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U. S. Nuclear Regulatory Commission  
Attention: Document Control Desk  
Washington, D. C. 20555

Serial No. NA3-12-023R  
Docket No. 52-017  
COL/WDC

**DOMINION VIRGINIA POWER**  
**NORTH ANNA UNIT 3 COMBINED LICENSE APPLICATION**  
**SRP 14.03.12: RESPONSE TO RAI LETTER 104**

On August 6, 2012, the NRC requested additional information to support the review of certain portions of the North Anna Unit 3 Combined License Application (COLA) which consisted of one question. The response to the following Request for Additional Information (RAI) Question is provided in Enclosure 1:

- RAI 6568 Question 14.03.12-4 Physical Security Hardware ITAAC Abstracts

This information will be incorporated into a future submission of the North Anna Unit 3 COLA, as described in the enclosure.

Please contact Regina Borsh at (804) 273-2247 (regina.borsh@dom.com) if you have questions.

Very truly yours,

A handwritten signature in black ink, appearing to read "Eugene S. Grecheck".

Eugene S. Grecheck

DD89  
NRD

Enclosure:

1. Response to RAI Letter Number 104, RAI 6568 Question 14.03.12-4

Commitments made by this letter:

1. Incorporate proposed changes in a future COLA submission.

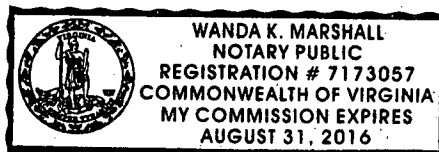
COMMONWEALTH OF VIRGINIA

COUNTY OF HENRICO

The foregoing document was acknowledged before me, in and for the County and Commonwealth aforesaid, today by Eugene S. Grecheck, who is Vice President-Nuclear Development of Virginia Electric and Power Company (Dominion Virginia Power). He has affirmed before me that he is duly authorized to execute and file the foregoing document on behalf of the Company, and that the statements in the document are true to the best of his knowledge and belief.

Acknowledged before me this 24<sup>th</sup> day of October, 2012  
My registration number is 7173057 and my  
Commission expires: August 31, 2016

Wanda K. Marshall  
Notary Public



cc: U. S. Nuclear Regulatory Commission, Region II  
C. P. Patel, NRC  
T. S. Dozier, NRC  
G. J. Kolcum, NRC

**ENCLOSURE 1**

**Response to NRC RAI Letter No. 104**

**RAI No. 6568, Question 14.03.12-4**

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**RESPONSE TO REQUEST FOR ADDITIONAL INFORMATION**

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**North Anna Unit 3**

**Dominion**

**Docket No. 52-017**

**RAI NO.: 6568 (RAI Letter 104)**

**SRP SECTION: 14.03.12 – Physical Security Hardware – Inspections, Tests, Analysis,  
and Acceptance Criteria**

**QUESTIONS for Reactor Security Rulemaking and Licensing Branch (NSIR/DSP/RSRLB)**

**DATE OF RAI ISSUE: 08/06/12**

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**QUESTION NO.: 14.03.12-4**

(U) Part 10, "ITAAC and Proposed License Conditions, Appendix C, Physical Security Hardware" and Part 2, FSAR Chapter 14, Section 14.3.4.12, "ITAAC for Physical Security Hardware" in regard to NAPS COL 14.3(3):

(U) 1) Provide Test Abstracts for the North Anna Unit 3 Physical Security Hardware ITAAC that support the site specific physical security inspections, tests, analyses, and acceptance criteria (ITAAC) identified in Appendix C. Update the appropriate sections of the North Anna Unit 3 COL application (e.g., Part 10, Appendix C, 'Physical Security Hardware') to clearly describe or incorporate the test abstracts.

(U) 2) With the provision of the Test Abstracts, appropriate changes to the North Anna 3 Part 2 FSAR, page 14-26, NAPS COL 14.3(3), should be made to remove the last sentence, which states "Physical security ITAAC test abstracts supporting the site-specific physical security ITAAC are available for review and inspection prior to implementation."

(U) Regulatory Basis: Subpart C, Title 10 CFR 52.80(a). "The application must contain [the] proposed inspections, tests, and analyses, including those applicable to emergency planning, that the licensee shall perform, and the acceptance criteria that are necessary and sufficient to provide reasonable assurance that, if the inspections, tests, and analyses are performed and the acceptance criteria met, the facility has been constructed and will be operated in conformity with the combined license, the provisions of the Act, and the Commission's rules and regulations." *The test abstracts describing how identified physical security ITAAC will be verified are required to determine reasonable assurance that inspections, tests, and/or analyses will be performed to meet acceptance criteria and that physical security systems are constructed, installed, and operate to perform their intended functions and meet regulatory requirements.*

(U) US-APWR Design Control Document, section 14.3.4.12 "ITAAC for Physical Security Hardware" and section 14.3.6 "Combined License Information" COL 14.3(3) Revision 3 states:

- o "The COL Applicant provides ITAAC for the facility's physical security hardware not addressed in the DCD, in accordance with RG 1.206 (Reference 14.3-1) as appropriate, and provides abstracts describing the specific inspections, tests, and analysis for the facility's physical security hardware ITAAC not addressed in the DCD".

(U) Part 2: Final Safety Analysis Report, NAPS COL 14.3(3) Revisions 4 and 5 states:

- o "Replace the last paragraph in the DCD Subsection 14.3.4.12 with the following."
- o "Physical security ITAAC test abstracts supporting the site-specific physical security ITAAC are available for review and inspection prior to implementation."

(U) COL Information Item 14.3(3) of the standard US-APWR Design Control Document calls for the COL applicant to identify site-specific physical security hardware ITAAC and provide abstracts. The test abstracts provide the information necessary, *prior to issuance of a COL, for the determination that requirements for reasonable assurance of adequate verification* of key designs, performance, and functions of physical security systems and hardware *with the appropriate inspections, tests, and analyses (ITA) needed, and the adequate verification of appropriate acceptance criteria for intended performance and functions in accordance with designs of physical security systems and hardware* for closure of identified site-specific physical security ITAAC.

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### **Dominion Response**

COL 14.3(3), Revision 3 states the COL applicant will provide abstracts for the site-specific physical security hardware ITAAC. Accordingly, the Dominion North Anna 3 Physical Security Hardware ITAAC Abstracts, Revision 0, August 2012, are provided with this response. The last sentence of FSAR Section 14.3.4.12 will be revised to state, "Physical security ITAAC test abstracts supporting the site-specific physical security ITAAC are provided in the Dominion North Anna 3 Physical Security Hardware ITAAC Abstracts (Reference 14.3-201)." FSAR Section 14.3.7 will be revised to add the abstracts as a reference. No changes are needed to COLA Part 10, Appendix C, "Physical Security Hardware" since the reference to the abstracts is being added to FSAR Section 14.

### **Proposed COLA Revision**

FSAR Sections 14.3.4.12 and 14.3.7 will be revised as indicated on the attached markup.

### **Markup of North Anna COLA**

The attached markup represents Dominion's good faith effort to show how the COLA will be revised in a future COLA submittal in response to the subject RAI. However, the same COLA content may be impacted by revisions to the DCD, responses to other COLA RAIs, other COLA changes, plant design changes, editorial or typographical corrections, etc. As a result, the final COLA content that appears in a future submittal may be somewhat different than as presented herein.

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the IRSF. The ITAAC conform to the guidance in this subsection, as modified to reflect the design and site-specific radiation protection requirements for the IRSF. The design description and radiation protection ITAAC for the IRSF are provided in [Part 10](#) of the COLA.

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#### 14.3.4.10 ITAAC for Emergency Planning

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**STD COL 14.3(2)**

Replace the last paragraph in DCD Subsection 14.3.4.10 with the following.

The selection criteria and methodology provided in Section 14.3 of the referenced DCD are utilized as the site-specific selection criteria and methodology for the facility's emergency planning ITAAC. The ITAAC conform to the guidance in this subsection, as modified to reflect the design and site-specific emergency planning program requirements. The ITAAC for the facility's emergency planning are provided in [Part 10](#) of the COLA.

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#### 14.3.4.12 ITAAC for Physical Security Hardware

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**NAPS COL 14.3(3)**

Replace the last paragraph in DCD Subsection 14.3.4.12 with the following.

The selection criteria and methodology provided in Section 14.3 of the referenced DCD are utilized as the site-specific selection criteria and methodology for site-specific physical security hardware ITAAC not addressed in the DCD. The ITAAC conform to the guidance in this subsection and are consistent with the applicable generic physical security ITAAC in SRP 14.3.12 (Reference 14.3-16) developed by the NRC in coordination with NEI. The site-specific physical security hardware ITAAC are provided in [Part 10](#) of the COLA.

Physical security ITAAC test abstracts supporting the site-specific physical security ITAAC are ~~available for review and inspection prior to implementation~~ [provided in the Dominion North Anna 3 Physical Security Hardware ITAAC Abstracts, \(Reference 14.3.201\)](#).

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#### 14.3.6 Combined License Information

Replace the content of DCD Subsection 14.3.6 with the following.

**STD COL 14.3(1)**  
**NAPS COL 14.3(1)**

**14.3(1) ITAAC for site-specific systems**

*This COL item is addressed in Subsections 14.3.4.6 and 14.3.4.7*



**STD COL 14.3(2)**

**14.3(2) ITAAC for emergency planning**

*This COL item is addressed in Subsection 14.3.4.10.*

**NAPS COL 14.3(3)**

**14.3(3) ITAAC For Physical Security Hardware**

*This COL item is addressed in Subsection 14.3.4.12*

**14.3.7 References**

**Add the following reference after the last reference in DCD Subsection 14.3.7.**

**14.3.201 Dominion North Anna 3 Physical Security Hardware ITAAC Abstracts, Revision 0, October 2012**



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**North Anna  
Unit 3 Physical  
Security  
Hardware  
ITAAC  
Abstracts**

**Revision 0**

October 2012

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**REVISION SUMMARY**

**Revision 0**

<b>Section</b>	<b>Changes</b>	<b>Reason for Change</b>

## **Abstract**

This report provides abstracts for the specific tests, inspections, and analyses to be performed for closing the physical security hardware inspections, tests, analyses, and acceptance criteria (PS-ITAAC) within the scope of the North Anna 3 (NA3) site-specific physical security design. The ITAAC abstracts are provided in the same format used for safety-related and other plant system preoperational tests described in the NA3 Final Safety Analysis Report (FSAR) Chapter 14. Each abstract contains the objectives of each test, inspection, or analysis; the prerequisites; the method for accomplishing the action; and the acceptance criterion. The abstracts provided in this report are one acceptable method for verifying the PS-ITAAC for the site-specific physical security design. Other acceptable methods may be utilized in place of the abstracts provided in this report.

## **Acronyms and Abbreviations**

CAS	Central Alarm Station
COLA	combined license application
DCD	Design Control Document
DBT	Design Basis Threat
IDS	Intrusion Detection System
ITAAC	Inspections, tests, analyses, and acceptance criteria
NEI	Nuclear Energy Institute
PS-ITAAC	Physical security hardware ITAAC
SAS	Secondary Alarm Station
UL	Underwriters Laboratories
VBS	Vehicle Barrier System
NA3	North Anna Unit 3
FSAR	Final Safety Analysis Report
US-APWR	United States-Advanced Pressurized Water Reactor

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## **1.0 Purpose**

The purpose of this report is to provide an acceptable basis for establishing, by testing, inspection or analysis, the functionality for security-related systems as defined by the North Anna Unit 3 (NA3) site-specific physical security hardware inspections, tests, analyses, and acceptance criteria (PS-IT AAC) provided in Part 10 of the NA3 combined license application (COLA) to the Nuclear Regulatory Commission. Security systems are not safety-related and therefore do not meet the requirements for preoperational testing. However, the following abstracts follow the same format and provide a similar level of detail to that provided for preoperational tests on safety-related systems in Chapter 14 of the NA3 FSAR (Reference 10). These abstracts provide the framework for the development of procedures for closing the site-specific PS-IT AAC based on design and specifications for physical security systems and features developed in the detailed design process.

## **2.0 Scope**

The scope of this report is limited to providing abstracts for the testing, inspection or analysis to be undertaken for establishing the functionality of the site-specific PS-IT AAC provided in COLA Part 10. The abstracts in this report provide one acceptable way of testing/inspecting/analyzing security-related systems for verifying the PS-IT AAC. Other acceptable means may be utilized in place of the abstracts provided in this report. Furthermore, the PS-IT AAC abstracts do not constitute an exhaustive list of system acceptance, or other tests and inspections that would be performed for the physical protection systems. The abstracts presume that the necessary construction testing and installation testing to verify proper plant construction, installation, and functionality of plant equipment in accordance with plant design have been performed in accordance with the test program described in FSAR Section 14.2 (Reference 10) (see Departures NAPS DEP 14.2 [1, 2, & 3], Reference 1).

## **3.0 Abstracts for NA3 Plant Physical Security Hardware ITAAC**

This section provides abstracts for the site-specific PS-IT AAC provided in COLA Part 10. For convenience, a comprehensive list of all 16 generic PS-IT AAC and their subparts based on NUREG-0800, Standard Review Plan, Section 14.3.12 (Reference 4) are provided.

Each abstract contains the objectives of the applicable test, inspection or analysis; the prerequisites; the method for accomplishing the action; and the acceptance criterion for establishing the functionality of the site-specific PS-IT AAC. The abstracts are general in nature and provide the framework for the development of detailed procedures for performing such tests, inspections and analyses. The specific testing, inspection or analysis performed and the applicable acceptance criteria for each will be documented in procedures developed under applicable administrative controls. The "acceptance criteria" provided in the abstracts may include additional details which exceed those required to be identified in IT AAC closure letters in accordance with



NEI 08-01 (Reference 9); the abstracts are not intended to provide the precise wording required to be included in the ITAAC closure letters.

### **3.1 ITAAC #1.a (Vital Area and Vital Area Boundaries Inspection)**

Abstract provided in "US-APWR Physical Security Hardware ITAAC Abstracts," MUAP-10003 (Reference 2). This ITAAC is designated #1.a.i in COLA Part 10, Table C-1.

#### **3.1.1 ITAAC #1.a.ii (Vital Area and Vital Area Boundaries Inspection – Plant Specific)**

##### **A. Objective**

To demonstrate that the plant specific vital equipment is located in vital areas.

##### **B. Prerequisites**

1. Plant-specific components listed in "US-APWR Design Certification Physical Security Element Review," UAP-SGI-08001 (Reference 3) and "North Anna Power Station Unit 3 Supplement to US-APWR Design Certification Physical Security Element Review" (Reference 8) are installed.
2. Physical barriers credited as vital area barriers are identified.
3. Required construction testing is complete.

##### **C. Test Method**

Inspection of the installed location of plant-specific vital equipment listed in UAP-SGI-08001 (Reference 3) and "North Anna Power Station Unit 3 Supplement to US-APWR Design Certification Physical Security Element Review" (Reference 8).

##### **D. Acceptance Criteria**

Vital equipment is located only within a vital area to meet 10 CFR 73.55(e)(9)(i) as it relates to vital areas.

### **3.2 ITAAC #1.b (Two Barriers for Access to Vital Equipment)**

##### **A. Objective**

To verify that access to vital equipment listed in "US-APWR Design Certification Physical Security Element Review," UAP-SGI-08001 (Reference 3) and "North Anna Power Station Unit 3 Supplement to US-APWR Design Certification Physical Security Element Review" (Reference 8) requires passage through at least two physical barriers.

**B. Prerequisites**

1. Components listed on the vital equipment list are installed and construction is complete.
2. Physical barriers credited as vital area barriers are identified and construction is complete.
3. Physical barriers credited as protected area barriers are identified and construction is complete.
4. Required construction testing is complete.

**C. Test Method**

Inspection to verify that two physical continuous barriers exist between areas outside of protected areas and the locations of vital equipment listed in UAP-SGI-08001 and "North Anna Power Station Unit 3 Supplement to US-APWR Design Certification Physical Security Element Review."

**D. Acceptance Criteria**

Access to vital equipment listed in UAP-SGI-08001 and "North Anna Power Station Unit 3 Supplement to US-APWR Design Certification Physical Security Element Review" requires passage through at least two physical barriers to meet 10 CFR 73.55(e)(9)(i) as it relates to physical barriers.

**3.3 ITAAC #2.a, 2.b, and 2.c (Protected Area Barriers)**

**A. Objectives**

1. To demonstrate that the protected area barrier does not constitute any part of a vital area barrier.
2. To demonstrate that penetrations and openings of a passable size through the protected area barrier are secured and monitored by intrusion detection equipment.
3. To demonstrate that unattended openings of a passable size (such as underground pathways) that intersect a security boundary (such as the protected area barrier) are protected by a physical barrier and are monitored by intrusion detection equipment unless subject to surveillance at a frequency sufficient to detect exploitation.

**B. Prerequisites**

1. Physical barriers credited as protected area barriers are identified and construction is complete.
2. Physical barriers credited as vital area barriers are identified and construction is complete.
3. Required construction testing is complete.
4. Construction activities affecting penetrations and unattended openings of passable size through protected area boundaries are complete.
5. Required component testing and instrument calibration is complete.
6. Required power supplies and control circuits are available.

**C. Test Method**

1. Inspection of physical barriers credited as protected area barriers and of physical barriers credited as a vital area barrier.
2. Inspections of penetrations through protected barriers of a passable size, i.e., greater than 96 square inches with two dimensions greater than 6 inches.
3. Inspections of unattended openings that intersect protected area barriers of a passable size, i.e., greater than 96 square inches with two dimensions greater than 6 inches.
4. Test alarm functions from CAS and SAS for penetrations and unattended openings of a passable size not subject to surveillance sufficient to detect exploitation.

#### **D. Acceptance Criteria**

1. Protected area barriers do not constitute any part of a vital area barrier to meet the requirements of 10 CFR 73.55(e)(8)(i)(C). Physical barriers at the perimeter of the protected area are separated from any other barrier designated as a vital area barrier.
2. Penetrations through the protected area barrier of a passable size are secure and are monitored by intrusion detection equipment to meet the requirements of 10 CFR 73.55(e)(8)(ii).
3. Unattended openings of a passable size that intersect a security boundary (such as protected area barriers) have a physical barrier and are monitored by intrusion detection equipment, if they are not subject to surveillance at a frequency sufficient to detect exploitation, in order to meet the requirements of 10 CFR 73.55(i)(5)(iii).
4. The security officers in the CAS and SAS can monitor penetrations of a passable size through the protected area barrier to meet the requirements of 10 CFR 73.55(e)(8)(ii).
5. Security officers in the CAS and SAS can monitor unattended openings of a passable size that intersect protected area barrier to meet the requirements of 10 CFR 73.55(i)(5)(iii).

### **3.4 ITAAC #3.a, 3.b and 3c (Isolation Zone)**

#### **A. Objectives**

1. To demonstrate that an isolation zone of sufficient size exists adjacent to the protected area barrier for observation and assessment.
2. To demonstrate that the isolation zone adjacent to the protected area barrier allows at least 20 feet on the outside of the barrier for observation and assessment.
3. To demonstrate that the isolation zone adjacent to the protected area barrier on the inside of the barrier either allows at least 20 feet for observation and assessment, or where permanent buildings do not allow a 20 feet distance, the building walls are immediately adjacent to, or an integral part of, the protected area barrier.
4. To demonstrate that areas where permanent buildings do not allow a minimum of 20 feet observation distance between the intrusion detection system and the protected area barrier are 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.
5. To meet the requirements of 10 CFR 73.55(e)(7)(i)(A) and 10 CFR 73.55(e)(8)(iv).

**B. Prerequisites**

1. Construction and identification of the isolation zone is complete.
2. Construction of permanent buildings immediately adjacent to and within 20 feet of the protected area boundary is complete.
3. Required construction testing is complete.
4. Required component testing and instrument calibration is complete.
5. Required power supplies and control circuits are available.

**C. Test Method**

1. Inspection of the isolation zone immediately adjacent to the protected area barrier for the capability to observe and assess the activities of persons within the isolation zone.
2. Measurement of the width of the isolation zone areas immediately adjacent to the protected area perimeter at periodic intervals (e.g., at every 20 feet along the protected area barrier or at every pole of the protected area barrier).
3. Where permanent buildings do not allow a 20 feet distance on the inside of the protected area for observation and assessment, the inspection of permanent building walls next to the protected area barrier to determine whether the walls are an integral part of, or immediately adjacent, to the protected area barrier.
4. Inspection of areas of the protected area perimeter barrier that do not have isolation zones, and the intrusion detection and assessment equipment monitoring those areas.

**D. Acceptance Criteria**

1. 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.
2. Isolation zones are monitored by intrusion detection and assessment equipment capable of providing detection and assessment of activities within the isolation zone.
3. 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.

### **3.5 ITAAC #4.a, 4.b, and 4.c (Protected Area Perimeter Intrusion Detection System)**

#### **A. Objectives**

1. To demonstrate that the protected area perimeter intrusion detection system (IDS) can detect penetration or attempted penetration of the protected area boundary before completed penetration of the barrier.
2. To verify that, upon detection by the perimeter IDS, alarms annunciate in the CAS and SAS.
3. To verify that the video playback system 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 barrier.
4. To demonstrate that the perimeter IDS remains operable from an uninterruptable backup power supply in the event of a loss of normal power.
5. To demonstrate that the video playback system remains operable from an uninterruptable backup power supply in the event of a loss of normal power.

#### **B. Prerequisites**

1. The perimeter IDS is installed.
2. Isolation zone cameras are mounted in their final position and are fully functional.
3. Video playback system is completely installed and is fully functional.
4. The CAS and SAS are fully functional.
5. Required construction testing is complete.
6. Required component testing and instrument calibration is complete.
7. Required power supplies and control circuits are available.

#### **C. Test Method**

1. Conduct performance testing inspections, or a combination of inspections and testing on each isolation zone covered by the perimeter IDS.
  - a. Determine most vulnerable area of each alarm zone and the most effective method of penetration (e.g., walking, running, jumping, crawling, rolling, or climbing).
  - b. Conduct tests at each zone using a variety of penetration methods to verify the ability to detect in accordance with the acceptance table.
  - c. Conduct tests at each zone to verify the ability of real time video capture and playback after each alarm annunciation in accordance with the acceptance table.
2. Ensure that tests are conducted on both normal power and backup power sources.

**D. Acceptance Criteria**

1. Each tested area results in a zone alarm annunciation concurrently in the CAS and SAS in accordance with the acceptable results below to meet the requirements of 10 CFR 73.55(e)(7)(i)(B), 10 CFR 73.55(i)(1), and 10 CFR 73.55(i)(2):

Acceptable results for zone detection tests

Total Number of Tests	Minimum Number of Successful Detections	Maximum Number of Failures Detected
30	30	0
40	39	1
50	48	2

2. Each tested area results in a zone alarm annunciation that initiates an associated zone video signal for real time video image recording and playback concurrently in the CAS and SAS to meet the requirements of 10 CFR 73.55(e)(7)(i)(C), 10 CFR 73.55(i)(1), and 10 CFR 73.55(i)(2), thus providing assessment of detected activities before and after each alarm annunciation at the protected area barrier.
3. Cameras and other assessment equipment at the protected area perimeter remain operable from an uninterruptible power supply upon a loss of normal power to meet the requirements of 10 CFR 73.55(i)(3)(vii) as it relates to detection assessment equipment.
4. Intrusion detection equipment at the protected area perimeter remains operable from an uninterruptible power supply upon a loss of normal power to meet the requirements of 10 CFR 73.55(i)(3)(vii) as it relates to intrusion detection equipment.
5. 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).

**3.6 ITAAC #5 (Isolation Zone and Exterior Protected Area Illumination)**

**A. Objectives**

Demonstrate that the isolation zone and exterior protected areas have sufficient illumination to observe individuals and vehicles in these areas.

**B. Prerequisites**

1. The exterior lighting is installed.
2. Required construction testing is complete.
3. Required power supplies and control circuits are available.

**C. Test Method**

Measure illumination at ground level at periodic intervals to ensure minimum illumination is obtained.

**D. Acceptance Criteria**

Illumination is provided at 0.2 ft-candles measured horizontally at ground level or, alternatively, sufficient means are provided to permit assessment and observation of individuals and vehicles in the isolation zone and exterior protected areas in order to meet the requirements of 10 CFR 73.55(i)(6)(ii).

**3.7 ITAAC #6.a (Bullet Resistant Barriers for MCR and CAS)**

Abstract provided in "US-APWR Physical Security Hardware ITAAC Abstracts," MUAP-10003.

**3.8 ITAAC #6.b (Bullet Resistant Barriers for SAS and Last Access Control Function)**

**A. Objectives**

1. To demonstrate that the exterior walls, ceiling, doors and floors in the SAS and the last access control function for access to the protected area are bullet resistant.
2. To demonstrate that penetrations and other openings in the SAS and the last access control function for access to the protected area are bullet resistant.

**B. Prerequisites**

1. To demonstrate that the exterior walls, ceiling, doors and floors in the SAS and the last access control function for access to the protected area are bullet resistant.
2. To demonstrate that penetrations and other openings in the SAS and the last access control function for access to the protected area are bullet resistant.

**C. Test Method**

Physical inspection and review of engineering documents, vendor documents, analysis, and type tests for exterior walls, ceilings, doors, floors, penetrations and other openings in the SAS and the location within which the last access control function for access to the protected area are performed. Inspection shall include review of type test, analysis or a combination of type test and analysis documentation.



#### **D. Acceptance Criteria**

1. The exterior walls, ceiling, doors and floors in the SAS and the location within which the last access control function for access to the protected area are performed, are bullet resistant to UL752 (2006), Level 4, or National Institute of Justice Standard 0108.01, Type III, to meet the requirements of 10 CFR 73.55(e)(5).
2. Penetrations and other openings in the SAS and the location within which the last access control function for access to the protected area are performed, are of bullet resistant materials and construction to meet UL752 (2006), Level 4, or National Institute of Justice Standard 0108.01, Type III, requirements to meet the requirements of 10 CFR 73.55(e)(5).

### **3.9 ITAAC #7 (Vehicle Barrier System)**

#### **A. Objectives**

To demonstrate that the vehicle barrier system (VBS) is installed and located at the necessary stand-off distance to protect against the design basis threat (DBT) vehicle bombs.

#### **B. Prerequisites**

1. Construction of the VBS is complete.
2. Required construction testing is complete.
3. Final blast analysis report with the minimum safe stand-off distances to protect against the DBT vehicle bombs is complete and based on the final design of the plant.
4. Vendor documentation and analysis is complete and available.

#### **C. Test Method**

1. Review of final blast analysis report to identify the minimum safe stand-off distances necessary to protect against the DBT vehicle bombs.
2. Review of engineering drawings and site documents that define the physical location of the vehicle barrier system in relationship to plant structures to determine whether the distance between the VBS and plant structures is sufficient to meet the minimum safe stand-off distances necessary to protect against the DBT vehicle bombs.
3. Inspection of as-built VBS to verify that the physical location of the installed VBS meets the minimum safe stand-off distances established in the final blast analysis.
4. Test method shall include type tests, analysis, inspections or a combination of type tests, analysis, and inspections. The report and its conclusions shall be reviewed in accordance with NUREG/CR-6190.

**D. Acceptance Criteria**

A validated report reviewed in accordance with NUREG/CR-6190 exists and concludes that the as-built vehicle barrier system will protect against the DBT vehicle bombs based upon the stand-off distance for the system to meet the requirements of 10 CFR 73.55(e)(10)(i)(A).

**3.10 ITAAC #8.a and 8.b (Access Control Points)**

**A. Objectives**

1. To demonstrate that access control points are established for controlling personnel and vehicle access into the protected area.
2. To demonstrate that the detection equipment at personnel access points is capable of detecting firearms, explosives and incendiary devices.

**B. Prerequisites**

1. Construction of access control points is complete.
2. Required construction testing is complete.
3. Required component testing and instrument calibration is complete.
4. Required power supplies and control circuits are available.
5. Vendor documentation and analysis is complete and available.

**C. Test Method**

1. Physical inspection and review of engineering documents to identify the locations and configuration of access points for personnel and vehicle access into the protected area.
2. Physical inspection and review of engineering documents and vendor documents and analysis to identify the equipment and equipment specifications for detecting firearms, explosives, and incendiary devices prior to granting access into the protected area and perform tests of detection equipment.
3. Tests, inspections, or combination of tests and inspections of installed systems and equipment will be performed.

**D. Acceptance Criteria**

1. Access control points are established and configured for controlling personnel and vehicle access into the protected area and are equipped with locking devices, intrusion detection equipment and surveillance equipment consistent with the intended function to meet 10 CFR 73.55(g)(1)(i)(A) and (B).
2. Detection equipment at personnel access points is capable of detecting firearms, explosives, incendiary devices, or other items that could be used to commit radiological sabotage at the protected area personnel access control points to meet 10 CFR 73.55(h)(3)(i) as it relates to personnel access points.

**3.11 ITAAC #9 (Access Control System)**

**A. Objectives**

To demonstrate that the access control system with numbered picture badges provides access to the protected area and vital areas only to those persons with unescorted access authorization.

**B. Prerequisites**

1. Security access control system with numbered picture badges is installed and fully functional.
2. Security doors are mounted in their final position.
3. Turnstiles are mounted in their final position.
4. Access controls are installed at each door.
5. Required construction testing is complete.
6. Required component testing and instrument calibration is complete.
7. Required power supplies and control circuits are available.

**C. Test Method**

1. Test the as-built access control system with numbered picture badges.
2. Initiate unauthorized door openings and observe results in the CAS and SAS.

**D. Acceptance Criteria**

The access control system utilizes numbered picture badges and authorizes protected area and vital area access only to those personnel with unescorted access authorization to meet the requirements of 10 CFR 73.55(g)(6)(ii).

**3.12 ITAAC #10.a (Unoccupied Vital Areas)**

Abstract provided in "US-APWR Physical Security Hardware ITAAC Abstracts," MUAP-10003.

### **3.13 ITAAC #10.b (Unoccupied Vital Areas)**

#### **A. Objectives**

1. To demonstrate that unoccupied vital areas are locked with activated intrusion detection systems.
2. To demonstrate that activated intrusion detection systems annunciate in the secondary alarm station (SAS) in the event of an attempted breach of an unoccupied vital area.

#### **B. Prerequisites**

1. Security doors are mounted in their final position.
2. Access controls (card readers, door strikes, magnetic switches, etc.) are installed at each door.
3. Required construction testing is complete.
4. Required component testing and instrument calibration is complete.
5. Required power supplies and control circuits are available.

#### **C. Test Method**

1. Test locking devices on all doors and other means of access into unoccupied vital areas.
2. Initiate unauthorized door openings locally and note results in the SAS.

#### **D. Acceptance Criteria**

1. Unoccupied vital areas are locked with activated intrusion detection systems that annunciate in the SAS in the event of an attempted breach of an unoccupied vital area to meet the requirements of 10 CFR 73.55(e)(9)(iii).

### **3.14 ITAAC #11.a.i and 11.b.i (CAS Alarm Annunciation and Location)**

Abstract provided in "US-APWR Physical Security Hardware ITAAC Abstracts," MUAP-10003.

### **3.15 ITAAC #11.a.ii and 11.b.ii (SAS Alarm Annunciation and Location)**

#### **A. Objectives**

1. To demonstrate that security alarm annunciation is available in the SAS.
2. To demonstrate that video assessment information is available in the SAS.
3. To demonstrate that the SAS is within the protected area and the interior of the SAS is not visible from the perimeter of the protected area boundary.

**B. Prerequisites**

1. The SAS is fully constructed and equipped.
2. Required component testing and instrument calibration is complete.
3. Required construction testing is complete.
4. Required power supplies and control circuits are available.

**C. Test Method**

1. Test security alarm annunciation in the SAS concurrently with the CAS.
2. Test video assessment equipment in the SAS concurrently with the CAS.
3. Inspect the location of the SAS in relationship to the protected area and determine whether the interior of SAS is visible from the perimeter of the protected area.

**D. Acceptance Criteria**

1. Security alarms annunciate in the SAS, and concurrently in the CAS, to meet 10 CFR 73.55(i)(2) as it relates to the SAS.
2. Video assessment information is available in the SAS, and concurrently in the CAS, to meet 10 CFR 73.55(i)(2) as it relates to the SAS.
3. The SAS is within the protected area and the interior of the SAS is not visible from the protected area perimeter (boundary) to meet 10 CFR 73.55(i)(4)(ii)(A) and 10 CFR 73.55(i)(4)(iii) as they relates to the location of the SAS.

**3.16 ITAAC #11.c.i & 11.c.ii (SAS/CAS changes require knowledge and concurrence from CAS/SAS)**

**A. Objectives**

1. To demonstrate that the alarm system will not allow the status of a detection point, locking mechanism or access control device to be changed by the CAS without the knowledge and concurrence of the alarm station operator in the SAS.
2. To demonstrate that the alarm system will not allow the status of a detection point, locking mechanism or access control device to be changed by the SAS without the knowledge and concurrence of the alarm station operator in the CAS.

**B. Prerequisites**

1. The SAS and CAS are fully constructed and equipped.
2. Required component testing and instrument calibration is complete.
3. Required construction testing is complete.
4. Required power supplies and control circuits are available.

**C. Test Method**

1. Test of the intrusion detection equipment and access control equipment to ensure that changes to the status of detection points, locking mechanisms or access control devices in the SAS require the knowledge and concurrence of the alarm station operator in the CAS.
2. Test of the intrusion detection equipment and access control equipment to ensure that changes to the status of detection points, locking mechanisms or access control devices in the CAS require the knowledge and concurrence of the alarm station operator in the SAS.

**D. Acceptance Criteria**

1. The alarm system does not allow the status of a detection point, locking mechanism or access control device to be changed from the SAS without the knowledge and concurrence of the CAS operator.
2. The alarm system does not allow the status of a detection point, locking mechanism or access control device to be changed from the CAS without the knowledge and concurrence of the SAS operator.

**3.17 ITAAC #11.d (Single DBT Act Does Not Disable both CAS and SAS)**

**A. Objectives**

To ensure that a DBT "single act" does not simultaneously eliminate the functional capability of both the CAS and the SAS 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.

**B. Prerequisites**

1. The CAS and SAS are fully constructed and equipped.
2. Required component testing and instrument calibration is complete.
3. Required construction testing is complete.
4. Required power supplies and control circuits are available.

**C. Test Method**

1. Perform a review of engineering design documents, drawings and analysis to determine whether a single DBT act would simultaneously prevent both the CAS and the SAS from performing their critical functions.
2. Perform tests, inspections or a combination of tests and inspections of the central and secondary alarm stations.

**D. Acceptance Criteria**

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 to meet the requirements of 10 CFR 73.55(i)(4)(i).

**3.18 ITAAC #11.e.ii (SAS is Constructed, Located, Protected, and Equipped to Same Standards as CAS)**

**A. Objectives**

To demonstrate that the SAS is constructed, located, protected, and equipped to the same standards as the CAS and is functionally redundant to the CAS.

**B. Prerequisites**

1. The CAS and SAS are fully constructed and equipped.
2. Required component testing and instrument calibration is complete.
3. Required construction testing is complete.
4. Required power supplies and control circuits are available.

**C. Test Method**

1. Physical inspection and review of engineering and vendor documents of the SAS to identify the capability to perform required alarm station functions in accordance with the standards for the CAS contained in 10 CFR 73.55.
2. Inspection and comparison of the CAS and SAS capabilities.
3. Testing of the capability of the SAS to perform the required alarm station functions in accordance with the standards for the CAS contained in 10 CFR 73.55.

**D. Acceptance Criteria**

The SAS is constructed, located, protected, and equipped to the same standards as the CAS so as to provide functional redundancy. Identical design of the SAS and CAS is not required.

### **3.19 ITAAC #12 (Secondary Security Power)**

Abstract provided in "US-APWR Physical Security Hardware ITAAC Abstracts," MUAP-10003.

#### **3.19.1 ITAAC #12.a (Secondary Security Power - Plant Specific)**

##### **A. Objectives**

1. To demonstrate that the plant specific secondary security power supply for alarm annunciation equipment is located within a vital area.
2. To demonstrate that the plant specific secondary security power supply for non-portable communications equipment is located within a vital area.

##### **B. Prerequisites**

1. Physical barriers credited as vital area boundaries are identified.
2. Construction of the plant specific secondary security power supply for alarm annunciation and non-portable communications equipment is complete.
3. Required power supplies and control circuits are available.

##### **C. Test Method**

1. Inspect the location of the plant specific secondary security power supply for alarm annunciation equipment.
2. Inspect the location of the plant specific secondary security power supply for non-portable communications equipment.

##### **D. Acceptance Criteria**

1. The plant specific secondary security power supply for alarm annunciation equipment is located within a vital area to meet the requirements of 10 CFR 73.55(e)(9)(vi).
2. The plant specific secondary security power supply for non-portable communications equipment is located within a vital area to meet the requirements of 10 CFR 73.55(e)(9)(vi).

### **3.20 ITAAC #13.a (Security Alarms Tamper Indication and Self Check)**

Abstract provided in "US-APWR Physical Security Hardware ITAAC Abstracts," MUAP-10003.

#### **3.21 ITAAC #13.b.i (Alarm Annunciation in the CAS)**

Abstract provided in "US-APWR Physical Security Hardware ITAAC Abstracts," MUAP-10003.



### **3.22 ITAAC #13.b.ii (Alarm Annunciation in SAS)**

#### **A. Objectives**

1. To demonstrate that security alarm annunciation in the SAS indicates the type of alarm and location of alarm.
2. To demonstrate that intrusion detection systems provide visual display and audible annunciation in the SAS.

#### **B. Prerequisites**

1. Security alarms are installed.
2. Required construction testing is complete.
3. Required component testing and instrument calibration is complete.
4. Required power supplies and control circuits are available.

#### **C. Test Method**

1. Test security alarm annunciation in the SAS.
2. Test intrusion detection and assessment systems in the SAS.

#### **D. Acceptance Criteria**

1. The security alarm annunciation in the SAS indicates the type of alarm (e.g. intrusion alarms, emergency exit alarms, etc.) and location of alarm to meet 10 CFR 73.55(i)(3)(iii).
2. Intrusion detection systems provide visual display and audible annunciation in the SAS to meet the requirements of 10 CFR 73.55(i)(3)(i) and 10 CFR 73.55(i)(3)(ii).

### **3.23 ITAAC #14 (Security Alarm Record)**

Abstract provided in "US-APWR Physical Security Hardware ITAAC Abstracts," MUAP-10003.

### **3.24 ITAAC #15.a (Vital Area Emergency Exits)**

Abstract provided in "US-APWR Physical Security Hardware ITAAC Abstracts," MUAP-10003.

### **3.25 ITAAC #15.b (Protected Area Emergency Exits)**

#### **A. Objectives**

To demonstrate that emergency exits through the protected area perimeter are alarmed with intrusion detection devices and secured by locking devices that allow prompt egress during an emergency.

**B. Prerequisites**

1. The construction of protected area boundaries is complete.
2. The construction and equipping of emergency exits through the protected area boundaries are complete.
3. Required construction testing is complete.
4. Required component testing and instrument calibration are complete.
5. Required power supplies and control circuits are available.

**C. Test Method**

Inspect and test intrusion detection devices and locking devices of emergency exits through protected area perimeter.

**D. Acceptance Criteria**

Emergency exits through the protected area perimeter are alarmed with intrusion detection devices and secured by locking devices that allow prompt egress during an emergency, to meet the requirements of 10 CFR .55(e)(8)(iii).

**3.26 ITAAC #16.a.i, and #16.b.i and #16.c.i (CAS Communications)**

Abstract provided in "US-APWR Physical Security Hardware ITAAC Abstracts," MUAP-10003.

**3.27 ITAAC #16.a.ii, and #16.b.ii and #16.c.ii (SAS Communications)**

**A. Objectives**

1. To demonstrate that the SAS has conventional (landline) telephone service with local law enforcement authorities.
2. To demonstrate that the SAS has the capability of continuous communication with the main control room.
3. To demonstrate that the SAS has the capability of continuous communication with security personnel.
4. To demonstrate that the non-portable communication equipment (including conventional telephone systems) in the SAS remains operable from an independent power source during the loss of normal power.

**B. Prerequisites**

1. The communication systems for the SAS, including intercom or equivalent dedicated system with the main control room and conventional landline telephone, are installed.
2. Base radio station and all antennae and transmitters are installed.
3. Required construction testing is complete.
4. Required component testing and instrument calibration are complete.
5. Required power supplies and control circuits are available.
6. Portable radios are charged.

**C. Test Method**

1. Test the conventional landline system in the SAS for open and clear communication with local law enforcement authorities.
2. Test the intercom system, or equivalent dedicated system, between the SAS and the main control room for open and clear communication between the SAS and the main control room.
3. Test the security portable radio system for open and clear communication between the SAS and security personnel.
4. Test security intercom system or equivalent dedicated system for open and clear communication between the SAS and security personnel in defensive positions.
5. Test all non-portable communication devices (including conventional telephone systems) in the secondary alarm station to ensure they are wired to an independent power supply that enables those systems to remain operable (without disruption) during the loss of normal power.
6. Inspect design and construction records to verify the non-portable communication devices (including conventional telephone systems) are wired to an independent power supply that allows those systems to remain operational (without disruption) during the loss of normal power.

#### **D. Acceptance Criteria**

1. The SAS has conventional (landline) telephone service that provides open and clear communication with local law enforcement authorities to meet the applicable portion of 10 CFR 73.55(j)(4)(i).
2. The security radio system is capable of providing for continuous communication between the SAS and security personnel to meet the applicable portion of 10 CFR 73.55(j)(3).
3. The intercom system or equivalent dedicated system is capable of providing for continuous communication between the SAS and the main control room to meet the requirements of 10 CFR 73.55(j)(4)(ii).
4. The security intercom system or equivalent dedicated system is capable of providing for continuous communication between the SAS and the defensive positions to meet the applicable portion of 10 CFR 73.55(j)(3).
5. The non-portable communication equipment (including conventional telephone systems) in the SAS and the intercom system, or equivalent dedicated system, remain operational (without disruption) upon a loss of normal power to meet the requirements of 10 CFR 73.55(j)(5).

#### **4.0 References**

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4. NUREG-0800, Standard Review Plan, Section 14.3.12, Revision 1, May 2010
5. Comanche Peak (CPNPP) Units 3 and 4 PHYSICAL SECURITY HARDWARE ITAAC ABSTRACTS, Rev. 1
6. Design Control Document for the US-APWR Tier 1, MUAP-DC020 Revision 3, March 2011
7. North Anna 3 Combined License Application, Part 10: Tier 1/ITAAC; Revision 4, December 2011
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9. NEI 08-01, Industry Guideline for the ITAAC Closure Process Under 10 CFR Part 52
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