report exists and concludes that illumination in isolation zones and exterior areas within the protected area is 0.2 foot candles measured horizontally at ground level or, alternatively, sufficient to permit observation.</u>
<u>6. The external walls, doors, ceiling and floors in the main control room, central alarm station, and the last access control function for access to the protected area are bullet resistant to at least a UL level 4 round.</u>	<u>Type test, analysis or a combination of type test and analysis will be performed for the external walls, doors, ceilings, floors, and any windows in the walls in the main control room, central alarm station, and the enclosure that houses the individual that has the last access control function for access into the protected area to ensure they are bullet resistant to at least a UL level 4 round.</u>	<u>A report exists and concludes that the walls, doors, ceilings, floors in the main control room, the central alarm station, and the location within which the last access control function for access to the protected area are bullet resistant to at least a UL level 4 round.</u>
<u>7. The vehicle barrier system is installed and located at the necessary stand-off distance to protect against the DBT vehicle bombs.</u>	<u>Type test, inspections, analysis or a combination of type tests, inspections and analysis will be performed for the vehicle barrier system to ensure it will protect against the DBT vehicle bombs based upon the stand-off distance for the system.</u>	<u>A report exists and concludes that the vehicle barrier system will protect against the DBT vehicle bombs based upon the stand-off distance for the system.</u>
<u>8. Access control points are established to:</u>	<u>A test, inspection, or combination of tests and inspections of installed systems and equipment will be performed to verify that access control points to the protected area exist and that:</u>	<u>A report exists and concludes that:</u>
<u>(a) Control personnel and vehicle access into the protected area.</u>	<u>(a) Personnel and vehicle access into the protected area is controlled.</u>	<u>(a) Access points for the protected area are configured to control access.</u>
<u>(b) Detect firearms, explosives, and incendiary devices at the protected area personnel access points.</u>	<u>(b) Detection equipment is capable of detecting explosives, incendiary devices, and firearms at the protected area personnel access points.</u>	<u>(b) Detection equipment is capable of detecting firearms, incendiary devices, and explosives at the protected area personnel access points.</u>
<u>9. An access control system with numbered picture badges is installed for use by individuals who are authorized access to protected areas without escort.</u>	<u>A test of the access control system with numbered picture badges will be performed to verify that unescorted access to protected areas is granted only to authorized personnel.</u>	<u>A report exists and concludes that the access authorization system with numbered picture badges can identify and authorize protected area access only to those personnel with unescorted access authorization.</u>

Table 5.0-1 Physical Security— Inspection, Test, Analysis, and Acceptance Criteria (PS-ITAAC)<sup>1</sup> (Continued)

<u>Design Commitment</u>	<u>Inspections, Tests, Analyses</u>	<u>Acceptance Criteria</u>
<u>10. Unoccupied vital areas are locked and alarmed with activated intrusion detection systems that annunciate in the Central and Secondary Alarm Stations upon intrusion into a vital area.</u>	<u>A test, inspection, or a combination of tests and inspections will be performed to verify that unoccupied vital areas are locked and that intrusion will be detected and annunciated in both the Central Alarm Station and Secondary Alarm Station.</u>	<u>A report exists and concludes that unoccupied vital areas are locked and intrusion is detected and annunciated in both the Central Alarm Station and Secondary Alarm Station.</u>
<u>11. Security alarm annunciation occurs in the central alarm station and in at least one other continuously manned station not necessarily onsite.</u>	<u>Test, inspection or a combination of tests and inspections of the installed systems will be performed to ensure that security alarms annunciate in the central alarm station and in at least one other continuously manned station.</u>	<u>A report exists and concludes that security alarms annunciate in the central alarm station and in at least one other continuously manned station.</u>
<u>12. Secondary security power supply system for alarm annunciator equipment and non-portable communications equipment is located within a vital area.</u>	<u>An inspection will be performed to ensure that the location of the secondary security power supply system for alarm annunciator equipment and non-portable communications equipment is within a vital area.</u>	<u>A report exists and concludes that the secondary security power system for alarm annunciator equipment and non-portable communications equipment is located within a vital area.</u>
<u>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), and alarm annunciation indicates the type of alarm, (e.g., intrusion alarms, emergency exit alarm, etc.) and location.</u>	<u>A test will be performed to verify that security alarms 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) and that alarm annunciation indicates the type of alarm, (e.g., intrusion alarms, emergency exit alarm, etc.) and location.</u>	<u>A report exists and concludes that 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 that alarm annunciation indicates the type of alarm, (e.g., intrusion alarms, emergency exit alarm, etc.) and location.</u>

**Table 5.0-1 Physical Security— Inspection, Test, Analysis, and Acceptance Criteria (PS-ITAAC)<sup>1</sup> (Continued)**

<u>Design Commitment</u>	<u>Inspections, Tests, Analyses</u>	<u>Acceptance Criteria</u>
<u>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.</u>	<u>Tests will be performed to ensure that 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.</u>	<u>A report exists and concludes that 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.</u>
<u>15. Emergency exits through the protected area perimeter and vital area boundaries are alarmed.</u>	<u>Test, inspection or a combination of tests and inspections will be performed to verify that emergency exits through the protected area perimeter and vital area boundaries are alarmed.</u>	<u>A report exists and concludes that emergency exits through the protected area perimeter and vital area boundary are alarmed.</u>
<u>16. The central and secondary alarm stations:</u>  <u>(a) Central and secondary alarm stations have conventional (land line) telephone service and other communication capabilities with local law enforcement authorities.</u>  <u>(b) Central and secondary alarm stations are capable of continuous communication with security personnel.</u>	<u>Test, inspection, or a combination of tests and inspections will be performed to verify that:</u>  <u>(a) The alarm stations are equipped with conventional (land line) telephone service and other capability to communicate with local law enforcement authorities.</u>  <u>(b) The alarm stations are equipped with the capability to continuously communicate with security officers, watchmen or armed response individuals, or other security personnel that have responsibilities during a contingency event.</u>	<u>A report exists and concludes that the alarm stations:</u>  <u>(a) are equipped with conventional (land line) telephone service and other capability to communicate with local law enforcement authorities: and</u>  <u>(b) are equipped with the capability to continuously communicate with security officers, watchmen or armed response individuals, or other security personnel that have responsibilities during a contingency event.</u>

<sup>1</sup> Physical Security Hardware—Equipment and/or features used for the physical security attributes of detection, assessment, delay, and response and to protect against the design basis threat of radiological sabotage as stated in 10 CFR 73.1(a). Examples of physical security system hardware include, but are not limited to, communication systems, assessment and alarm systems, locks, personnel access control, physical equipment barriers, and surveillance devices.