



**Dominion<sup>®</sup>**

**North Anna 3  
Combined  
License  
Application**

**Part 10: Tier 1/  
ITAAC/Proposed  
License  
Conditions**

**Revision 7**

**June 2014**

## REVISION SUMMARY

### Revision 7

Section	Changes	Reason for Change
1.1.1	Deleted "NAPS DEP 3.7-1" from action statement. Corrected DCD Tier 1 Reference figures for CSDRS	Editorial and typographical
Table 5.1-1, Footnote (4)	Tier 1 Departures- SSE design ground response spectra of 5% damping is defined as the higher of a combination of the CSDRS free-field outcrop spectra at the foundation level (bottom of the base slab) of the Reactor/Fuel and Control Building structures and the Unit 3 site-dependent SSE at grade.	DEP 3.7-1
2.4.19	Changed reference from "Table 2.4-18-1" to "Table 2.4-19-1"	Correction
3.8.1	Deleted statement "or other NRC endorsed guidance in effect six months prior to completion of the assessment" from first and third paragraphs	Consistency with EF3 COLA
3.8.2	Deleted reporting requirements in the license condition for BDB external events strategies and guidance. Added requirement to use JLD-ISG-2012-01 to develop strategies.	Consistency with EF3 COLA
3.10	Added section for steam dryer	DCD R10

### Revision 6

Section	Changes	Reason for Change
Tier 1 Information	Revised IBR sentence to include "with the following departures and/or supplements"	New Tier 1 departure added that affects ITAAC
Tier 1, 1.1.1, Definitions	Added definition	NAPS DEP 3.7-1
Tier 1, 2.1, Design Certification ITAAC	Revised IBR sentence to include "with the following departures and/or supplements"	New Tier 1 departure added that affects ITAAC
Tier 1, 2.1.1, Design Certification ITAAC Departure	Incorporated departure	NAPS DEP 12.3-1
Tier 1, 2.1.2, Design Certification ITAAC Departure	Added new section explaining departure from ITAAC	New Tier 1 departure added that affects ITAAC

**Revision 6 (continued)**

<b>Section</b>	<b>Changes</b>	<b>Reason for Change</b>
Tier 1, North Anna Unit 3 Specific Figure 2.13.1-1 Sh. 1	Added new figure	New Tier 1 departure added that affects ITAAC
<a href="#">2.4.15</a> , <a href="#">2.4.16</a> , <a href="#">2.4.17</a> , <a href="#">2.4.18</a> , <a href="#">2.4.19</a> ; <a href="#">Tables 2.4.15-1</a> , <a href="#">2.4.16-1</a> , <a href="#">2.4.17-1</a> , <a href="#">2.4.18-1</a> , <a href="#">2.4.19-1</a>	Added information related to seismic and dynamic loads	NAPS DEP 3.7-1
<a href="#">3.1</a>	Added License Condition for emergency planning actions	EF3 RAIs 13.03-07, 13.03-13
<a href="#">3.2</a>	Added License Conditions for Initial Test Program	EF3 14.02-4
<a href="#">3.3</a>	Added License Condition for byproduct, source and special nuclear material	NA3 ESBWR R-COLA RAI 01-4
<a href="#">3.4</a>	Added License Condition for Fire Protection Program actions	EF3 RAI 01.05-7
<a href="#">3.5</a>	Added license conditions for operational program implementation	EF3 RAI 19.03-38
<a href="#">3.6</a>	Added License Condition for operational program readiness	EF3 RAI 19.03-38
<a href="#">3.7</a>	Added License Condition for Emergency Action Levels	EF3 RAIs 13.03-66, 19.03-38
<a href="#">3.8</a>	Added License Conditions for Fukushima actions	EF3 RAIs 01.05-2, 01.05-3, 01.05-4, 01.05-5, 01.05-6, 13.03-65
<a href="#">3.9</a>	Added License Condition for explosively actuated valves	Consistency with EF3 COLA

**Revision 5**

<b>Section</b>	<b>Changes</b>	<b>Reason for Change</b>
Cover	Changed title from “Tier 1/ITAAC” to “Tier 1/ITAAC/Proposed License Conditions	Added section for license conditions

**Revision 5 (continued)**

Section	Changes	Reason for Change
Title	Changed from “Tier 1 Information and Inspections, Tests, Analyses, and Acceptance Criteria” to “Tier 1 Information Inspections, Tests, Analyses, and Acceptance Criteria, and Proposed License Conditions”	Added section for license conditions
2.1	Deleted “in”	Editorial
2.2	Inserted “... for systems within the scope of the DCD...”; deleted “in”	Address ITAAC for site-specific Physical Security
2.2.1	New section	Address ITAAC for site-specific Physical security
Table 2.2.1-1	New table	Address ITAAC for site-specific Physical security
Table 2.3-1, Item 1.1 ITA	Inserted “that constitute the bases for the classification scheme”	Consistency with EF3 COLA
Table 2.3-1, Items 1.1.1 & 1.1.2 AC	Editorial	Consistency with EF3 COLA
Table 2.3-1, Items 1.1.2 & 6.1	RAI 13.03-3 - Revised, Emergency Action Levels	
Table 2.3-1, Item 2.1 AC	Corrected number from 2.1.1; changed “A report exists that confirms communications have” to “A means to notify responsible organizations, within 15 minutes after the licensee declares an emergency, has”	Editorial; improve nomenclature per RIS 2008-05 R1
Table 2.3-1, Item 2.2 EPPE	Changed “COL EP II.D.2” to “COL EP II.E.2”	Editorial
Table 2.3-1, Item 2.2 AC	Editorial	Improve nomenclature per RIS 2008-05 R1
Table 2.3-1, Items 2.3, 8.1.1 thru 8.1.3	RAI 13.03-6, Onsite Exercise Objectives in ITAAC	
Table 2.3-1, Item 2.3 AC	Editorial	Improve nomenclature per RIS 2008-05 R1
Table 2.3-1, AC Items 3.1.1-3.1.1.4, 3.2, 4.1, 5.1.2 - 5.1.7 & 5.2.2, 6.1, 7.1.1, 7.1.2	Editorial	Consistency with EF3 COLA

**Revision 5 (continued)**

Section	Changes	Reason for Change
Table 2.3-1, Item 4.0	Deleted	US-APWR S-COLA RAI 14.03.10-4
Table 2.3-1, Item 5.1, EP	Changed from “operations” to “operational”	Editorial
Table 2.3-1, Item 5.1, AC	Deleted “181 square meters)	Editorial
Table 2.3-1, Item 5.1.1 AC	Editorial; revised to reflect correct values for TSC floor space	Consistency with EF3 COLA
Table 2.3-1, Item 5.2.4 AC	New item	Improve nomenclature per RIS 2008-05 R1
Table 2.3-1, Item 6.2 AC	Corrected number from 6.2.1; revised to include a methodology for determining the magnitude of a release	Editorial; improve nomenclature per RIS 2008-05 R1
Table 2.3-1, Item 6.3 AC	Revised to include continual assessment of the impact from a release of radioactive materials	Improve nomenclature per RIS 2008-05 R1
Table 2.3-1, Item 6.4 ITA & AC	Revised to include differential air temperature and deleted measurement of ambient air temperature at 48.4 m	Improve nomenclature per RIS 2008-05 R1 and consistency with SSAR Section 2.3.3.1.1
Table 2.3-1, Item 6.5 ITA & AC	Revised to include a test of EPIP capabilities	EF3 RAI 13.03-69
Table 2.3-1, Item 6.6 AC	Editorial	Consistency with EF3 COLA
Table 2.3-1, Item 6.7 AC	Revised to include the specified isotopes and comparing the dose estimates with the EPA PAGs	Improve nomenclature per RIS 2008-05 R1
Table 2.3-1, Item 8.1.2	Deleted note	Note is not relevant
Table 2.3-1, Items 8.1.2 & 8.1.3	RAI 13.03-7, Offsite Exercise Objectives in ITAAC	
Table 2.3-1, Item 9.1	RAI 14.03.10-1.1, E-Plan Procedure Submittal	
2.4.1, Table 2.4.1-1	Replaced entirely the changes provided with RAI 02.05.04-20 response with new content to address fill concrete under Seismic Category I structures	EF3 RAI 02.05.04-40
2.4.3	Inserted section and renumbered following sections and tables accordingly (including all citations to those items)	Consistency with EF3 COLA

### Revision 5 (continued)

Section	Changes	Reason for Change
2.4.3, Table 2.4.3-1 (was 2.4.2 & Table 2.4.2-1)	RAI 09.02.01-8, PSWS Heat Removal ITAAC Acceptance Criteria	
2.4.4 thru 2.4.8, 2.4.10, 2.4.13 & 2.4.14	Changed “No entry” to “No ITAAC are required”	DCD R9
2.4.8, Table 2.4.8-1 (was 2.4.7 & Table 2.4.7-1)	RAI 14.03.06-1, Add ITAAC for Off-site Power Interface	
2.4.8	Deleted duplicate “refer to” in Item 2 of third paragraph of design description	Editorial
2.4.11 (was 2.4.10)	RAI 14.03.07-1, Revise Reference to Mobile LWMS	
2.4.12 (was 2.4.11)	RAI 14.03.07-2, Revise Reference to Mobile SWMS	
2.4.15, Table 2.4.16-1	Added section for Turbine Building ITAAC	EF3 RAI 03.07.02-5
2.4.16, Table 2.4.16-1	Added section for Radwaste Building ITAAC	EF3 RAI 03.07.02-5
2.4.17, Table 2.4.17-1	Added section for Service Building ITAAC	EF3 RAI 03.07.02-5
2.4.18, Table 2.4.18-1	Added section for Ancillary Diesel Building ITAAC	EF3 RAI 03.07.02-5
3	Added section for license conditions	Future information placeholder

### Revision 1

Section	Changes
Table 2.3-1	RAI 14.03.10-1.2, ITAAC Table Correction
	RAI 14.03.10-1.4, ITAAC for U3 E-Plan Exercise
	Corrected incomplete reference in EP Program Elements column, 1.1 and reference to EP in Inspection, Tests, Analyses column, 1.1

## **TIER 1 INFORMATION INSPECTIONS, TESTS, ANALYSES, AND ACCEPTANCE CRITERIA, AND PROPOSED LICENSE CONDITIONS**

### **1. Tier 1 Information**

DCD Tier 1 is incorporated by reference with the following departures and/or supplements.

#### **1.1.1 Definitions**

Add the following at the end of this section:

Unit 3 Seismic Design Response Spectra, for purposes of seismic requirements for Seismic Category I SSCs as specified in Tier 1, means the seismic design response spectra based on the results of the Unit 3 site-specific SSI analyses described in [FSAR Section 3.7.2](#). Specifically, Safe Shutdown Earthquake (SSE) design ground motion for purposes of seismic design, analysis, and qualification of Unit 3 plant structures, systems, and equipment, is defined by two sets of ground motion acceleration response spectra:

- the single envelope design ground motion response spectra or Certified Seismic Design Response Spectra (CSDRS) described in [FSAR Section 3.7.1.1.3](#) that defines the SSE design motion for seismic design of ESBWR Standard Plant, and the site-specific Foundation Input Response Spectra (FIRS) described in [FSAR Section 3.7.1.1.4.2](#), representative of the Unit 3 site specific seismological and geological conditions.

[FSAR Figures 2.0-201](#) through [2.0-204](#) present these 5% damped acceleration response spectra that define the design ground motion as a free-field outcrop motion at the foundation bottom of each Seismic Category I structure. DCD Tier 1 [Figures 5.1-1](#) and [5.1-2](#) present the standard design CSDRS.

For each structure and each equipment location within the buildings, in-structure response spectra (ISRS) are developed. The site-specific ISRS that exceed the standard design ISRS, are used in conjunction with the standard design ISRS for seismic design and qualification of equipment and components.

This approach applies to SSCs that are required to withstand SSE loads. Similarly, other SSCs that are specifically required to meet SSE seismic demands are designed, analyzed, and qualified using the process in [FSAR Sections 3.7.1](#) and [3.7.2](#) for applying the CSDRS and site-specific FIRS. The same approach is applied for the Seismic Category II and Radwaste Building structures.

Table 5.1-1 **Envelope of ESBWR Standard Plant Site Parameters**

Replace footnote (4) with the following:

(4) Safe Shutdown Earthquake (SSE) design ground motion, for purposes of seismic design analysis, and qualification of Unit 3 Reactor Building/Fuel Building (RB/FB) and Control Building (CB) structures, systems, and components, is defined by two sets of ground motion acceleration response spectra: the standard design Certified Seismic Design Response Spectra (CSDRS) and the site-specific Foundation Input Response Spectra (FIRS) for these two buildings. For the Firewater Service Complex (FWSC), which is essentially a surface founded structure, the SSE design ground motion is defined as 1.35 times the spectra of the CSDRS and the FWSC site-specific FIRS. [FSAR Figures 2.0-201](#) through [2.0-204](#) present these spectra that define the free-field outcrop motion at the foundation bottom of each structure. [DCD Tier 1 Figures 5.1-1](#) and [5.1-2](#) present the standard design CSDRS. The same process for developing the SSE design ground motion is followed for the Seismic Category II and Radwaste Building structures.

## **2. COLA ITAAC**

The Inspections, Tests, Analyses, and Acceptance Criteria (ITAAC) for the COLA are provided in tabular form, consistent with the format shown in RG 1.206 Table C.II.1-1.

The COLA-ITAAC consist of the following four parts:

1. Design Certification ITAAC
2. Emergency Planning ITAAC
3. Physical Security ITAAC
4. Site-Specific ITAAC

This set of COLA-ITAAC is included herein. Completion of the ITAAC is a proposed condition of the combined license to be satisfied prior to fuel load.

### **2.1 Design Certification ITAAC**

The Design Certification ITAAC are contained in DCD Tier 1, which is incorporated by reference with the following departures and/or supplements.

#### **2.1.1 Liquid Radwaste Effluent Discharge Piping Flow Path**

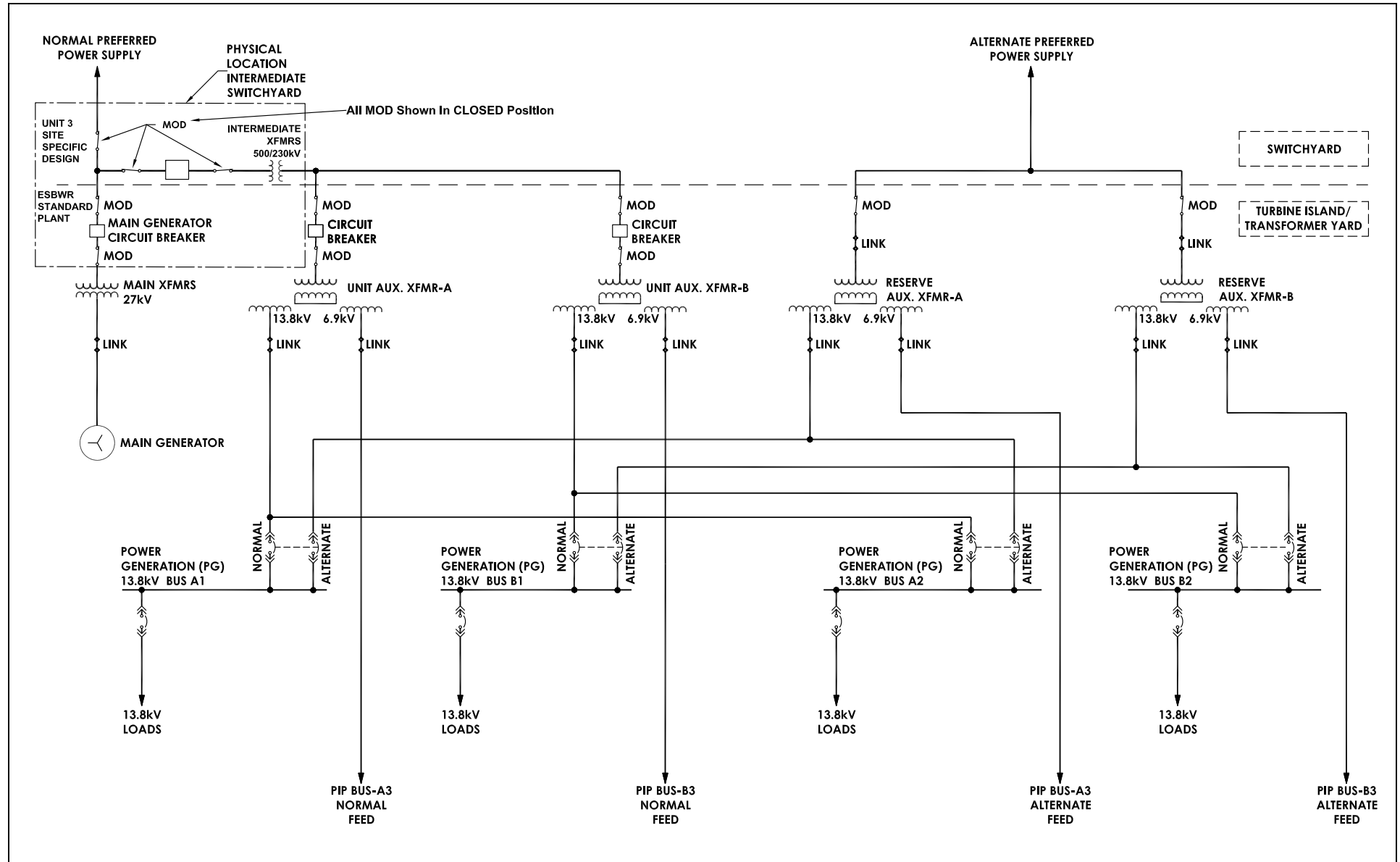
There is a departure from [DCD Tier 1, Section 2.10.1](#), as described in [COLA Part 7](#). The Unit 3 piping used for the flow path from the Liquid Waste Management System (LWMS) in the Radwaste Building to the environment will not include piping in the circulating water system. The last sentence of the fourth paragraph of this section is replaced with the following: “The LWMS either returns processed water to the condensate system or discharges to the environment using the liquid radwaste effluent discharge pipeline.”



### **2.1.2 Electric Power Distribution System Functional Arrangement**

There is a departure from [DCD Tier 1, Section 2.13.1, Figure 2.13.1-1, Sheet 1](#), as described in [COLA Part 7](#). The Unit 3 Electric Power Distribution System Functional Arrangement is as shown on the next page, which provides the North Anna Unit 3 Specific Figure 2.13.1-1, Sheet 1. This Unit 3 specific figure replaces [DCD Tier 1 Figure 2.13.1-1, Sheet 1](#), where the figure is cited in [DCD Tier 1, Section 2.13.1](#).

North Anna Unit 3 Specific Figure 2.13.1-1 Sh 1. Unit 3 Electric Power Distribution System Functional Arrangement



## **2.2 Physical Security ITAAC**

The Physical Security ITAAC for systems within the scope of the DCD are contained in DCD Tier 1, which is incorporated by reference in [Section 1](#).

### **2.2.1 Site Specific Physical Security ITAAC**

#### **Design Description**

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

1. Vital Area and Vital Area Barrier:
  - a. Vital equipment will be located only within a vital area.
  - b. Access to vital equipment will require passage through at least two physical barriers.
2. Protected Area Barrier:
  - a. Physical barriers for the protected area perimeter will not be part of vital area barriers.
  - b. Penetrations through the protected area barrier will be secured and monitored.
  - c. Unattended openings that intersect a security boundary, such as underground pathways, will be protected by a physical barrier and monitored by intrusion detection equipment or provided surveillance at a frequency sufficient to detect exploitation.
3. Isolation Zone:
  - a. Isolation zones will exist in outdoor areas adjacent to the physical barrier at the perimeter of the protected area and will be designed of sufficient size to permit observation and assessment on either side of the barrier.
  - b. Isolation zones will be monitored with intrusion detection and assessment equipment that is designed to provide detection and assessment of activities within the isolation zone.
  - c. Areas where permanent buildings do not allow sufficient observation distance between the intrusion detection system and the protected area barrier (e.g., the building walls are immediately adjacent to, or are an integral part of the protected area barrier) will be monitored with intrusion detection and assessment equipment that is designed to detect the attempted or actual penetration of the protected area perimeter barrier before completed penetration of the barrier and assessment of detected activities.

4. Protected Area Perimeter Intrusion Detection and Assessment Systems:
  - a. The perimeter intrusion detection system will be designed to detect penetration or attempted penetration of the protected area perimeter barrier before completed penetration of the barrier, and for subsequent alarms to annunciate concurrently in at least two continuously manned onsite alarm stations (central and secondary alarm stations).
  - b. The perimeter assessment equipment will be designed to provide video image recording with real-time and playback capability that can provide assessment of detected activities before and after each alarm annunciation at the protected area perimeter barrier.
  - c. The intrusion detection and assessment equipment at the protected area perimeter will be designed to remain operable from an uninterruptible power supply in the event of the loss of normal power.
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.
6. The external walls, doors, ceiling, and floors in the Secondary Alarm Station, and the last access control function for access to the protected area will be bullet resistant, to at least Underwriters Laboratories Ballistic Standard 752, "The Standard of Safety for Bullet-Resisting Equipment," Level 4, or National Institute of Justice Standard 0108.01, "Ballistic Resistant Protective Materials," Type III.
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.
8. Personnel, Vehicle, and Material Access Control Portals and Search Equipment:
  - a. Access control points will be established and designed to control personnel and vehicle access into the protected area.
  - b. Access control points will be established and designed with equipment for the detection of firearms, explosives, and incendiary devices at the protected area personnel access points.
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.
10. Unoccupied vital areas will be designed with locking devices and intrusion detection devices that annunciate in the Secondary Alarm Station.
11. Alarm Station:
  - a. Intrusion detection equipment and video assessment equipment will annunciate and be displayed concurrently in at least two continuously manned onsite alarm stations (Central and Secondary Alarm Stations).

- b. The Secondary Alarm Station will be located inside the protected area and will be designed so that the interior of the alarm station is not visible from the perimeter of the protected area.
  - c. The alarm system will not allow the status of a detection point, locking mechanism or access control device to be changed without the knowledge and concurrence of the alarm station operator in the other alarm station.
  - d. 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.
  - e. 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).
12. The secondary security power supply system for alarm annunciator equipment contained in the Secondary Alarm Station and non-portable communications equipment contained in the Secondary Alarm Station is located within a vital area.
13. Intrusion Detection Systems Console Display:
- a. Security alarm devices, including transmission lines to annunciators, will be tamper indicating and self-checking (e.g., an automatic indication is provided when failure of the alarm system or a component occurs or when on standby power), and alarm annunciation indicates the type of alarm (e.g., intrusion alarms, emergency exit alarm) and location.
  - b. Intrusion detection and assessment systems will be designed to provide visual display and audible annunciation of alarms in the Secondary Alarm Station.
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.
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.
16. Communication:
- a. The Secondary Alarm Station will have conventional (land line) telephone service with the Main Control Room and local law enforcement authorities.
  - b. The Secondary Alarm Station will be capable of continuous communication with on-duty security force personnel.

- c. Non-portable communications equipment in the Secondary Alarm Station will remain operable from an independent power source in the event of loss of normal power.

**Inspections, Tests, Analyses, and Acceptance Criteria**

Table 2.2.1-1 provides a definition of the inspections, tests and analysis, together with associated acceptance criteria for the site-specific portions of the physical security system.

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

<b>Design Commitment</b>	<b>Inspections, Tests, Analyses</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.
2(a). Physical barriers for the protected area perimeter will not be part of vital area barriers.	2(a). The protected area perimeter barriers will be inspected.	2(a). Physical barriers at the perimeter of the protected area are separated from any other barrier designated as a vital area barrier.
2(b). Penetrations through the protected area barrier will be secured and monitored.	2(b). All penetrations through the protected area barrier will be inspected.	2(b). All penetrations and openings through the protected area barrier are secured and monitored by intrusion detection equipment.
2(c). Unattended openings that intersect a security boundary, such as underground pathways, will be protected by a physical barrier and monitored by intrusion detection equipment or provided surveillance at a frequency sufficient to detect exploitation.	2(c). All unattended openings within the protected area barriers will be inspected.	2(c). All unattended openings (such as underground pathways) that intersect a security boundary (such as the protected area barrier), are protected by a physical barrier and monitored by intrusion detection equipment or provided surveillance at a frequency sufficient to detect exploitation.
3(a). Isolation zones will exist in outdoor areas adjacent to the physical barrier at the perimeter of the protected area and will be designed of sufficient size to permit observation and assessment on either side of the barrier.	3(a). The isolation zones in outdoor areas adjacent to the protected area perimeter barrier will be inspected.	3(a). The isolation zones exist in outdoor areas adjacent to the physical barrier at the perimeter of the protected area and are of sufficient size to permit observation and assessment of activities on either side of the barrier in the event of its penetration or attempted penetration.

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

<b>Design Commitment</b>	<b>Inspections, Tests, Analyses</b>	<b>Acceptance Criteria</b>
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.
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 on site alarms stations (central and secondary alarm stations).



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

<b>Design Commitment</b>	<b>Inspections, Tests, Analyses</b>	<b>Acceptance Criteria</b>
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 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 power supply in the event of the loss of normal power.
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.
6. The external walls, doors, ceiling, and floors in the Secondary Alarm Station, and the last access control function for access to the protected area will be bullet resistant, to at least Underwriters Laboratories Ballistic Standard 752, "The Standard of Safety for Bullet-Resisting Equipment," Level 4, or National Institute of Justice Standard 0108.01, "Ballistic Resistant Protective Materials," Type III.	6. Type test, analysis, or a combination of type test and analysis of the external walls, doors, ceiling, and floors in the Secondary Alarm Station, and the last access control function for access to the protected area will be performed.	6. A report exists and concludes that the walls, doors, ceilings, and floors in the Secondary Alarm Station, and the last access control function for access to the protected area are bullet resistant to at least Underwriters Laboratories Ballistic Standard 752, Level 4, or National Institute of Justice Standard 0108.01, Type III.

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

<b>Design Commitment</b>	<b>Inspections, Tests, Analyses</b>	<b>Acceptance Criteria</b>
7. The vehicle barrier system will be designed, installed, and located at the necessary standoff distance to protect against the design-basis threat vehicle bombs.	7. Type test, inspections, analysis or a combination of type tests, inspections, and analysis will be performed for the vehicle barrier system.	7. A report exists and concludes that the vehicle barrier system will protect against the threat vehicle bombs based on the standoff distance for the system.
8(a). Access control points will be established and designed to control personnel and vehicle access into the protected area.	8(a). Tests, inspections, or a combination of tests and inspections of installed systems and equipment will be performed.	8(a). Access control points exist for the protected area and are configured to control access.
8(b). Access control points will be established and designed with equipment for the detection of firearms, explosives, and incendiary devices at the protected area personnel access points.	8(b). Tests, inspections, or a combination of tests and inspections of installed systems and equipment will be performed.	8(b). Detection equipment exists and is capable of detecting firearms, explosives, and incendiary devices at the protected area personnel access control points.
9. An access control system with a numbered photo identification badge system will be installed and designed for use by individuals who are authorized access to protected areas and vital areas without escort.	9. The access control system and the numbered photo identification badge system will be tested.	9. The access authorization system with a numbered photo identification badge system is installed and provides authorized access to protected and vital areas only to those individuals with unescorted access authorization.
10. Unoccupied vital areas will be designed with locking devices and intrusion detection devices that annunciate in the Secondary Alarm Station.	10. Tests, inspections, or a combination of tests and inspections of unoccupied vital area intrusion detection equipment and locking devices will be performed.	10. Unoccupied vital areas are locked, and intrusion is detected and annunciated in the Secondary Alarm Station.
11(a). Intrusion detection equipment and video assessment equipment will annunciate and be displayed concurrently in at least two continuously manned onsite alarm stations (Central and Secondary Alarm Stations).	11(a). Tests, inspections, or a combination of tests and inspections of intrusion detection equipment and video assessment equipment will be performed.	11(a). Intrusion detection equipment and video assessment equipment annunciate and display concurrently in at least two continuously manned onsite alarm stations (Central and Secondary Alarm Stations).

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

<b>Design Commitment</b>	<b>Inspections, Tests, Analyses</b>	<b>Acceptance Criteria</b>
11(b). The Secondary Alarm Station will be located inside the protected area and will be designed so that the interior of the alarm station is not visible from the perimeter of the protected area.	11(b). The Secondary Alarm Station location will be inspected.	11(b). The Secondary Alarm Station is located inside the protected area, and the interior of the alarm station is not visible from the perimeter of the protected area.
11(c). The alarm system will not allow the status of a detection point, locking mechanism or access control device to be changed without the knowledge and concurrence of the alarm station operator in the other alarm station.	11(c). Tests, inspections, or a combination of tests and inspections of intrusion detection equipment and access control equipment will be performed.	11(c). The alarm system will not allow the status of a detection point, locking mechanism or access control device to be changed without the knowledge and concurrence of the alarm station operator in the other alarm station.
11(d). 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(d). Tests, inspections, or a combination of tests and inspections of the Central and Secondary Alarm Stations will be performed.	11(d). 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.

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

<b>Design Commitment</b>	<b>Inspections, Tests, Analyses</b>	<b>Acceptance Criteria</b>
11(e). 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(e). Tests, inspections, or a combination of tests and inspections of the Central and Secondary Alarm Stations will be performed.	11(e). The Central and Secondary Alarm Stations are located, constructed, protected, and equipped to the standards of the Central Alarm Station and are functionally redundant (stations need not be identical in design).
12. The secondary security power supply system for alarm annunciator equipment contained in the Secondary Alarm Station and non-portable communications equipment contained in the Secondary Alarm Station is located within a vital area.	12. The secondary security power supply system will be inspected.	12. The secondary security power supply system for alarm annunciator equipment contained in the Secondary Alarm Station and non-portable communications equipment contained in the Secondary Alarm Station is located within a vital area.
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.

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

<b>Design Commitment</b>	<b>Inspections, Tests, Analyses</b>	<b>Acceptance Criteria</b>
13(b).Intrusion detection and assessment systems will be designed to provide visual display and audible annunciation of alarms in the Secondary Alarm Station.	13(b).Intrusion detection and assessment systems will be tested.	13(b).The intrusion detection and assessment systems provide a visual display and audible annunciation of alarms in the Secondary Alarm Station (concurrently with the display and annunciation in the Central Alarm Station).
14. No Site-Specific ITAAC specified.	14. No Site-Specific ITAAC specified.	14. No Site-Specific ITAAC specified.
15. Emergency exits through the protected area perimeter and vital area boundaries will be alarmed with intrusion detection devices and secured by locking devices that allow prompt egress during an emergency.	15. Tests, inspections, or a combination of tests and inspections of emergency exits through the protected area perimeter and vital area boundaries will be performed.	15. Emergency exits through the protected area perimeter and vital area boundaries are alarmed with intrusion detection devices and secured by locking devices that allow prompt egress during an emergency.
16(a).The Secondary Alarm Station will have conventional (land line) telephone service with the Main Control Room and local law enforcement authorities.	16(a).Tests, inspections, or a combination of tests and inspections of the Secondary Alarm Stations' conventional (land line) telephone service will be performed.	16(a).The Secondary Alarm Station is equipped with conventional (land line) telephone service with the Main Control Room and local law enforcement authorities.
16(b).The Secondary Alarm Station 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 Secondary Alarm Stations' continuous communication capabilities will be performed.	16(b).The Secondary Alarm Station is capable of continuous communication with on-duty watchmen, armed security officers, armed responders, or other security personnel who have responsibilities within the physical protection program and during contingency response events.

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

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

## **2.3 Emergency planning ITAAC**

The Emergency Planning ITAAC are provided in [Table 2.3-1](#).

**Table 2.3-1 ITAAC For Emergency Planning**

Planning Standard	EP Program Elements	Inspections, Tests, Analyses	Acceptance Criteria
<b>1.0 Emergency Classification System</b>			
10 CFR 50.47(b)(4) – A standard emergency classification and action level scheme, the bases of which include facility system and effluent parameters, is in use by the nuclear facility licensee, and State and local response plans call for reliance on information provided by facility licensees for determinations of minimum initial offsite response measures.	<p>1.1 A standard emergency classification and emergency action level (EAL) scheme exists, and identifies facility system and effluent parameters constituting the bases for the classification scheme. [D.1**]</p> <p>[**D.1 corresponds to NUREG-0654 /FEMA-REP-1 evaluation criteria.]</p> <p><b>ITAAC element addressed in:</b> <b>COL EP II.D.1</b></p>	<p>1.1 An inspection of the control room, technical support center (TSC), and emergency operations facility (EOF) will be performed to verify that they have displays for retrieving facility system and effluent parameters that constitute the bases for the classification scheme identified in the Emergency Plan Implementing Procedures (EPIPs).</p>	<p>1.1.1 The specific parameters identified in the EAL thresholds listed in the EPIPs have been retrieved and displayed in the control room, TSC, and EOF.</p> <p>1.1.2 The ranges available in the control room, TSC, and EOF encompass the values for the specific parameters identified in the EAL thresholds listed in the EPIPs .</p>



**Table 2.3-1 ITAAC For Emergency Planning**

Planning Standard	EP Program Elements	Inspections, Tests, Analyses	Acceptance Criteria
<b>2.0 Notification Methods and Procedures</b>			
10 CFR 50.47(b)(5) – Procedures have been established for notification, by the licensee, of State and local response organizations and for notification of emergency personnel by all organizations; the content of initial and follow-up messages to response organizations and the public has been established; and means to provide early notification and clear instruction to the populace within the plume exposure pathway Emergency Planning Zone have been established.	<p>2.1 The means exist to notify responsible State and local organizations within 15 minutes after the licensee declares an emergency. [E.1]</p> <p><b>ITAAC element addressed in:</b> COL EP II.E.1</p>	2.1 A test will be performed of the capabilities.	2.1 A means to notify responsible organizations, within 15 minutes after the licensee declares an emergency, has been established via the Operational Hot Line among the control room, the Commonwealth of Virginia, Caroline County, Hanover County, Louisa County, Orange County, and Spotsylvania County.
	<p>2.2 The means exist to notify emergency response personnel. [E.2]</p> <p><b>ITAAC element addressed in:</b> COL EP II.E.2</p>	2.2 A test will be performed of the capabilities.	2.2 A means exists to notify the NAPS Unit 3 emergency response organization.

**Table 2.3-1 ITAAC For Emergency Planning**

Planning Standard	EP Program Elements	Inspections, Tests, Analyses	Acceptance Criteria
<b>2.0 Notification Methods and Procedures (continued)</b>			
	<p>2.3 The means exist to notify and provide instructions to the populace within the plume exposure EPZ. [E.6]</p> <p><b>ITAAC element addressed in:</b>  <a href="#">COL EP II.E.6</a></p>	<p>2.3 The full test of notification capabilities will be conducted.</p>	<p>2.3 A means exists to notify and provide instructions to the public in accordance with the emergency plan requirements.</p>

**Table 2.3-1 ITAAC For Emergency Planning**

Planning Standard	EP Program Elements	Inspections, Tests, Analyses	Acceptance Criteria
<b>3.0 Emergency Communications</b>			
10 CFR 50.47(b)(6) – Provisions exist for prompt communications among principal response organizations to emergency personnel and to the public.	<p>3.1 The means exist for communications among the control room, TSC, EOF, principal State and local emergency operations centers (EOCs), and radiological field assessment teams. [F.1.d]</p> <p><b>ITAAC element addressed in:</b> COL EP II.F.1.d</p>	3.1 A test will be performed of the capabilities.	<p>3.1.1 Communications have been established between the control room and TSC.</p> <p>3.1.2 Communications have been established among the control room, TSC, and EOF.</p> <p>3.1.3 Communications via the Operational Hot Line have been established among the TSC and EOCs, which include the Commonwealth of Virginia, Caroline County, Hanover County, Louisa County, Orange County, and Spotsylvania County.</p> <p>3.1.4 Communications have been established between the TSC and radiological monitoring teams.</p> <p>3.1.5 Communications have been established between the EOF and radiological monitoring teams.</p>

**Table 2.3-1 ITAAC For Emergency Planning**

Planning Standard	EP Program Elements	Inspections, Tests, Analyses	Acceptance Criteria
<b>3.0 Emergency Communications (continued)</b>			
	<p>3.2 The means exist for communications from the control room, TSC, and EOF to the NRC headquarters and regional office EOCs (including establishment of the Emergency Response Data System (ERDS) between the onsite computer system and the NRC Operations Center.) [F.1.f]</p> <p><b>ITAAC element addressed in:</b>  <a href="#">COL EP II.F.1.f</a></p>	<p>3.2 A test will be performed of the capabilities.</p>	<p>3.2 Communications have been established from the control room, TSC, and EOF to the NRC headquarters and Region II EOCs and an access port for ERDS is provided.</p>
<b>4.0 Public Education and Information</b>			
[Deleted]	[Deleted]	[Deleted]	[Deleted]

**Table 2.3-1 ITAAC For Emergency Planning**

Planning Standard	EP Program Elements	Inspections, Tests, Analyses	Acceptance Criteria
<b>5.0 Emergency Facilities and Equipment</b>			
10 CFR 50.47(b)(8) – Adequate emergency facilities and equipment to support the emergency response are provided and maintained.	<p>5.1 The licensee has established a technical support center (TSC) and onsite operational support center (OSC). [H.1]</p> <p><b>ITAAC element addressed in:</b> COL EP II.H.1</p>	5.1 An inspection of the as-built TSC and OSC will be performed.	<p>5.1.1 The TSC has at least 1950 square feet of floor space.</p> <p>5.1.2 The following communications equipment have been provided in the TSC and voice transmission and reception have been accomplished:</p> <ul style="list-style-type: none"> <li>• NRC systems: Emergency Notification System (ENS), Health Physics Network (HPN), Reactor Safety Counterpart Link (RSCL), Protective Measures Counterpart Link (PMCL), Management Counterpart Link (MCL)</li> <li>• Dedicated telephone to EOF</li> <li>• Dedicated telephone to control room</li> <li>• Dedicated telephone to OSC</li> </ul>

**Table 2.3-1 ITAAC For Emergency Planning**

Planning Standard	EP Program Elements	Inspections, Tests, Analyses	Acceptance Criteria
<b>5.0 Emergency Facilities and Equipment (continued)</b>			
			<p>5.1.3 The TSC has been located in the Electrical Building.</p> <p>5.1.4 The TSC includes radiation monitors and a ventilation system with a high efficiency particulate air (HEPA) and charcoal filter.</p> <p>5.1.5 A back-up electrical power supply is available for the TSC.</p> <p>5.1.6 The OSC is in a location separate from the control room.</p> <p>5.1.7 The following communications equipment have been provided in the OSC and voice transmission and reception have been accomplished:</p> <ul style="list-style-type: none"> <li>• Dedicated telephone to control room</li> <li>• Dedicated telephone to TSC</li> <li>• Plant page system (voice transmission only)</li> </ul>

**Table 2.3-1 ITAAC For Emergency Planning**

Planning Standard	EP Program Elements	Inspections, Tests, Analyses	Acceptance Criteria
<b>5.0 Emergency Facilities and Equipment (continued)</b>			
	<p>5.2 The licensee has established an emergency operations facility (EOF). [H.2]</p> <p><b>ITAAC element addressed in:</b>  <a href="#">COL EP II.H.2</a></p>	<p>5.2 An inspection of the EOF will be performed.</p>	<p>5.2.1 A report exists that confirms the EOF has at least 243 square meters (2,625 square feet).</p> <p>5.2.2 Voice transmission and reception have been accomplished between the EOF and TSC.</p> <p>5.2.3 A report exists that confirms voice transmission and reception have been accomplished via the Operational Hot Line among the EOF, Commonwealth of Virginia, Caroline County, Hanover County, Louisa County, Orange County, and Spotsylvania County.</p> <p>5.2.4 The EOF has the means to acquire, display and evaluate radiological, meteorological, and plant system data pertinent to determining offsite protective measures.</p>

**Table 2.3-1 ITAAC For Emergency Planning**

Planning Standard	EP Program Elements	Inspections, Tests, Analyses	Acceptance Criteria
<b>6.0 Accident Assessment</b>			
10 CFR 50.47(b)(9) – Adequate methods, systems, and equipment for assessing and monitoring actual or potential offsite consequences of a radiological emergency condition are in use.	<p>6.1 The means exist to provide initial and continuing radiological assessment throughout the course of an accident. [I.2]</p> <p><b>ITAAC element addressed in:</b>  <a href="#">COL EP II.I.2, Appendix 2</a></p>	6.1 A test of the emergency plan will be conducted by performing an exercise or drill to verify the capability to perform accident assessment.	<p>6.1 An exercise or drill has been accomplished, including use of selected monitoring parameters identified in the EAL thresholds listed in the EIPs, to assess simulated degraded plant conditions and initiate protective actions in accordance with the following criteria:</p> <p>A. Accident Assessment and Classification</p> <ol style="list-style-type: none"> <li>1. Initiating conditions identified, EAL parameters determined, and the emergency correctly classified throughout the drill.</li> <li>2. Protective action recommendations developed and communicated to appropriate authorities.</li> </ol>



**Table 2.3-1 ITAAC For Emergency Planning**

Planning Standard	EP Program Elements	Inspections, Tests, Analyses	Acceptance Criteria
<b>6.0 Accident Assessment (continued)</b>			
			<p>B. Radiological Assessment and Control</p> <ol style="list-style-type: none"> <li>1. Onsite radiological surveys performed and samples collected.</li> <li>2. Radiation exposure of emergency workers monitored and controlled.</li> <li>3. Field monitoring teams assembled and deployed.</li> <li>4. Field team data collected and disseminated.</li> <li>5. Dose projections developed.</li> <li>6. The decision whether to issue radioprotective drugs to NAPS emergency workers made.</li> </ol>

**Table 2.3-1 ITAAC For Emergency Planning**

Planning Standard	EP Program Elements	Inspections, Tests, Analyses	Acceptance Criteria
<b>6.0 Accident Assessment (continued)</b>			
	<p>6.2 The means exist to determine the source term of releases of radioactive material within plant systems, and the magnitude of the release of radioactive materials based on plant system parameters and effluent monitors. [I.3]</p> <p><b>ITAAC element addressed in:</b>  <a href="#">COL EP II.I.3, Appendix 2</a></p>	<p>6.2 An analysis of emergency plan implementing procedures (EPIPs) and the Offsite Dose Calculation Manual (ODCM) will be completed to verify the ability to determine the source term and magnitude of release.</p>	<p>6.2 The EPIPs and ODCM correctly calculate source terms and magnitudes of postulated releases.</p>
	<p>6.3 The means exist to continuously assess the impact of the release of radioactive materials to the environment, accounting for the relationship between effluent monitor readings, and onsite and offsite exposures and contamination for various meteorological conditions. [I.4]</p> <p><b>ITAAC element addressed in:</b>  <a href="#">COL EP II.I.4, Appendix 2</a></p>	<p>6.3 An analysis of emergency plan implementing procedures (EPIPs) and the Offsite Dose Calculation Manual (ODCM) will be completed to verify the relationship between effluent monitor readings and offsite exposures and contamination for various meteorological conditions has been established.</p>	<p>6.3 The EPIPs and the ODCM calculate the relationship between effluent monitor readings and offsite exposures and contamination for various meteorological conditions.</p>

**Table 2.3-1 ITAAC For Emergency Planning**

Planning Standard	EP Program Elements	Inspections, Tests, Analyses	Acceptance Criteria
<b>6.0 Accident Assessment (continued)</b>			
	<p>6.4 The means exist to acquire and evaluate meteorological information. [I.5]</p> <p><b>ITAAC element addressed in:</b> COL EP II.I.5</p>	<p>6.4 An inspection of the control room, TSC, and EOF will be performed to verify the availability of the following meteorological data:</p> <ul style="list-style-type: none"> <li>• Wind speed (at 10 m and 48.4 m)</li> <li>• Wind direction (at 10 m and 48.4 m)</li> <li>• Ambient air temperature (at 10 m)</li> <li>• Differential air temperature (between 10 m and 48.4 m)</li> </ul>	<p>6.4 The following meteorological data is available in the control room, TSC, and EOF:</p> <ul style="list-style-type: none"> <li>• Wind speed (at 10 m and 48.4 m)</li> <li>• Wind direction (at 10 m and 48.4 m)</li> <li>• Ambient air temperature (at 10 m)</li> <li>• Differential air temperature (between 10 m and 48.4 m)</li> </ul>

**Table 2.3-1 ITAAC For Emergency Planning**

Planning Standard	EP Program Elements	Inspections, Tests, Analyses	Acceptance Criteria
<b>6.0 Accident Assessment (continued)</b>			
	<p>6.5 The means exist to make rapid assessments of actual or potential magnitude and locations of any radiological hazards through liquid or gaseous release pathways, including activation, notification means, field team composition, transportation, communication, monitoring equipment, and estimated deployment times. [I.8]</p> <p><b>ITAAC element addressed in:</b> COL EP II.I.8</p>	<p>6.5 A test will be performed of the capabilities.</p>	<p>6.5 Demonstrate the capability for making rapid assessment of the actual or potential magnitude and locations of any radiological hazards through liquid or gaseous release pathways.</p>
	<p>6.6 The capability exists to detect and measure radioiodine concentrations in air in the plume exposure EPZ, as low as 10<sup>-7</sup> µCi/cc (microcuries per cubic centimeter) under field conditions. [I.9]</p> <p><b>ITAAC element addressed in:</b> COL EP II.I.9</p>	<p>6.6 A test of NAPS field survey instrumentation will be performed to verify the capability to detect airborne concentrations as low as 1E-07 microcuries per cubic centimeter.</p>	<p>6.6 Instrumentation used for monitoring I-131 to detect airborne concentrations as low as 1E-07 microcuries per cubic centimeter has been provided.</p>

**Table 2.3-1 ITAAC For Emergency Planning**

Planning Standard	EP Program Elements	Inspections, Tests, Analyses	Acceptance Criteria
<b>6.0 Accident Assessment (continued)</b>			
	<p>6.7 The means exist to estimate integrated dose from the projected and actual dose rates, and for comparing these estimates with the EPA protective action guides (PAGs). [I.10]</p> <p><b>ITAAC element addressed in:</b>  <a href="#">COL EP II.I.10, Appendix 2</a></p>	<p>6.7 An analysis of emergency plan implementing procedures will be performed to verify that a methodology is provided to establish means for relating contamination levels and airborne radioactivity levels to dose rates and gross radioactivity measurements for the following isotopes – Kr-88, Ru-106, I-131, I-132, I-133, I-134, I-135, Te-132, Xe-133, Xe-135, Cs-134, Cs-137, Ce-144.</p>	<p>6.7 A report exists and concludes a methodology has been established for relating contamination levels and airborne radioactivity levels to dose rates and gross radioactivity measurements for the specified isotopes (Kr-88, Ru-106, I-131, I-132, I-133, I-134, I-135, Te-132, Xe-133, Xe-135, Cs-134, Cs-137, Ce-144), and for comparing the dose estimates with the EPA PAGs.</p>

**Table 2.3-1 ITAAC For Emergency Planning**

Planning Standard	EP Program Elements	Inspections, Tests, Analyses	Acceptance Criteria
<b>7.0 Protective Response</b>			
10 CFR 50.47(b)(10) – A range of protective actions has been developed for the plume exposure EPZ for emergency workers and the public. In developing this range of actions, consideration has been given to evacuation, sheltering, and, as a supplement to these, the prophylactic use of potassium iodide (KI), as appropriate. Guidelines for the choice of protective actions during an emergency, consistent with Federal guidance, are developed and in place, and protective actions for the ingestion exposure EPZ appropriate to the locale have been developed.	<p>7.1 The means exist to warn and advise onsite individuals of an emergency, including those in areas controlled by the operator, including: [J.1]</p> <ul style="list-style-type: none"> <li>a. employees not having emergency assignments;</li> <li>b. visitors;</li> <li>c. contractor and construction personnel; and</li> <li>d. other persons who may be in the public access areas, on or passing through the site, or within the owner controlled area.</li> </ul> <p><b>ITAAC element addressed in:</b> <a href="#">COL EP II.J.1</a></p>	7.1 A test of the onsite warning and communications capability will be performed during a drill or exercise.	<p>7.1.1 During a drill or exercise, notification and instructions were provided to onsite workers and visitors, within the Protected Area, over the plant public announcement system.</p> <p>7.1.2 During a drill or exercise, audible warnings were provided to individuals outside the Protected Area, but within the Owner Controlled Area.</p>

**Table 2.3-1 ITAAC For Emergency Planning**

Planning Standard	EP Program Elements	Inspections, Tests, Analyses	Acceptance Criteria
<b>8.0 Exercises and Drills</b>			
10 CFR 50.47(b)(14) – Periodic exercises are (will be) conducted to evaluate major portions of emergency response capabilities, periodic drills are (will be) conducted to develop and maintain key skills, and deficiencies identified as a result of exercises or drills are (will be) corrected.	<p>8.1 Licensee conducts a full-participation exercise to evaluate major portions of emergency response capabilities, which includes participation by each State and local agency within the plume exposure EPZ, and each State within the ingestion control EPZ. [N.1]</p> <p><b>ITAAC element addressed in:</b> COL EP II.N.1</p>	8.1 A full-participation exercise (test) will be conducted within the specified time periods of Appendix E to 10 CFR Part 50.	<p>8.1.1 The exercise is completed within the specified time periods of 10 CFR 50, Appendix E, and a report exists that confirms onsite exercise objectives listed below have been met and there are no uncorrected onsite exercise deficiencies.</p> <p><i>(continued)</i></p>

**Table 2.3-1 ITAAC For Emergency Planning**

Planning Standard	EP Program Elements	Inspections, Tests, Analyses	Acceptance Criteria
<b>8.0 Exercises and Drills (continued)</b>			
			<p><b>8.1.1 (continued)</b></p> <p>A. Accident Assessment and Classification</p> <p>1. Demonstrate the ability to identify initiating conditions, determine emergency action level (EAL) parameters, and correctly classify the emergency throughout the exercise.</p> <p>Standard Criteria:</p> <p>a. Determine the correct highest emergency classification level based on events which were in progress, considering past events and their impact on the current conditions, within 15 minutes from the time the initiating condition(s) or EAL(s) is (are) identified.</p> <p><i>(continued)</i></p>



Table 2.3-1 ITAAC For Emergency Planning

Planning Standard	EP Program Elements	Inspections, Tests, Analyses	Acceptance Criteria
8.0 Exercises and Drills (continued)			
			<p>8.1.1 (continued)</p> <p>B. Notifications</p> <p>1. Demonstrate the ability to alert, notify, and mobilize site emergency response personnel.</p> <p>Standard Criteria:</p> <p>a. Initiate activation of the emergency recall system following initial event classification for an Alert or higher.</p> <p>(continued)</p>

**Table 2.3-1 ITAAC For Emergency Planning**

Planning Standard	EP Program Elements	Inspections, Tests, Analyses	Acceptance Criteria
<b>8.0 Exercises and Drills (continued)</b>			
			<p><b>8.1.1 (continued)</b></p> <p>2. Demonstrate the ability to notify responsible State and local government agencies within 15 minutes and the NRC within 60 minutes after declaring an emergency.</p> <p>a. Initiate transmittal of initial information to the Commonwealth of Virginia and risk jurisdictions using the designated emergency plan implementing procedure (EPIP) within 15 minutes of event classification.</p> <p><i>(continued)</i></p>

**Table 2.3-1 ITAAC For Emergency Planning**

Planning Standard	EP Program Elements	Inspections, Tests, Analyses	Acceptance Criteria
<b>8.0 Exercises and Drills (continued)</b>			
			<p>8.1.1 (continued)</p> <ul style="list-style-type: none"> <li>b. Initiate transmittal of follow-up information to the Commonwealth of Virginia and risk jurisdictions using the designated EPIP within appropriate interval.</li> <li>c. Initiate transmittal of initial information to the Nuclear Regulatory Commission (NRC) using the designated EPIP within 60 minutes of event classification.</li> </ul> <p>(continued)</p>

**Table 2.3-1 ITAAC For Emergency Planning**

Planning Standard	EP Program Elements	Inspections, Tests, Analyses	Acceptance Criteria
<b>8.0 Exercises and Drills (continued)</b>			
			<p><b>8.1.1 (continued)</b></p> <p>3. Demonstrate the ability to warn or advise onsite individuals of emergency conditions.</p> <p>Standard Criteria:</p> <p>a. Initiate notification of onsite individuals (via plant page or telephone), using the designated EPIP within 15 minutes of notification.</p> <p>4. Demonstrate the capability of the Alert and Notification System (ANS) sirens to operate properly when required.</p> <p>Standard Criteria:</p> <p>a. 90% of the sirens operate properly.</p> <p><i>(continued)</i></p>

**Table 2.3-1 ITAAC For Emergency Planning**

Planning Standard	EP Program Elements	Inspections, Tests, Analyses	Acceptance Criteria
<b>8.0 Exercises and Drills (continued)</b>			
			<p><b>8.1.1 (continued)</b></p> <p>C. Emergency Response</p> <p>1. Demonstrate the capability to direct and control emergency operations.</p> <p>Standard Criteria:</p> <p>a. Command and control is demonstrated by the control room in the early phase of the emergency and the technical support center (TSC), after its activation.</p> <p><i>(continued)</i></p>

**Table 2.3-1 ITAAC For Emergency Planning**

Planning Standard	EP Program Elements	Inspections, Tests, Analyses	Acceptance Criteria
<b>8.0 Exercises and Drills (continued)</b>			
			<p>8.1.1 (continued)</p> <p>2. Demonstrate the ability to transfer emergency direction from the control room (simulator) to the TSC.</p> <p>Standard Criteria:</p> <p>a. Briefings were conducted prior to turnover responsibility. Personnel document transfer of duties.</p> <p>3. Demonstrate the ability to prepare for around-the-clock staffing requirements.</p> <p>Standard Criteria:</p> <p>a. Complete 24-hour staff assignments.</p> <p>(continued)</p>

**Table 2.3-1 ITAAC For Emergency Planning**

Planning Standard	EP Program Elements	Inspections, Tests, Analyses	Acceptance Criteria
<b>8.0 Exercises and Drills (continued)</b>			
			<p><b>8.1.1 (continued)</b></p> <p>4. Demonstrate the ability to perform assembly and accountability for all onsite individuals during an emergency requiring protected area assembly and accountability.</p> <p>Standard Criteria:</p> <p>a. Protected area personnel assembly and accountability completed within 30 minutes following initiation of assembly and accountability measures.</p> <p><i>(continued)</i></p>

**Table 2.3-1 ITAAC For Emergency Planning**

Planning Standard	EP Program Elements	Inspections, Tests, Analyses	Acceptance Criteria
<b>8.0 Exercises and Drills (continued)</b>			
			<p><b>8.1.1 (continued)</b></p> <p>D. Emergency Response Facilities</p> <p>1. Demonstrate activation of the operational support center (OSC), and full functional operation of the TSC and emergency operations facility (EOF).</p> <p>Standard Criteria:</p> <p>a. The TSC, OSC, and EOF are activated within about 60 minutes of the initial notification.</p> <p><i>(continued)</i></p>



**Table 2.3-1 ITAAC For Emergency Planning**

Planning Standard	EP Program Elements	Inspections, Tests, Analyses	Acceptance Criteria
<b>8.0 Exercises and Drills (continued)</b>			
			<p>8.1.1 (continued)</p> <p>2. Demonstrate the adequacy of equipment, security provisions, and habitability precautions for the TSC, OSC, EOF, and joint information center (JIC), as appropriate.</p> <p>Standard Criteria:</p> <p>a. Demonstrate the adequacy of the emergency equipment in the emergency response facilities.</p> <p>b. The <i>Security Team Leader</i> implements and follows applicable EIPs.</p> <p>(continued)</p>

**Table 2.3-1 ITAAC For Emergency Planning**

Planning Standard	EP Program Elements	Inspections, Tests, Analyses	Acceptance Criteria
<b>8.0 Exercises and Drills (continued)</b>			
			<p>8.1.1 (continued)</p> <p>c. The Health Physics (HP) personnel implement the designated EPIP provisions if an onsite or offsite release has occurred.</p> <p>3. Demonstrate the adequacy of communications for all emergency support resources.</p> <p>Standard Criteria:</p> <p>a. Emergency response facility personnel are able to operate all specified communication systems.</p> <p>(continued)</p>

**Table 2.3-1 ITAAC For Emergency Planning**

Planning Standard	EP Program Elements	Inspections, Tests, Analyses	Acceptance Criteria
<b>8.0 Exercises and Drills (continued)</b>			
			<p>8.1.1 (continued)</p> <p>b. Clear primary or backup communications links are established and maintained for the duration of the exercise.</p> <p>E. Radiological Assessment and Control</p> <p>1. Demonstrate the ability to obtain onsite radiological surveys and samples.</p> <p>Standard Criteria:</p> <p>a. HP personnel demonstrate the ability to obtain appropriate instruments (range and type) and take surveys.</p> <p>(continued)</p>

**Table 2.3-1 ITAAC For Emergency Planning**

Planning Standard	EP Program Elements	Inspections, Tests, Analyses	Acceptance Criteria
<b>8.0 Exercises and Drills (continued)</b>			
			<p>8.1.1 (continued)</p> <p>b. Airborne samples are taken when the conditions indicate the need for the information.</p> <p>2. Demonstrate the ability to continuously monitor and control radiation exposure to emergency workers.</p> <p>Standard Criteria:</p> <p>a. Emergency workers are issued selfreading dosimeters when radiation levels require, and exposures are controlled to 10 CFR 20 occupational dose limits (unless the Emergency Coordinator/EOF Director authorizes emergency limits).</p> <p>(continued)</p>

**Table 2.3-1 ITAAC For Emergency Planning**

Planning Standard	EP Program Elements	Inspections, Tests, Analyses	Acceptance Criteria
<b>8.0 Exercises and Drills (continued)</b>			
			<p>8.1.1 (continued)</p> <ul style="list-style-type: none"> <li>b. Exposure records are available.</li> <li>c. Emergency workers include Security and personnel within all emergency facilities.</li> </ul> <p>3. Demonstrate the ability to assemble and deploy field monitoring teams.</p> <p>Standard Criteria:</p> <ul style="list-style-type: none"> <li>a. One field monitoring team is ready to be deployed within 60 minutes of being requested, and no later than 90 minutes from the declaration of an Alert or higher emergency.</li> </ul> <p>(continued)</p>

**Table 2.3-1 ITAAC For Emergency Planning**

Planning Standard	EP Program Elements	Inspections, Tests, Analyses	Acceptance Criteria
<b>8.0 Exercises and Drills (continued)</b>			
			<p>8.1.1 (continued)</p> <p>4. Demonstrate the ability to satisfactorily collect and disseminate field team data.</p> <p>Standard Criteria:</p> <p>a. Field team data to be collected is dose rate or counts per minute (cpm) from the plume, both open and closed window, and air sample (gross/net cpm) for particulate and iodine, if applicable.</p> <p>b. Satisfactory data dissemination is from the field team to HP (<i>Plume Tracking/ Dose Assessment</i>) personnel.</p> <p>(continued)</p>

**Table 2.3-1 ITAAC For Emergency Planning**

Planning Standard	EP Program Elements	Inspections, Tests, Analyses	Acceptance Criteria
<b>8.0 Exercises and Drills (continued)</b>			
			<p>8.1.1 (continued)</p> <p>5. Demonstrate the ability to develop dose projections.</p> <p>Standard Criteria:</p> <p>a. Timely and accurate dose projections are performed in accordance with EPIPs.</p> <p>6. Demonstrate the ability to make the decision whether to issue radioprotective drugs to emergency workers.</p> <p>Standard Criteria:</p> <p>a. Radioprotective drugs are taken (simulated) if the estimated dose to the thyroid will exceed 25 rem committed dose equivalent (CDE).</p> <p>(continued)</p>

**Table 2.3-1 ITAAC For Emergency Planning**

Planning Standard	EP Program Elements	Inspections, Tests, Analyses	Acceptance Criteria
<b>8.0 Exercises and Drills (continued)</b>			
			<p><b>8.1.1 (continued)</b></p> <p>7. Demonstrate the ability to develop appropriate protective action recommendation(s) (PAR(s)) and notify appropriate authorities within 15 minutes of development.</p> <p>Standard Criteria:</p> <p>a. Total effective dose equivalent (TEDE) and CDE dose projections from the dose assessment computer code are compared to criteria in EIPs.</p> <p>b. PAR(s) is (are) developed within 15 minutes of data availability, as appropriate.</p> <p><i>(continued)</i></p>



**Table 2.3-1 ITAAC For Emergency Planning**

Planning Standard	EP Program Elements	Inspections, Tests, Analyses	Acceptance Criteria
<b>8.0 Exercises and Drills (continued)</b>			
			<p>8.1.1 (continued)</p> <p>c. PAR(s) is (are) transmitted to responsible State and local government agencies within 15 minutes of development.</p> <p>F. Public Information</p> <p>1. Demonstrate the capability to develop and disseminate clear, accurate, and timely information to the news media.</p> <p>Standard Criteria:</p> <p>a. Media information (e.g., press releases, press briefings, electronic media) is made available following notification of Dominion External Affairs personnel.</p> <p>(continued)</p>

**Table 2.3-1 ITAAC For Emergency Planning**

Planning Standard	EP Program Elements	Inspections, Tests, Analyses	Acceptance Criteria
<b>8.0 Exercises and Drills (continued)</b>			
			<p>8.1.1 (continued)</p> <p>2. Demonstrate the capability to establish and effectively operate rumor control in a coordinated fashion.</p> <p>Standard Criteria:</p> <p>a. Calls are answered in a timely manner with the correct information.</p> <p>b. Rumors are identified and addressed.</p> <p>(continued)</p>

**Table 2.3-1 ITAAC For Emergency Planning**

Planning Standard	EP Program Elements	Inspections, Tests, Analyses	Acceptance Criteria
<b>8.0 Exercises and Drills (continued)</b>			
			<p>8.1.1 (continued)</p> <p>G. Evaluation</p> <ol style="list-style-type: none"> <li>1. Demonstrate the ability to conduct a post-exercise critique, to determine areas requiring improvement and corrective action.</li> </ol> <p>Standard Criteria:</p> <ol style="list-style-type: none"> <li>a. An exercise time-line is developed, followed by an evaluation of the objectives.</li> <li>b. Significant problems in achieving the objectives are discussed to ensure understanding of why objectives were not fully achieved.</li> <li>c. Recommendations for improvement in non-objective areas are discussed.</li> </ol>

**Table 2.3-1 ITAAC For Emergency Planning**

Planning Standard	EP Program Elements	Inspections, Tests, Analyses	Acceptance Criteria
<b>8.0 Exercises and Drills (continued)</b>			
			<p>8.1.2 Onsite emergency response personnel are mobilized in sufficient number to fill the emergency positions identified in <a href="#">COL EP II.B, Onsite Emergency Organization</a>, and a report exists that confirms they successfully perform their assigned responsibilities as outlined in Acceptance Criterion <a href="#">8.1.1.D, Emergency Response Facilities</a>.</p> <p>8.1.3 The exercise is completed within the specified time periods of 10 CFR 50, Appendix E, a report exists that confirms offsite exercise objectives have been met and there are no uncorrected offsite deficiencies, or a license condition requires offsite deficiencies to be corrected prior to operation above 5% of rated power.</p>

**Table 2.3-1 ITAAC For Emergency Planning**

Planning Standard	EP Program Elements	Inspections, Tests, Analyses	Acceptance Criteria
<b>9.0 Implementing Procedures</b>			
10 CFR 50, Appendix E.V – No less than 180 days prior to the scheduled issuance of an operating license for a nuclear power reactor or a license to possess nuclear material, the applicant's detailed implementing procedures for its emergency plan shall be submitted to the Commission.	9.1 The licensee has submitted detailed implementing procedures for its emergency plan no less than 180 days prior to fuel load.	9.1 An inspection will be performed to confirm that the detailed implementing procedures for the Unit 3 Emergency Plan were submitted to the NRC.	9.1 Each of the detailed implementing procedures for the Unit 3 Emergency Plan, as defined in <a href="#">Appendix 5</a> of the Emergency Plan, are submitted to the NRC no less than 180 days prior to fuel load.

## **2.4 Site-Specific ITAAC**

The Site Specific ITAAC are provided in the following sections. Site specific systems were evaluated against selection criteria in Section 14.3. If a site-specific system described in the FSAR does not meet an ITAAC selection criterion, only the system name and the statement “No entry for this system” is provided.

### **2.4.1 ITAAC for Fill Concrete Under and Around the Sides of Seismic Category I Structures**

Compactible backfill will not be placed under Unit 3 Seismic Category I structures. ITAAC for fill concrete placed under and around the sides of Seismic Category I structures to a thickness greater than 5 feet are provided in [Table 2.4.1-1](#).

**Table 2.4.1-1 ITAAC for Fill Concrete Under and Around the Sides of Seismic Category I Structures**

<b>Design Commitment</b>	<b>Inspections, Tests, Analyses</b>	<b>Acceptance Criteria</b>
1. The foundation grade for the FWSC will be established using fill concrete. Fill concrete placed under and around the sides of Seismic Category I Structures to a thickness greater than 5 feet is designed and tested as specified in <a href="#">FSAR Section 2.5</a> .	Testing will be performed to determine the mean compressive strength for the fill concrete.	A report exists that demonstrates that the mean 28-day compressive strength of the fill concrete is equal to, or greater than, 17.2 MPa (2,500 psi).

**2.4.2 Not used.**

**2.4.3 ITAAC FOR Plant Service Water System  
(portion outside the scope of the certified design)**

**Design Description**

The Plant Service Water System (PSWS) is the heat sink for the Reactor Component Cooling Water System. The PSWS does not perform any safety-related function. There is no interface with any safety-related component.

The PSWS cooling towers and basin are not within the scope of the certified design. A specific design for this portion of the PSWS is described in [FSAR Section 9.2.1](#). Interface requirements are necessary for supporting the post-72-hour cooling function of the PSWS. The plant-specific portion of the PSWS shall meet the following interface requirement:

The volume of water shall be sufficient such that no active makeup shall be necessary to remove  $2.02 \times 10^7$  MJ ( $1.92 \times 10^{10}$  BTU) over a period of seven days. Additionally, the PSWS pumps must have sufficient available net positive suction head at the pump suction location for the lowest probable water level of the heat sink.

**Inspections, Test, Analyses and Acceptance Criteria**

[Table 2.4.3-1](#) provides a definition of the inspections, tests, and/or analyses, together with associated acceptance criteria for the PSWS.



**Table 2.4.3-1 ITAAC for Plant Service Water Reserve Storage Capacity**

Design Commitment	Inspections, Tests, Analyses	Acceptance Criteria
1. The volume of water in the PSWS basin shall be sufficient such that:		
a. No active makeup shall be necessary to remove $2.02 \times 10^7$ MJ ( $1.92 \times 10^{10}$ BTU) over a period of seven days.	Inspections and analysis will be performed of the PSWS basin and cooling towers.	A report exists and concludes that the volume of water in the PSWS basin is sufficient such that no active makeup is necessary to remove $2.02 \times 10^7$ MJ ( $1.92 \times 10^{10}$ BTU) over a period of seven days.
b. The PSWS pumps must have sufficient available net positive suction head at the pump suction location for the lowest probable water level of the heat sink.	Inspections and analysis will be performed of the PSWS basin.	A report exists and concludes that the PSWS pumps have sufficient available net positive suction head at the pump suction location for the lowest probable water level of the heat sink.

#### **2.4.4 Circulating Water System (portion outside the scope of the certified design)**

No ITAAC are required for this system.

#### **2.4.5 Station Water System (including intake structure and servicing equipment)**

No ITAAC are required for this system.

#### **2.4.6 Yard Fire Protection System (portions outside scope of certified design)**

No ITAAC are required for this system.

#### **2.4.7 Potable & Sanitary Water Systems**

No ITAAC are required for this system.

#### **2.4.8 Offsite Power Systems**

##### **Design Description**

The offsite portion of the Preferred Power Supply (PPS) consists of at least two electrical circuits and associated equipment that are used to interconnect the offsite transmission system with the plant main generator and the onsite portions of the PPS. The PPS consists of the normal preferred and alternate preferred power sources and includes those portions of the offsite power system and the onsite power system required for power flow from the offsite transmission system to the safety-related Isolation Power Centers (IPC) incoming line breakers.

The interface between the normal preferred ESBWR certified plant onsite portion of the PPS and the site-specific offsite portion of the PPS is at the switchyard side terminals of the high side motor operated disconnects (MODs) of the UAT circuit breaker and main generator circuit breaker. The interface between the alternate preferred ESBWR certified plant onsite portion of the PPS and the site specific offsite portion of the PPS is at the switchyard side terminals of the RAT high side MODs.

The as-built offsite portion of the PPS, from the transmission network to the interface with the onsite portions of the PPS, satisfies the applicable provisions of GDC 17. Specifically, the offsite portion of the PPS shall meet the following interface requirements:

1. At least two independent circuits supply electric power from the transmission network to the interface with the onsite portions of the PPS.
2. Each offsite circuit interfacing with the onsite portions of the PPS is adequately rated to supply the load requirements during design basis operating modes (refer to [DCD ITAAC 2.13.1-2, Item 9](#)).
3. Under normal steady state operation of the transmission system, the offsite portion of the PPS is capable of supplying voltage at the interface with the onsite portions of the PPS that will support operation of safety-related loads during design basis operating modes.

4. Under normal steady state operation of the transmission system, the offsite portion of the PPS is capable of supplying required frequency at the interface with the onsite portions of the PPS that will support operation of safety-related loads during design basis operating modes.
5. The fault current contribution of the offsite portion of the PPS is compatible with the interrupting capability of the onsite fault current interrupting devices.

**Inspections, Test, Analyses and Acceptance Criteria**

[Table 2.4.8-1](#) provides a definition of the inspections, tests, and/or analyses, together with associated acceptance criteria for the Offsite Power Systems.

**Table 2.4.8-1 ITAAC for Offsite Power Systems**

Design Commitment	Inspections, Tests, Analyses	Acceptance Criteria
<p>1. Independent offsite power sources supply electric power from the transmission network to the interface with the onsite PPS.</p> <p>a. A minimum of two offsite power circuits are provided to the interface with the onsite PPS and are physically separate.</p> <p>b. The two offsite power circuits interfacing with the onsite PPS are electrically independent.</p> <p>c. The breaker control power, instrumentation, and control circuits for the two offsite power circuits interfacing with the onsite PPS are electrically independent.</p>	<p>a. Inspections of the as-built offsite power supply transmission system will be performed.</p> <p>b. Test of the as-built offsite power system will be conducted by providing a test signal in only one offsite power circuit at a time.</p> <p>c. Tests of the as-built offsite breaker control power, instrumentation, and control circuits will be conducted by providing a test signal in only one offsite power circuit at a time.</p>	<p>a. A report exists and concludes the following inspection results:</p> <ul style="list-style-type: none"> <li>i) At least two offsite transmission circuits are provided to the interface with the onsite PPS.</li> <li>ii) The two offsite power circuits are physically separated by distance or physical barriers so as to minimize to the extent practical the likelihood of their simultaneous failure under design basis conditions.</li> <li>iii) The two offsite power circuits do not have a common takeoff structure or use a common structure for support.</li> </ul> <p>b. A report exists and concludes that a test signal exists in only the circuit under test.</p> <p>c. A report exists and concludes that a test signal exists in only the circuit under test.</p>

**Table 2.4.8-1 ITAAC for Offsite Power Systems**

Design Commitment	Inspections, Tests, Analyses	Acceptance Criteria
2. At least two offsite power circuits interfacing with the onsite portions of the PPS are each adequately rated to supply necessary load requirements during design basis operating modes.	2. Analyses of the offsite power system will be performed to evaluate the as-built ratings of each offsite power circuit interfacing with the onsite portions of the PPS against the load requirements determined in <a href="#">DCD ITAAC 2.13.1-2, Item 9</a> .	2. A report exists and concludes that at least two offsite power circuits from the transmission network up to the interface with the onsite portions of the PPS are each rated to supply the load requirements, during design basis operating modes, of their respective safety-related and nonsafety-related load groups.
3. Under normal steady state operation of the transmission system, the offsite portion of the PPS is capable of supplying required voltage to the interface with the onsite portions of the PPS that will support operation of safety-related loads during design basis operating modes.	3. Analyses of the as-built offsite portion of the PPS will be performed to evaluate the capability of each offsite power circuit to supply the voltage requirements at the interface with the onsite portion of the PPS determined in <a href="#">DCD ITAAC 2.13.1-2, Item 9</a> .	3. A report exists and concludes that as-built offsite portion of the PPS, under normal steady state operation of the transmission system, is capable of supplying voltage at the interface with the onsite portions of the PPS that will support operation of safety-related loads during design basis operating modes.
4. Under normal steady state operation of the transmission system, the offsite portion of the PPS is capable of supplying required frequency to the interface with the onsite portions of the PPS that will support operation of safety-related loads during design basis operating modes.	4. Analyses of the as-built offsite portion of the PPS will be performed to evaluate the capability of each offsite power circuit to supply the frequency requirements at the interface with the onsite portions of the PPS determined in <a href="#">DCD ITAAC 2.13.1-2, Item 9</a> .	4. A report exists and concludes that as-built offsite portion of the PPS, under normal steady state operation of the transmission system, is capable of supplying required frequency at the interface with the onsite portions of the PPS that will support operation of safety-related loads during design basis operating modes.

**Table 2.4.8-1 ITAAC for Offsite Power Systems**

<b>Design Commitment</b>	<b>Inspections, Tests, Analyses</b>	<b>Acceptance Criteria</b>
5. The fault current contribution of the offsite portion of the PPS is compatible with the interrupting capability of the onsite short circuit interrupting devices.	5. Analyses of the as-built offsite portion of the PPS will be performed to evaluate the fault current contribution of each offsite power circuit at the interface with the onsite portions of the PPS.	5. A report exists and concludes the short circuit contribution of the as-built offsite portion of the PPS at the interface with the onsite portions of the PPS is compatible with the interrupting capability of the onsite fault current interrupting devices as determined in <a href="#">DCD ITAAC 2.13.1-2, Item 10</a> .

#### **2.4.9 Communications Systems (Emergency Notification System)**

Addressed in [Table 2.3-1](#), [3.0 Emergency Communications](#)

#### **2.4.10 Makeup Water System**

No ITAAC are required for this system.

#### **2.4.11 (Deleted)**

#### **2.4.12 (Deleted)**

#### **2.4.13 Hydrogen Water Chemistry System**

No ITAAC are required for this system.

#### **2.4.14 Meteorological Monitoring System**

No ITAAC are required for this system.

#### **2.4.15 ITAAC for the Turbine Building**

##### **Design Description**

The Turbine Building is a Seismic Category II building. The design and analysis of the Turbine Building will preclude any adverse interaction with Seismic Category I structures, considering the soil properties. The Unit 3 seismic design response spectra are based on 5 percent damping of the free-field outcrop spectra at the foundation level (bottom of the base slab): 1) the scaled CSDRS shown in [DCD Figures 2.0-1](#) and [2.0-2](#); and 2) the FIRS for each individual structure. Foundation input response spectra will be developed for the Turbine Building at the foundation level. Site-specific soil structure interaction (SSI) analyses using the two Unit 3 seismic design response spectra and using site-specific soil properties will be performed for the Turbine Building following the same methodology used in [FSAR Section 3.7.2](#) to determine SSI enveloping seismic loads and to develop in-structure response spectra.

##### **Inspections, Test, Analyses and Acceptance Criteria**

[Table 2.4.15-1](#) provides a definition of the inspections, tests, and/or analyses, together with associated acceptance criteria for the Turbine Building.

**Table 2.4.15-1 ITAAC for the Turbine Building**

<b>Design Commitment</b>	<b>Inspections, Tests, Analyses</b>	<b>Acceptance Criteria</b>
1. Site-specific soil structure interaction (SSI) analyses using the two Unit 3 seismic design response spectra and using site-specific soil properties will be performed for the Turbine Buidling following the same methodology used in <a href="#">FSAR Section 3.7.2</a> to determine SSI enveloping seismic loads and to develop instructure response spectra.	Unit 3 soil properties will be determined. SSI analyses of the Turbine Buidling will be conducted. Structure-soil-structure interaction (SSSI) analyses of the Turbine Buidling will be conducted, if necessary.	The results of the site-specific SSI analyses of the Turbine Buidling are compared with the Turbine Buidling seismic responses presented in DCD Tier 1 ITAAC Table 2.16.8-1 seismic analyses to confirm the Unit 3 SSI is adequate for the Turbine Buidling seismic design.



## **2.4.16 ITAAC for the Radwaste Building**

### **Design Description**

The Radwaste Building is a Seismic Category NS building. The design and analysis of the Radwaste Building will preclude any adverse interaction with Seismic Category I structures, considering the soil properties. The Unit 3 seismic design response spectra are based on 5% damping of the free-field outcrop spectra at the foundation level (bottom of the base slab): 1) the scaled CSDRS shown in [DCD Figures 2.0-1](#) and [2.0-2](#); and 2) the FIRS for each individual structure. Foundation input response spectra will be developed for the Radwaste Building at the foundation level. Site-specific soil structure interaction (SSI) analyses using the two Unit 3 seismic design response spectra and using site-specific soil properties will be performed for the Radwaste Building following the same methodology used in [FSAR Section 3.7.2](#) to determine SSI enveloping seismic loads and to develop in-structure response spectra.

### **Inspections, Tests, Analyses, and Acceptance Criteria**

[Table 2.4.16-1](#) provides a definition of the inspections, tests, and/or analyses, together with associated acceptance criteria for the Radwaste Building.

**Table 2.4.16-1 ITAAC for the Radwaste Building**

<b>Design Commitment</b>	<b>Inspections, Tests, Analyses</b>	<b>Acceptance Criteria</b>
1. Site-specific soil structure interaction (SSI) analyses using the two Unit 3 seismic design response spectra and using site-specific soil properties will be performed for the Radwaste Building following the same methodology used in <a href="#">FSAR Section 3.7.2</a> to determine SSI enveloping seismic loads and to develop in-structure response spectra.	Unit 3 soil properties will be determined. SSI analyses of the Radwaste Building will be conducted. Structure-soil-structure interaction (SSSI) analyses of the Radwaste Building will be conducted, if necessary.	The results of the site-specific SSI analyses of the Radwaste Building are compared with the Radwaste Building seismic responses presented in DCD Tier 1 ITAAC Table 2.16.9-1 seismic analyses to confirm the Unit 3 SSI is adequate for the Radwaste Building seismic design.

## **2.4.17 ITAAC for the Service Building**

### **Design Description**

The Service Building is a Seismic Category II building. The design and analysis of the Service Building will preclude any adverse interaction with Seismic Category I structures, considering the soil properties. The Unit 3 seismic design response spectra are based on 5% damping of the free-field outcrop spectra at the foundation level (bottom of the base slab): 1) the scaled CSDRS shown in [DCD Figures 2.0-1](#) and [2.0-2](#); and 2) the FIRS for each individual structure. Foundation input response spectra will be developed for the Service Building at the foundation level. Site-specific soil structure interaction (SSI) analyses using the two Unit 3 seismic design response spectra and using site-specific soil properties will be performed for the Service Building following the same methodology used in [FSAR Section 3.7.2](#) to determine SSI enveloping seismic loads and to develop in-structure response spectra.

### **Inspections, Tests, Analyses, and Acceptance Criteria**

[Table 2.4.17-1](#) provides a definition of the inspections, tests, and/or analyses, together with associated acceptance criteria for the Service Building.

**Table 2.4.17-1 ITAAC for the Service Building**

<b>Design Commitment</b>	<b>Inspections, Tests, Analyses</b>	<b>Acceptance Criteria</b>
1. Site-specific soil structure interaction (SSI) analyses using the two Unit 3 seismic design response spectra and using site-specific soil properties will be performed for the Service Building following the same methodology used in <a href="#">FSAR Section 3.7.2</a> to determine SSI enveloping seismic loads and to develop instructure response spectra.	Unit 3 soil properties will be determined. SSI analyses of the Service Building will be conducted. Structure-soil-structure interaction (SSSI) analyses of the Service Building will be conducted, if necessary.	The results of the site-specific SSI analyses of the Service Building are compared with the Service Building seismic responses presented in DCD Tier 1 ITAAC Table 2.16.10-1 seismic analyses to confirm the Unit 3 SSI is adequate for the Service Building seismic design.

#### **2.4.18 ITAAC for the Ancillary Diesel Building**

##### **Design Description**

The Ancillary Diesel Building is a Seismic Category II building. The design and analysis of the Ancillary Diesel Building will preclude any adverse interaction with Seismic Category I structures, considering the soil properties. The Unit 3 seismic design response spectra are based on 5% damping of the free-field outcrop spectra at the foundation level (bottom of the base slab): 1) the scaled CSDRS shown in [DCD Figures 2.0-1](#) and [2.0-2](#); and 2) the FIRS for each individual structure. Foundation input response spectra will be developed for the Ancillary Diesel Building at the foundation level. Site-specific soil structure interaction (SSI) analyses using the two Unit 3 seismic design response spectra and using site-specific soil properties will be performed for the Ancillary Diesel Building following the same methodology used in [FSAR Section 3.7.2](#) to determine SSI enveloping seismic loads and to develop in-structure response spectra.

##### **Inspections, Tests, Analyses, and Acceptance Criteria**

[Table 2.4.18-1](#) provides a definition of the inspections, tests, and/or analyses, together with associated acceptance criteria for the Ancillary Diesel Building.

**Table 2.4.18-1 ITAAC for the Ancillary Diesel Building**

<b>Design Commitment</b>	<b>Inspections, Tests, Analyses</b>	<b>Acceptance Criteria</b>
1. Site-specific soil structure interaction (SSI) analyses using the two Unit 3 seismic design response spectra and using site-specific soil properties will be performed for the Ancillary Diesel Building following the same methodology used in <a href="#">FSAR Section 3.7.2</a> to determine SSI enveloping seismic loads and to develop instructure response spectra.	Unit 3 soil properties will be determined. SSI analyses of the Ancillary Diesel Building will be conducted. Structure-soil-structure interaction (SSSI) analyses of the Ancillary Diesel Building will be conducted, if necessary.	The results of the site-specific SSI analyses of the Ancillary Diesel Building are compared with the Ancillary Diesel Building seismic responses presented in DCD Tier 1 ITAAC Table 2.16.11-1 seismic analyses to confirm the Unit 3 SSI is adequate for the Ancillary Diesel Building seismic design.

#### 2.4.19 ITAAC for the Control Rods

##### **Design Description**

The control rods to be loaded into the initial core will be able to withstand seismic and dynamic loads under normal operation and design basis conditions.

##### **Inspections, Tests, Analyses, and Acceptance Criteria**

[Table 2.4.19-1](#) provides a definition of the inspections, tests, and/or analyses, together with associated acceptance criteria for the control rods. |

**Table 2.4.19-1    ITAAC for the Control Rods**

Design Commitment	Inspections, Tests, Analyses	Acceptance Criteria
1. The control rods to be loaded into the initial core will be able to withstand seismic and dynamic loads under normal operation and design basis conditions.	An analysis of the control rods seismic and dynamic loads will be performed on the control rods design that will be loaded into the ESBWR initial core. The analysis will be performed using the same methodology as described in <a href="#">DCD Reference 4.2-8</a> .	The control rods to be loaded into the core will be capable of withstanding design seismic and dynamic loadings.



### **3. North Anna 3 Proposed License Conditions**

#### **3.1 Emergency Planning Actions**

Prior to loading fuel, the licensee shall update its Units 1 & 2 Letters of Agreement with the following entities or their successors:

- Commonwealth of Virginia Department of Emergency Management
- Commonwealth of Virginia Department of Health
- Commonwealth of Virginia Department of State Police
- Commonwealth of Virginia Department of Game and Inland Fisheries
- Virginia Commonwealth University Medical Center
- Louisa County Administrator
- Louisa County Sheriff
- Louisa County Department of Fire and Emergency Medical Services
- Spotsylvania County Sheriff
- Spotsylvania Department of Fire, Rescue, and Emergency Management
- Orange County Administrator
- Orange County Sheriff
- Caroline County Sheriff
- Caroline County Department of Fire, Rescue, and Emergency Management
- Hanover County Administrator
- Hanover County Sheriff

These updated Letters of Agreement will identify the specific nature of arrangements in support of emergency preparedness for the North Anna Power Station site, including Unit 3. The Emergency Plan shall be revised to include these updated Letters of Agreement after they have been executed.

#### **3.2 License Conditions for Initial Test Program**

##### **3.2.1 Startup Administrative Manual, NAPS COL 14.2-2-A**

Prior to initiating the initial test program (ITP), a site-specific startup administration manual (SAM), which includes administrative procedures and requirements that govern the activities associated with the plant ITP, is to be provided to on-site NRC inspectors 60 days prior to the beginning of the preoperational test phase.

##### **3.2.2 Preoperational and Startup Test Procedures, NAPS COL 14.2-3-A**

The licensee will make available to on-site NRC inspectors preoperational test procedures 60 days prior to their intended use and startup test procedures 60 days prior to fuel load.

### **3.2.3 Site-Specific Preoperational and Startup Test Procedures, NAPS COL 14.2-6-A**

The licensee will make available to on-site NRC inspectors site-specific preoperational test procedures 60 days prior to their intended use and startup test procedures 60 days prior to fuel load.

### **3.2.4 Power Ascension Test Phase Reports**

#### **3.2.4.1 Nuclear Fuel Loading and Pre-critical Testing**

- a. Upon notifying the Director of the Office of New Reactors (NRO), or the Director's designee, in writing of successful completion of preoperational testing, and upon a Commission finding in accordance with 10 CFR 52.103(g) that all the acceptance criteria in the ITAAC in Appendix C to this license are met, the licensee is authorized to perform pre-critical tests in accordance with the conditions specified herein.
- b. The licensee shall review and evaluate the results of the pre-critical tests identified and confirm that these test results are within the range of acceptable values predicted or otherwise confirm that the tested systems perform their specified functions in accordance with the FSAR.

#### **3.2.4.2 Initial Criticality and Low-Power Testing**

- a. Upon notifying the Director of NRO, or the Director's designee, in writing of successful completion of pre-critical testing, the licensee is authorized to operate the facility at reactor steady-state core power levels not to exceed 5-percent thermal power in accordance with the conditions specified herein, but solely for purposes of conducting initial criticality and low-power testing.
- b. The licensee shall review and evaluate the results of the initial criticality and low-power tests and confirm that these test results are within the range of acceptable values predicted or otherwise confirm that the tested systems perform their specified functions in accordance with the FSAR.

#### **3.2.4.3 Power Ascension Testing**

- a. Upon notifying the Director of NRO, or the Director's designee, in writing of successful completion of initial criticality and low-power testing, the licensee is authorized to operate the facility at reactor steady-state core power levels not to exceed 100-percent thermal power in accordance with the conditions specified herein, but only for the purpose of performing power ascension testing.
- b. The licensee shall review and evaluate the results of the power ascension tests and confirm that these test results are within the range of acceptable values predicted or otherwise confirm that the tested systems perform their specified functions in accordance with the FSAR.

#### **3.2.4.4 Maximum Power Level**

Upon notifying the Director of NRO, or the Director's designee, in writing of successful completion of power ascension testing, the licensee is authorized to operate the facility at steady state reactor core power levels not to exceed 4500 MW thermal (100-percent thermal power), as described in the FSAR, in accordance with the conditions specified herein.

#### **3.2.5 Test Changes**

Within 30 days of a change to the initial test program described in [FSAR Chapter 14, Initial Test Program](#), made in accordance with 10 CFR 50.59 or in accordance with 10 CFR 52, Appendix E, Section VIII, "Processes for Changes and Departures," the licensee shall report the change to the Director of NRO, or the Director's designee, in accordance with 10 CFR 50.59(d).

### **3.3 License Conditions for Byproduct, Source and Special Nuclear Material**

Subject to the conditions and requirements incorporated herein, the Commission hereby licenses:

1. a. The licensee, pursuant to the Atomic Energy Act of 1954 (the Act) and 10 CFR 70, to receive and possess at any time, special nuclear material as reactor fuel, in accordance with the limitations for storage and amounts required for reactor operation, described in the FSAR, as supplemented and amended;  
b. The licensee, pursuant to the Act and 10 CFR 70, to use special nuclear material as reactor fuel, after a Commission 10 CFR 52.103(g) finding has been made, in accordance with the limitations for storage and amounts required for reactor operation, and described in the FSAR, as supplemented and amended;
2. The licensee, pursuant to the Act and 10 CFR 30, 10 CFR 40, and 10 CFR 70, to receive, possess, and use, at any time, any byproduct, source, and special nuclear material as sealed neutron sources for reactor startup, sealed sources for reactor instrumentation and radiation monitoring equipment calibration, and as fission detectors in amounts as required;
3. The licensee, pursuant to the Act and 10 CFR 30, 10 CFR 40, and 10 CFR 70, to receive, possess, and use in amounts as required, any byproduct, source, or special nuclear material without restriction to chemical or physical form, for sample analysis or instrument calibration or associated with radioactive apparatus or components; and
4. The licensee, pursuant to the Act and 10 CFR 30 and 10 CFR 70, to possess, but not separate, such byproduct and special nuclear materials as may be produced by the operation of the facility.

### **3.4 Fire Protection Program Actions**

Prior to the receipt of fuel on site, the licensee shall execute, or have in place, a formal Letter of Agreement with the Louisa County Department of Fire and Emergency Medical Services. This

Letter of Agreement will identify the specific nature of arrangements in support of the Fire Protection Program of Unit 3.

### **3.5 Operational Program Implementation**

#### **3.5.1 18 months prior to Fuel Load**

The licensee shall implement the operational program identified below at least 18 months prior to the scheduled date of initial fuel load:

- Reactor Operator Training Program

#### **3.5.2 Receipt of Materials**

The licensee shall implement the operational programs identified below prior to initial receipt of byproduct, source, or special nuclear materials on site (excluding Exempt Quantities as described in 10 CFR 30.18):

- Radiation Protection Program (for elements necessary to support receipt of byproduct, source, or special nuclear materials on site)
- Fire Protection Program (for elements necessary to support receipt of byproduct, source, or special nuclear materials on site)

The licensee shall implement the operational program identified below prior to receipt of special nuclear material on site:

- SNM Material Control and Accounting Program

#### **3.5.3 Fuel Receipt**

The licensee shall implement each operational program identified below prior to initial receipt of fuel on site:

- Fire Protection Program (for elements necessary to support receipt and storage of fuel on site)
- Radiation Protection Program (for elements necessary to support receipt and storage of fuel on site)

#### **3.5.4 60 days prior to Preoperational Testing**

The licensee shall implement the operational program identified below 60 days prior to the scheduled date of the first preoperational test:

- Initial Test Program – Preoperational Test Program

### **3.5.5 Fuel Load Authorization**

The licensee shall implement the operational program identified below prior to fuel load authorization per 10 CFR 52.103(g):

- Mitigative Strategies Description and Plans (for responding to circumstances associated with loss of large areas of the plant due to explosions or fire developed in accordance with 10 CFR 50.54(hh)(2))

### **3.5.6 60 days prior to Fuel Loading**

The licensee shall implement the operational program identified below 60 days prior to the scheduled date of initial fuel load:

- Initial Test Program – Startup Test Program

### **3.5.7 Fuel Loading**

The licensee shall implement each operational program identified below prior to initial fuel load:

- Environmental Qualification Program
- Reactor Vessel Material Surveillance Program
- Preservice Testing Program
- Fire Protection Program (for elements necessary to support fuel load and plant operation)
- Process and Effluent Monitoring and Sampling Program
- Radiation Protection Program (for elements necessary to support fuel load and plant operation)
- Snubber Testing and Inspection Program – Preservice Testing Program
- Lifecycle Minimization of Contamination

### **3.5.8 Commercial Service**

The licensee shall implement the operational program identified below prior to initial commercial service:

- Flow-Accelerated Corrosion Program

### **3.5.9 Waste Shipment**

The licensee shall implement the operational program identified below prior to initial radioactive waste shipment:

- Radiation Protection Program (for elements necessary to support shipment of radioactive waste)

## **3.6 Operational Program Readiness**

The licensee shall submit to the Director of NRO, a schedule, no later than 12 months after issuance of the COL, for implementation of the operational programs listed in [FSAR](#)

[Table 13.4-201](#). The schedule shall be updated every 6 months until 12 months before scheduled fuel loading, and every month thereafter until the operational programs in the FSAR table have been fully implemented. This schedule shall also address:

- The implementation of site-specific Severe Accident Management Guidelines
- The spent fuel rack coupon monitoring program implementation

### **3.7 Emergency Planning Actions**

#### **3.7.1 Emergency Action Levels (EALs)**

No later than 180 days prior to initial fuel load, the licensee shall submit to the Director of NRO, or the Director's designee, a fully developed set of site-specific EALs in accordance with NEI 07-01, Revision 0, with no deviations. The EALs shall have been discussed and agreed upon with state and local officials.

#### **3.7.2 On-Shift Staffing**

The licensee shall perform a detailed analysis of on-shift staffing, in accordance with NEI 10-05, "Assessment of On-Shift Emergency Response Organization Staffing and Capabilities," Revision 0, and the licensee shall incorporate any changes to the Emergency Plan (EP) needed to bring staff to the required levels, prior to or concurrent with the completion of EP ITAAC 2.0 of Table 2.3-1, and no less than 180 days prior to initial fuel load.

### **3.8 Actions to Address Fukushima Near-Term Task Force Recommendations**

#### **3.8.1 Emergency Planning Actions**

At least two years prior to scheduled initial fuel load, the licensee shall have performed an assessment of the onsite and augmented staffing capability to satisfy the regulatory requirements for response to a multi-unit event. The staffing assessment will be performed in accordance with NEI 12-01, "Guideline for Assessing Beyond Design Basis Accident Response Staffing and Communications Capabilities," Revision 0.

At least 180 days prior to scheduled initial fuel load, the licensee shall revise the EP to include the following:

- Incorporation of corrective actions identified in the staffing assessment described above
- Identification of how the augmented staff will be notified given degraded communications capabilities

At least two years prior to scheduled initial fuel load, the licensee shall have performed an assessment of on-site and off-site communications systems and equipment required during an emergency event to ensure communications capabilities can be maintained during prolonged station blackout conditions. The communications capability assessment will be performed in

accordance with NEI 12-01, "Guidance for Assessing Beyond Design Basis Accident Response Staffing and Communications Capabilities," Revision 0.

At least 180 days prior to scheduled initial fuel load, the licensee shall complete implementation of corrective actions identified in the communications capability assessment described above, including any related emergency plan and implementing procedure changes and associated training.

### **3.8.2 Mitigation Strategies for Beyond-Design-Basis External Events**

At least 180 days before the date scheduled for initial fuel load as set forth in the notification submitted in accordance with 10 CFR 52.103(a), the licensee shall use the guidance contained in JLD-ISG-2012-01, "Compliance with Order EA-12-049, Order Modifying Licenses with Regard to Requirements for Mitigation Strategies for Beyond-Design-Basis External Events," Revision 0 and the information presented in [FSAR Section 1.5](#) to complete the development of strategies and guidance to maintain and, if necessary, restore core cooling, containment, and spent fuel pool cooling capabilities beginning 72 hours after loss of all normal and emergency AC power sources, including any alternate AC source under 10 CFR 50.63. These strategies must be capable of:

- Mitigating a simultaneous loss of all AC power sources, both from the on-site and off-site power systems, and loss of normal access to the normal heat sink,
- Maintaining core cooling, containment, and spent fuel pool cooling capabilities for NA3 during and after such an event affecting all units on site, and
- Being implemented in all plant Modes.

Before initial fuel load, the licensee shall fully implement the strategies and guidance required in this license condition, including procedures, training, and acquisition, staging or installing of equipment and consumables relied upon in the strategies.

### **3.8.3 Reliable Spent Fuel Pool/Buffer Pool Level Instrumentation**

The spent fuel pool/buffer pool instrumentation shall be maintained available and reliable through appropriate development and implementation of a training program. The training program shall include provisions to ensure trained personnel can route the temporary power lines from the alternative power source to the appropriate connection points and connect the alternate power source to the safety-related level instrument channels.

## **3.9 Explosively Actuated Valves**

Before initial fuel load, the licensee shall implement a surveillance program for explosively actuated valves (squib valves) in the Gravity-Driven Cooling System and the Automatic Depressurization System at Unit 3 that includes the following provisions in addition to the requirements specified in the ASME Code for Operation and Maintenance of Nuclear Power Plants (OM Code) as incorporated by reference in 10 CFR 50.55a.

a. Preservice Testing (PST)

All explosively actuated valves shall be preservice tested by verifying the operational readiness of the actuation logic and associated electrical circuits for each explosively actuated valve with its pyrotechnic charge removed from the valve. This must include confirmation that sufficient electrical parameters (voltage, current, resistance) are available at the explosively actuated valve from each circuit that is relied upon to actuate the valve. In addition, a sample of at least 20 percent of the pyrotechnic charges in all explosively actuated valves shall be tested in the valve or a qualified test fixture to confirm the capability of each sampled pyrotechnic charge to provide the necessary motive force to operate the valve to perform its intended function without damage to the valve body or connected piping. The sampling must select at least one explosively actuated valve from each redundant safety train. Corrective action shall be taken to resolve any deficiencies identified in the operational readiness of the actuation logic or associated electrical circuits, or the capability of a pyrotechnic charge. If a charge fails to fire or its capability is not confirmed, all charges with the same batch number shall be removed, discarded, and replaced with charges from a different batch number that has demonstrated successful 20 percent sampling of the charges.

b. Operational Surveillance

Explosively actuated valves shall be subject to the following surveillance activities after commencing plant operation:

- (1) At least once every 2 years, each explosively actuated valve shall undergo visual external examination and remote internal examination (including evaluation and removal of fluids or contaminants that may interfere with operation of the valve) to verify the operational readiness of the valve and its actuator. This examination shall also verify the appropriate position of the internal actuating mechanism and proper operation of remote position indicators. Corrective action shall be taken to resolve any deficiencies identified during the examination with post-maintenance testing conducted that satisfies the PST requirements.
- (2) At least once every 10 years, each explosively actuated valve shall be disassembled for internal examination of the valve and actuator to verify the operational readiness of the valve assembly and the integrity of individual components and to remove any foreign material, fluid, or corrosion. The examination schedule shall provide for each valve design used for explosively actuated valves at the facility to be included among the explosively actuated valves to be disassembled and examined every 2 years. Corrective action shall be taken to resolve any deficiencies identified during the examination with post-maintenance testing conducted that satisfies the PST requirements.
- (3) For explosively actuated valves selected for test sampling every 2 years in accordance with the ASME OM Code, the operational readiness of the actuation logic and associated electrical circuits shall be verified for each sampled explosively actuated valve following



removal of its charge. This must include confirmation that sufficient electrical parameters (voltage, current, resistance) are available for each valve actuation circuit. Corrective action shall be taken to resolve any deficiencies identified in the actuation logic or associated electrical circuits.

- (4) For explosively actuated valves selected for test sampling every 2 years in accordance with the ASME OM Code, the sampling must select at least one explosively actuated valve from each redundant safety train. Each sampled pyrotechnic charge shall be tested in the valve or a qualified test fixture to confirm the capability of the charge to provide the necessary motive force to operate the valve to perform its intended function without damage to the valve body or connected piping. Corrective action shall be taken to resolve any deficiencies identified in the capability of a pyrotechnic charge in accordance with the PST requirements.

This license condition supplements the current requirements in the ASME OM Code for explosively actuated valves, and sets forth requirements for preservice testing and operational surveillance, as well as any necessary condition. The license condition will expire either when (1) the license condition is incorporated into the Unit 3 Inservice Testing (IST) program; or (2) the updated ASME OM Code requirements for squib valves in new reactors (i.e., plants receiving a construction permit, or a combined license for construction and operation, after January 1, 2000), as accepted by the NRC in 10 CFR 50.55a, are incorporated into the Unit 3 IST program. For the purpose of satisfying the license condition, the licensee retains the option of including in its IST program either the requirements stated in this condition, or including updated ASME OM Code requirements.

### **3.10 Steam Dryer License Conditions**

The licensee shall implement the following license conditions using supporting information in GE Hitachi Nuclear Energy Reports NEDE-33312P, "ESBWR Steam Dryer Acoustic Load Definition," Revision 5, December 2013, and NEDE-33313P, "ESBWR Steam Dryer Structural Evaluation," Revision 5, December 2013.

- 1.a. A Steam Dryer Monitoring Plan (SDMP) for the steam dryer shall be prepared and provided to the NRC no later than 90 days before initial fuel load.
- 1.b. Power Ascension Test (PAT) procedures for the steam dryer testing shall be provided to NRC inspectors no later than 10 days before initial fuel load. The PAT procedures shall include the following:
  - Level 1 and Level 2 acceptance limits for on-dryer strain gages and on-dryer accelerometers to be used up to 100% power
  - Specific hold points and their duration during 100% power ascension
  - Activities to be accomplished during hold points

- Plant parameters to be monitored
  - Actions to be taken if acceptance criteria are not satisfied
  - Verification of the completion of commitments and planned actions
2. An initial hold point during the first power ascension shall be at no more than 75 percent of full power. At this hold point, the licensee shall complete the actions specified in item 2 of the model license condition specified in paragraph (c) of Section 10.2, "Comprehensive Vibration Program Elements for a COL Applicant," in NEDE-33313P, Revision 5.
  3. Continue power ascension: The licensee shall complete the actions specified in item 3 of the model license condition specified in paragraph (c) of Section 10.2 in NEDE-33313P, Revision 5.
  4. Power ascension monitoring: The licensee shall complete the actions specified in item 4 of the model license condition specified in paragraph (c) of Section 10.2 in NEDE-33313P, Revision 5.
  5. Flow-induced resonances: The licensee shall complete the actions specified in item 5 of the model license condition specified in paragraph (c) of Section 10.2 in NEDE-33313P, Revision 5.
  6. Limit curve modifications: The licensee shall complete the actions specified in item 6 of the model license condition specified in paragraph (c) of Section 10.2 in NEDE-33313P, Revision 5.
  7. At the initial hold point and the hold points at approximately 85 and 95 percent power, power ascension shall not proceed for at least 72 hours after making the steam dryer data analysis and results available to the NRC by facsimile or electronic transmission to the NRC project manager.
  8. During the Power Maneuvering in the Feedwater Temperature Operating Domain testing, pressures, strains, and accelerations shall be recorded from the on-dryer mounted instrumentation across the expected range of normal steady state plant operating conditions. An evaluation of the dryer structural response over the range of steady state plant operating conditions shall be included in the stress analysis report described in license condition 3.10.9 (below).
  9. Full power achievement: The licensee shall complete the actions specified in item 9 of the model license condition specified in paragraph (c) of Section 10.2 in NEDE-33313P, Revision 5.
  10. A periodic steam dryer inspection program will be implemented as follows:

- a. During the first two scheduled refueling outages after reaching full power conditions, a visual inspection shall be conducted of all accessible areas and susceptible locations of the steam dryer in accordance with accepted industry guidance on steam dryer inspections. The results of these baseline inspections shall be provided to the NRC within 60 days following startup after each outage.
- b. At the end of the second refueling outage following full power operation, an updated SDMP reflecting a long-term inspection plan based on plant-specific and industry operating experience shall be provided to the NRC within 180 days following startup from the second refueling outage.