

# NORTH ANNA POWER STATION

## *Chapter 4.0 Design Features*



**VOLUME 20**

*Improved Technical Specifications*



**Dominion**

**NORTH ANNA POWER STATION  
IMPROVED TECHNICAL SPECIFICATION CONVERSION**

**CHAPTER 4.0 - DESIGN FEATURES**

**CHAPTER 4.0 - DESIGN FEATURES**  
**IMPROVED TECHNICAL SPECIFICATIONS**

## 4.0 DESIGN FEATURES

---

### 4.1 Site Location

The North Anna Power Station is located in the north-central portion of Virginia in Louisa County and is approximately 40 miles north-northwest of Richmond, 36 miles east of Charlottesville; 22 miles southwest of Fredericksburg; and 70 miles southwest of Washington, D.C. The site is on a peninsula on the southern shore of Lake Anna at the end of State Route 700.

---

### 4.2 Reactor Core

#### 4.2.1 Fuel Assemblies

The reactor shall contain 157 fuel assemblies. Each assembly shall consist of a matrix of Zircaloy or ZIRLO fuel rods with an initial composition of natural or slightly enriched uranium dioxide ( $\text{UO}_2$ ) as fuel material. Limited substitutions of zirconium alloy or stainless steel filler rods for fuel rods, in accordance with approved applications of fuel rod configurations, may be used. Fuel assemblies shall be limited to those fuel designs that have been analyzed with applicable NRC staff approved codes and methods and shown by tests or analyses to comply with all fuel safety design bases. A limited number of lead test assemblies that have not completed representative testing may be placed in nonlimiting core locations.

#### 4.2.2 Control Rod Assemblies

The reactor core shall contain 48 control rod assemblies. The control material shall be silver indium cadmium, as approved by the NRC.

---

### 4.3 Fuel Storage

#### 4.3.1 Criticality

4.3.1.1 The spent fuel storage racks are designed and shall be maintained with:

- a. Fuel assemblies having a maximum U-235 enrichment of 4.3 weight percent;
  - b.  $k_{\text{eff}} \leq 0.95$  if fully flooded with unborated water, which includes a 3.4%  $\Delta k/k$  allowance for uncertainties; and
-

## 4.0 DESIGN FEATURES

---

### 4.3 Fuel Storage (continued)

- c. A nominal 10 9/16 inch center to center distance between fuel assemblies placed in the fuel storage racks.

#### 4.3.1.2 The new fuel storage racks are designed and shall be maintained with:

- a. Fuel assemblies having a maximum U-235 enrichment of 4.3 weight percent;
- b.  $k_{eff} \leq 0.95$  if fully flooded with unborated water, which includes an allowance for uncertainties;
- c.  $k_{eff} \leq 0.98$  if moderated by aqueous foam, which includes an allowance for uncertainties; and
- d. A nominal 21 inch center to center distance between fuel assemblies placed in the storage racks.

#### 4.3.2 Drainage

The spent fuel storage pool is designed and shall be maintained to prevent inadvertent draining of the pool below elevation 288.83 Mean Sea Level, USGS datum.

#### 4.3.3 Capacity

The spent fuel storage pool is designed and shall be maintained with a storage capacity limited to no more than 1737 fuel assemblies.

---

**CHAPTER 4.0 - DESIGN FEATURES**  
**IMPROVED TECHNICAL SPECIFICATIONS BASES**

Chapter 4.0 does not have Bases.

**CHAPTER 4.0 - DESIGN FEATURES**  
**IMPROVED STANDARD TECHNICAL**  
**SPECIFICATIONS**  
**MARKUP AND JUSTIFICATION FOR DEVIATIONS**



#### 4.0 DESIGN FEATURES

##### 4.1 Site Location ~~(Text description of site location.)~~

Insert

①

##### 4.2 Reactor Core

###### 4.2.1 Fuel Assemblies

The reactor shall contain ~~[157]~~ fuel assemblies. Each assembly shall consist of a matrix of ~~[Zircalloy or ZIRLO]~~ fuel rods with an initial composition of natural or slightly enriched uranium dioxide ( $UO_2$ ) as fuel material. Limited substitutions of zirconium alloy or stainless steel filler rods for fuel rods, in accordance with approved applications of fuel rod configurations, may be used. Fuel assemblies shall be limited to those fuel designs that have been analyzed with applicable NRC staff approved codes and methods and shown by tests or analyses to comply with all fuel safety design bases. A limited number of lead test assemblies that have not completed representative testing may be placed in nonlimiting core ~~regions~~ locations.

①  
①

⑤

###### 4.2.2 ~~[Control] Rod Assemblies~~

The reactor core shall contain ~~[48]~~ control rod assemblies. The control material shall be ~~[silver indium cadmium, boron carbide, or hafnium metal]~~ as approved by the NRC.

①  
①  
①

##### 4.3 Fuel Storage

###### 4.3.1 Criticality

4.3.1.1 The spent fuel storage racks are designed and shall be maintained with:

a. Fuel assemblies having a maximum U-235 enrichment of ~~[4.5]~~ weight percent;

①

b.  $k_{eff} \leq 0.95$  if fully flooded with unborated water, which includes an allowance for uncertainties ~~[as described in Section 9.1 of the FSAR]~~ and

③

(continued)

CTS  
New

5.3.1

3.2

5.3.1

5.6.1.1.e

a 3.4%  $\pm 4\%$

### INSERT

The North Anna Power Station is located in the north-central portion of Virginia in Louisa County and is approximately 40 miles north-northwest of Richmond, 36 miles east of Charlottesville; 22 miles southwest of Fredericksburg; and 70 miles southwest of Washington, D.C. The site is on a peninsula on the southern shore of Lake Anna at the end of State Route 700.

CTS

## 4.0 DESIGN FEATURES

### 4.3 Fuel Storage (continued)

10/9/16

5.6.1.1.b

[c. A nominal ~~(9.15)~~ inch center to center distance between fuel assemblies placed in ~~the~~ high density fuel storage racks];

[d. A nominal ~~[10.95]~~ inch center to center distance between fuel assemblies placed in ~~[low density fuel storage racks];~~]

[e. New or partially spent fuel assemblies with a discharge burnup in the "acceptable range" of Figure [3.7.17-1] may be allowed unrestricted storage in [either] fuel storage rack(s); and]

[f. New or partially spent fuel assemblies with a discharge burnup in the "unacceptable range" of Figure [3.7.17-1] will be stored in compliance with the NRC approved [specific document containing the analytical methods, title, date, or specific configuration or figure].]

4.3.1.2 The new fuel storage racks are designed and shall be maintained with:

5.3.1

4.3

a. Fuel assemblies having a maximum U-235 enrichment of ~~(4.5)~~ weight percent;

b.  $k_{eff} \leq 0.95$  if fully flooded with unborated water which includes an allowance for uncertainties ~~as described in Section 9.1 of the FSAR~~;

c.  $k_{eff} \leq 0.98$  if moderated by aqueous foam, which includes an allowance for uncertainties ~~as described in Section 9.1 of the FSAR~~; and

21

d. A nominal ~~(10.95)~~ inch center to center distance between fuel assemblies placed in the storage racks.

### 4.3.2 Drainage

5.6.2

The spent fuel storage pool is designed and shall be maintained to prevent inadvertent draining of the pool below elevation ~~(28 ft)~~;

288.83 Mean Sea Level, USGS datum  
(continued)

CTS

#### 4.0 DESIGN FEATURES

---

#### 4.3 Fuel Storage (continued)

##### 4.3.3 Capacity

5.6.3

The spent fuel storage pool is designed and shall be maintained with a storage capacity limited to no more than ~~1737~~ fuel assemblies.

---

(1)

**JUSTIFICATION FOR DEVIATIONS**  
**CHAPTER 4.0, DESIGN FEATURES**

---

1. The brackets have been removed and the proper plant specific information/value has been provided.
2. Changes are made (additions, deletions, and/or changes) to the ISTS which reflect the plant specific nomenclature, number, reference, system description, analysis, or licensing basis description.
3. References to fuel storage  $K_{eff}$  uncertainty discussions in the FSAR are eliminated as the North Anna UFSAR does not contain this information. Where specific uncertainties are part of the licensing basis, that information has been added to the ITS.
4. The North Anna spent fuel pool does not contain low density storage racks or utilize zoned spent fuel storage. ITS requirements related to these features have been eliminated.
5. Design Features 4.2.1 is revised to allow a limited number of lead test assemblies that have not completed representative testing may be placed in nonlimiting core locations, vice nonlimiting core regions. This wording is consistent with the CTS and allows greater flexibility in the placement of lead test assemblies.

**CHAPTER 4.0 - DESIGN FEATURES**

**IMPROVED STANDARD TECHNICAL  
SPECIFICATIONS BASES**

**MARKUP AND JUSTIFICATION FOR DEVIATIONS**

Chapter 4.0 does not have Bases.

**CHAPTER 4.0 - DESIGN FEATURES**  
**CURRENT TECHNICAL SPECIFICATIONS**  
**MARKUP AND DISCUSSION OF CHANGES**





(A.1)

2-17-94

ITS

5.0 DESIGN FEATURES

5.1 SITE

Insert proposed 4.1

(A.3)

EXCLUSION AREA

5.1.1 The exclusion area (site boundary) shall be as shown in Figure 5.1-1.

LOW POPULATION ZONE

5.1.2 The low population zone shall be as shown in Figure 5.1-2.

MAP DEFINING UNRESTRICTED AREAS FOR RADIOACTIVE GASEOUS AND LIQUID EFFLUENTS

5.1.3 Information regarding radioactive gaseous and liquid effluents, which allows identification of structures and release points as well as definition of UNRESTRICTED AREAS within the SITE BOUNDARY that are accessible to MEMBERS OF THE PUBLIC, shall be as shown in Figure 5.1-1.

(LA.1)

5.2 CONTAINMENT

CONFIGURATION

5.2.1 The reactor containment building is a steel lined, reinforced concrete building of cylindrical shape with a dome roof and having the following design features:

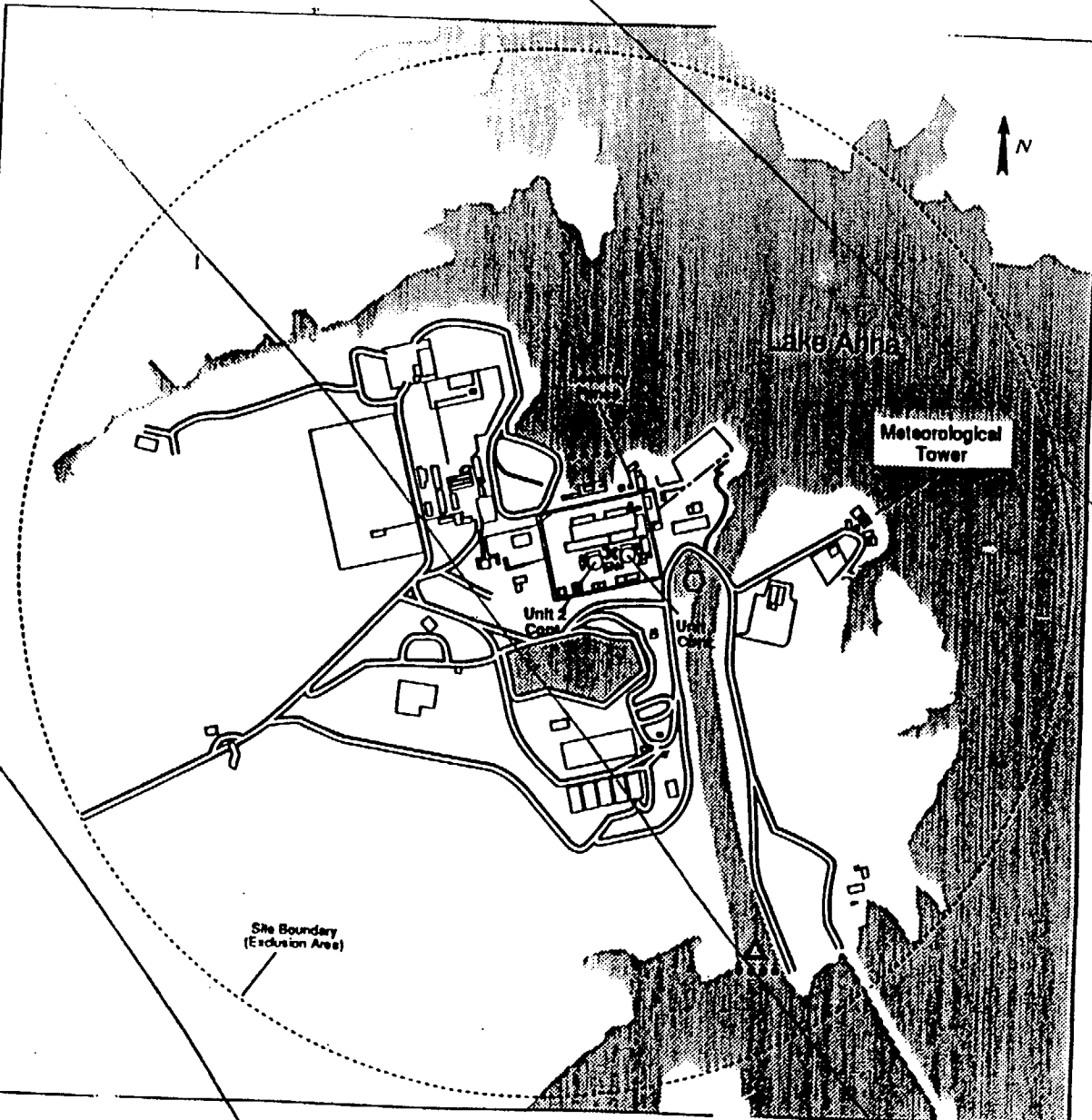
- a. Nominal inside diameter = 126 feet.
- b. Nominal inside height = 190 feet, 7 inches.
- c. Minimum thickness of concrete walls = 4.5 feet.
- d. Minimum thickness of concrete roof = 2.5 feet.
- e. Minimum thickness of concrete floor pad = 10 feet.
- f. Nominal thickness of the cylindrical portion of the steel liner = 3/8 inches.
- g. Net free volume =  $1.825 \times 10^6$  cubic feet.
- h. Nominal thickness of hemispherical dome portion of the steel liner = 1/2 inch.

(LA.2)

NORTH ANNA - UNIT 1

5-2

Amendment No. 48, 57, 178



Notes:

X Gaseous Releases

1. Process Vent - 157.5 Ft.
2. Vent - Vent A & B and other release points considered ground level releases.

O Liquid Release to the Discharge Canal

Δ Liquid Release to the Unrestricted Area

.... Buoy Barriers

--- Site Boundary - Area at or beyond which is unrestricted for gaseous effluents.

Land Maximum Member of the Public Occupancy = 336 hrs/year

Lake Maximum Member of the Public Occupancy = 2232 hrs/year

Figure 5.1.1

Map Defining Unrestricted Areas for Radioactive Gaseous and Liquid Effluents

2-17-94

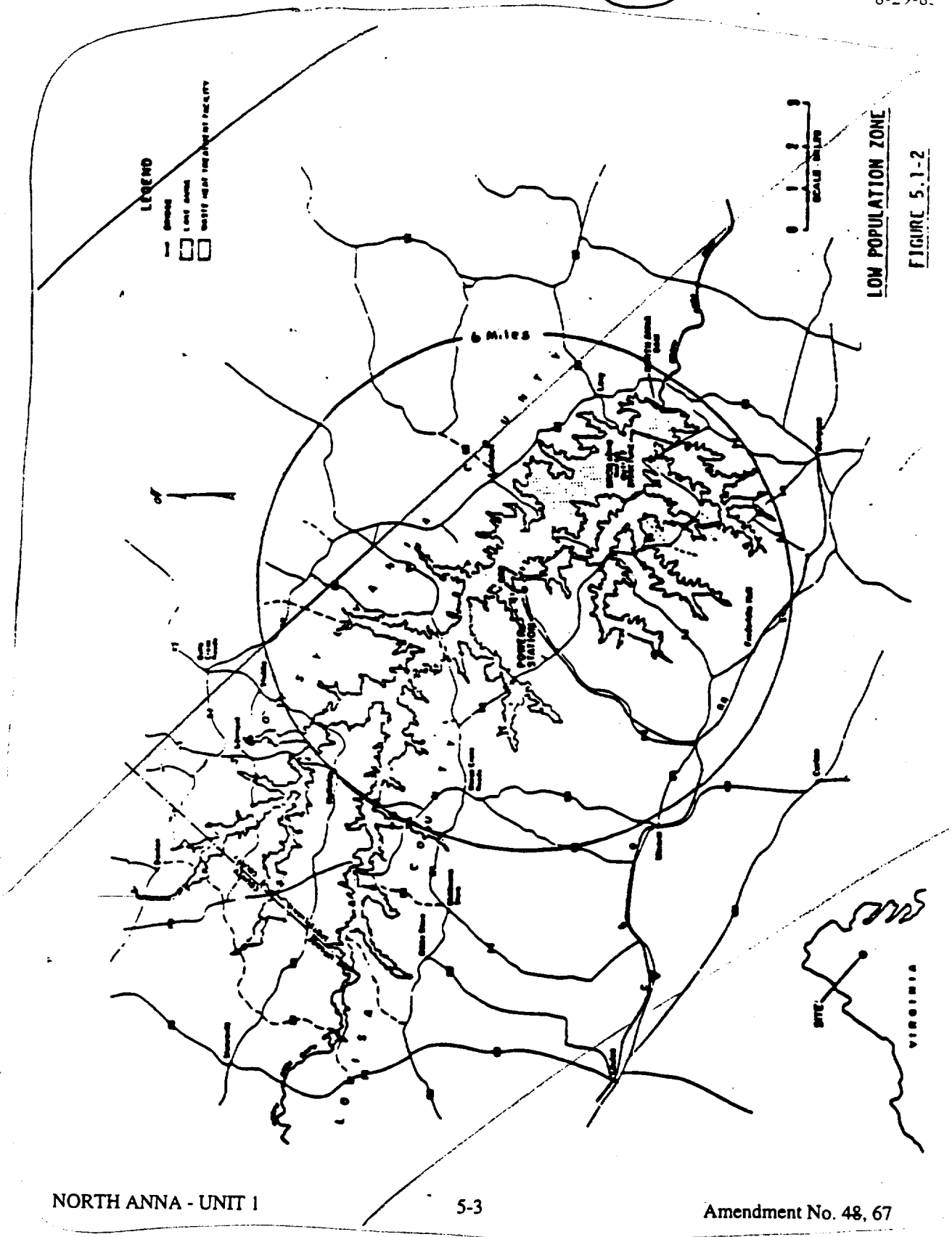
LA.1

Chapter 4.0

SV844C

(LA.1)

8-24-85



LOW POPULATION ZONE

FIGURE 5.1-2

NORTH ANNA - UNIT 1

5-3

Amendment No. 48, 67

05-09-97

ITS

DESIGN FEATURESDESIGN PRESSURE AND TEMPERATURE

5.2.2 The reactor containment building is designed and shall be maintained for a maximum internal pressure of 45 psig and a temperature of 280°F.

LA.2

5.3 REACTOR COREFUEL ASSEMBLIES

. Each assembly shall consist of a matrix of

5.3.1 The reactor core shall contain 157 fuel assemblies ~~with each fuel assembly containing 264 fuel rods clad with Zircaloy or ZIRLO~~. Each fuel rod shall have a nominal active fuel length of 144 inches. ~~The initial core loading shall have a maximum enrichment of 3.2 weight percent U-235.~~

LA.3

Reload fuel shall be similar in physical design to the initial core loading and shall have a maximum enrichment of 4.3 weight percent U-235. Limited substitutions of zirconium alloy or stainless steel filler rods for fuel rods, in accordance with NRC-approved applications of fuel rod configurations, may be used. Fuel assemblies shall be limited to those designs that have been analyzed with applicable NRC staff-approved codes and methods, and shown by tests or analyses to comply with all fuel safety design bases. A limited number of lead test assemblies that have not completed representative testing may be placed in nonlimiting core locations.

CONTROL ROD ASSEMBLIES

5.3.2 The reactor core shall contain 48 full length control rod assemblies. ~~The full length control rod assemblies shall contain a nominal 142 inches of absorber material. The nominal values of absorber material shall be 80 percent silver, 15 percent indium and 5 percent cadmium. All control rods shall be clad with stainless steel tubing.~~

5.4 REACTOR COOLANT SYSTEMDESIGN PRESSURE AND TEMPERATURE

5.4.1 The reactor coolant system is designed and shall be maintained.

The control material shall be silver indium cadmium as approved by the NRC

LA.4

LA.5

Fuel rods with an initial composition of natural or slightly enriched ceranium dioxide ( $UD_2$ ) as fuel material.

9-21-92

ITSDESIGN FEATURES

- a. In accordance with the code requirements specified in Section 5.2 of the FSAR, with allowance for normal degradation pursuant to the applicable Surveillance Requirements,
- b. For a pressure of 2485 psig, and
- c. For a temperature of 650°F, except for the pressurizer which is 680°F.

VOLUME

5.4.2 The total water and steam volume of the reactor coolant system is approximately 10,000 cubic feet at nominal operating conditions.

5.5 METEOROLOGICAL TOWER LOCATION

5.5.1 The meteorological tower shall be located as shown on Figure 5.1-1.

5.6 FUEL STORAGECRITICALITY

5.6.1.1 The spent fuel storage racks are designed and shall be maintained with:

- a. A  $K_{eff}$  equivalent to less than or equal to 0.95 when flooded with unborated water, which includes a conservative allowance of 3.4% delta k/k for uncertainties.
- b. A nominal 10 9/16 inch center-to-center distance between fuel assemblies placed in the storage racks.

5.6.1.2 The new fuel pit storage racks are designed and shall be maintained with a nominal 21 inch center-to-center distance between new fuel assemblies such that, on a best estimate basis,  $K_{eff}$  will not exceed .98, with fuel of the highest anticipated enrichment in place, when aqueous foam moderation is assumed.

5.6.1.3 If new fuel for the first core loading is stored dry in the spent fuel storage racks, the center-to-center distance between the new fuel assemblies will be administratively limited to 28 inches and the  $K_{eff}$  shall not exceed 0.98 when aqueous foam moderation is assumed.

Insert proposed 4.3.1.2.6

NORTH ANNA - UNIT 1

5-5

Amendment No. 14, 27, 37, 166,

A.1

ITS

DESIGN FEATURES

DRAINAGE

4.3.2

5.6.2 The spent fuel pit is designed and shall be maintained to prevent inadvertent draining of the pool below elevation 288.83 feet. Mean Sea Level, USGS datum.

CAPACITY

4.3.3

5.6.3 The fuel storage pool is designed and shall be maintained with a storage capacity limited to no more than 1737 fuel assemblies.

5.7 COMPONENT CYCLIC OR TRANSIENT LIMIT

5.7.1 The components identified in Table 5.7-1 are designed and shall be maintained within the cyclic or transient limits of Table 5.7-1.

See  
ITS  
Chapter  
5.0





A.1

5.0 DESIGN FEATURES5.1 SITE

Insert proposed 4.1

EXCLUSION AREA

5.1.1 The exclusion area (site boundary) shall be as shown in Figure 5.1-1.

LOW POPULATION ZONE

5.1.2 The low population zone shall be as shown in Figure 5.1-2.

MAP DEFINING UNRESTRICTED AREAS FOR RADIOACTIVE GASEOUS AND LIQUID EFFLUENTS

5.1.3 Information regarding radioactive gaseous and liquid effluents, which allows identification of structures and release points as well as definition of UNRESTRICTED AREAS within the SITE BOUNDARY that are accessible to MEMBERS OF THE PUBLIC, shall be as shown in Figure 5.1-1.

5.2 CONTAINMENTCONFIGURATION

5.2.1 The reactor containment building is a steel lined, reinforced concrete building of cylindrical shape with a dome roof and having the following design features:

- a. Nominal inside diameter = 126 feet.
- b. Nominal inside height = 190 feet, 7 inches.
- c. Minimum thickness of concrete walls = 4.5 feet.
- d. Minimum thickness of concrete roof = 2.5 feet.
- e. Minimum thickness of concrete floor pad = 10 feet.
- f. Nominal thickness of the cylindrical portion of the steel liner = 3/8 inches.
- g. Net free volume =  $1.825 \times 10^6$  cubic feet.
- h. Nominal thickness of hemispherical dome portion of the steel liner = 1/2 inch.

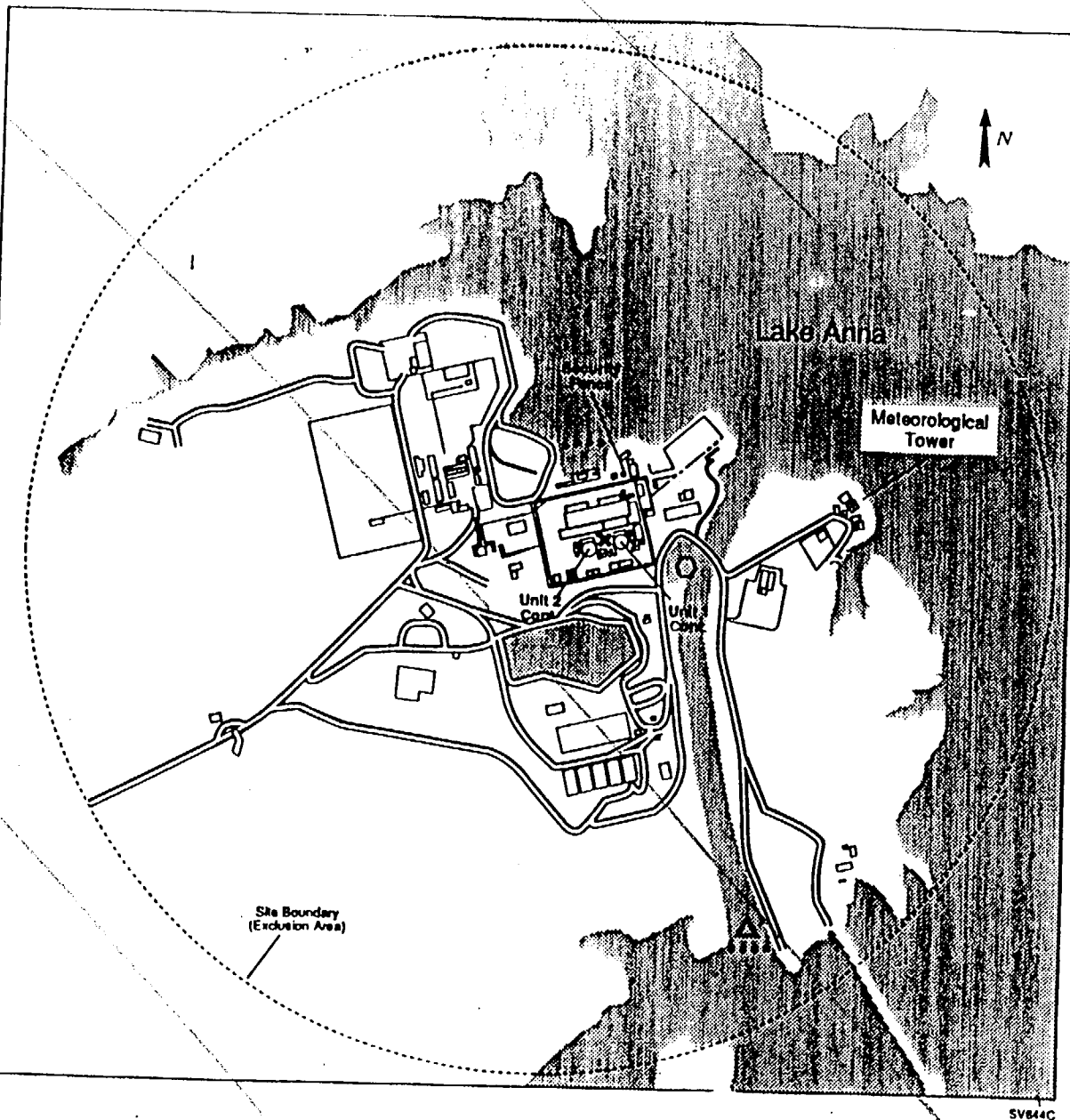
DESIGN PRESSURE AND TEMPERATURE

5.2.2 The reactor containment building is designed and shall be maintained for a maximum internal pressure of 45 psig and a temperature of 280°F.

NORTH ANNA - UNIT 2

5-2

Amendment No. 27, 32, 159



Notes:

- X Gaseous Releases
    1. Process Vent - 157.5 Ft.
    2. Vent - Vent A & B and other release points considered ground level releases.
  - ◻ Liquid Release to the Discharge Canal
  - △ Liquid Release to the Unrestricted Area
  - .... Buoy Barriers
  - - - Site Boundary - Area at or beyond which is unrestricted for gaseous effluents.
- Land Maximum Member of the Public Occupancy = 336 hrs/year
- Lake Maximum Member of the Public Occupancy = 2232 hrs/year

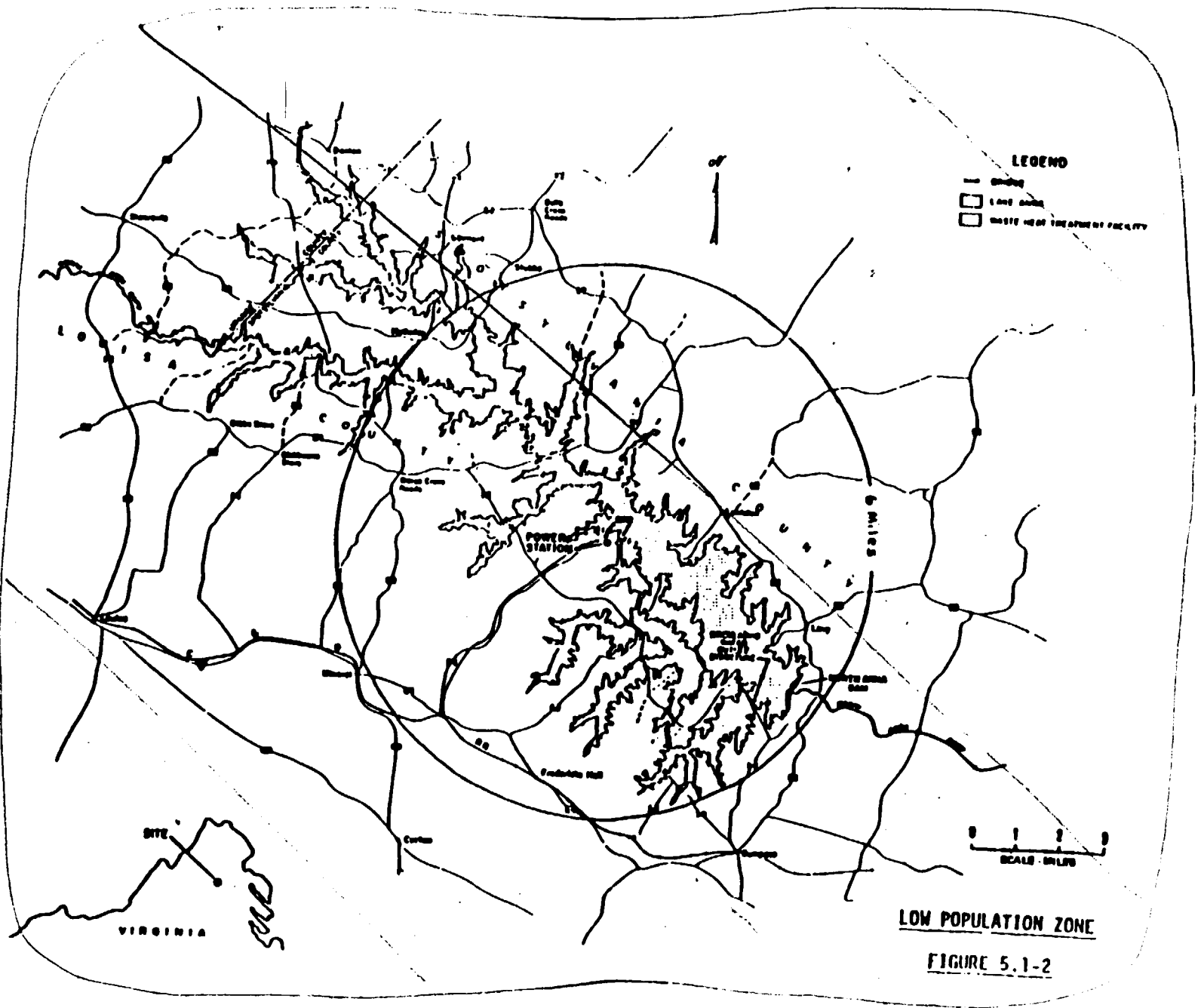
Figure 5.1.1  
Map Defining Unrestricted  
Areas for Radioactive Gaseous  
and Liquid Effluents

2-17-94

LA.1

Chapter 4.0

LA.1



NORTH ANNA - UNIT 2

5-3

Amendment No. 34, 53

Page 3 of 5

Rev 0

05-09-97

A.1

DESIGN FEATURES5.3 REACTOR COREFUEL ASSEMBLIES

4.2.1 5.3.1 The reactor core shall contain 157 fuel assemblies with each fuel assembly containing 264 fuel rods clad with Zircaloy or ZIRLO. Each fuel rod shall have a nominal active fuel length of 144 inches. The initial core loading shall have a maximum enrichment of 3.2 weight percent U-235. Reload fuel shall be similar in physical design to the initial core loading and shall have a maximum enrichment of 4.3 weight percent U-235. Limited substitutions of zirconium alloy or stainless steel filler rods for fuel rods, in accordance with NRC-approved applications of fuel rod configurations, may be used. Fuel assemblies shall be limited to those designs that have been analyzed with applicable NRC staff-approved codes and methods, and shown by tests or analyses to comply with all fuel safety design bases. A limited number of lead test assemblies that have not completed representative testing may be placed in nonlimiting core locations.

Each assembly shall consist of a matrix of

LA.3  
fuel rods with an initial composition of natural or slightly enriched uranium dioxide ( $UO_2$ ) as fuel material

CONTROL ROD ASSEMBLIES

4.2.2 5.3.2 The reactor core shall contain 48 full length control rod assemblies. The full length control rod assemblies shall contain a nominal 142 inches of absorber material. The nominal values of absorber material shall be 80 percent silver, 15 percent indium and 5 percent cadmium. All control rods shall be clad with stainless steel tubing.

LA.4  
The control material shall be silver indium cadmium as approved by the NRC.

5.4 REACTOR COOLANT SYSTEMDESIGN PRESSURE AND TEMPERATURE

- 5.4.1 The reactor coolant system is designed and shall be maintained:
- In accordance with the code requirements specified in Section 5.2 of the FSAR, with allowance for normal degradation pursuant to the applicable Surveillance Requirements,
  - For a pressure of 2485 psig, and
  - For a temperature of 650°F, except for the pressurizer which is 680°F.

LA.5

VOLUME

5.4.2 The total water and steam volume of the reactor coolant system is approximately 10,000 cubic feet at nominal operating conditions.

(A.1)

DESIGN FEATURES5.5 METEOROLOGICAL TOWER LOCATION

5.5.1 The meteorological tower shall be located as shown on Figure 5.1-1.

(LA.6)

5.6 FUEL STORAGECRITICALITY

5.6.1.1 The spent fuel storage racks are designed and shall be maintained with:

- a. A  $K_{eff}$  equivalent to less than or equal to 0.95 when flooded with unborated water, which includes a conservative allowance of 3.4% delta k/k for uncertainties.
- b. A nominal 10 9/16 inch center-to-center distance between fuel assemblies placed in the storage racks.

5.6.1.2 The new fuel pit storage racks are designed and shall be maintained with a nominal 21 inch center-to-center distance between new fuel assemblies such that, on a best estimate basis,  $k_{eff}$  will not exceed .98, with fuel of the highest anticipated enrichment in place, when aqueous foam moderation is assumed.

5.6.1.3 If new fuel for the first core loading is stored dry in the spent fuel storage racks, the center-to-center distance between the new fuel assemblies will be administratively limited to 28 inches and the  $k_{eff}$  shall not exceed 0.98 when aqueous foam moderation is assumed.

(A.2)

DRAINAGE

Insert proposed 4.3.1.2.b

(M.1)

5.6.2 The spent fuel pit is designed and shall be maintained to prevent inadvertent draining of the pool below elevation 288.83 feet Mean Sea Level, USGS datum.

CAPACITY

5.6.3 The fuel storage pool is designed and shall be maintained with a storage capacity limited to no more than 1737 fuel assemblies.

## DISCUSSION OF CHANGES

### CHAPTER 4.0, DESIGN FEATURES

---

#### ADMINISTRATIVE CHANGES

- A.1 In the conversion of the North Anna Current Technical Specifications (CTS) to the plant specific Improved Technical Specifications (ITS), certain changes (wording preferences, editorial changes, reformatting, revised numbering, etc.) are made to obtain consistency with NUREG-1431, Rev. 1, "Standard Technical Specifications-Westinghouse Plants" (ISTS).

These changes are designated as administrative changes and are acceptable because they do not result in technical changes to the CTS.

- A.2 CTS 5.6.1.3 contains requirements on storing new fuel for the first core dry in the spent fuel pool storage racks. The ITS does not contain this information.

This change is acceptable because the requirements are no longer relevant. The North Anna reactors have loaded their first cores and the spent fuel pool is filled with water. These requirements will not be used again. This change is designated as administrative because it eliminates one-time requirements which no longer apply.

- A.3 ITS 4.1 contains a description of the site location. The CTS does not contain this information.

This change is acceptable because it does not add, delete, or modify any requirements. This change is designated administrative because it does not result in a technical change to the specifications.

#### MORE RESTRICTIVE CHANGES

- M.1 ITS 4.3.1.2.b states that the new fuel storage racks must be designed and maintained with the  $K_{eff} \leq 0.90$  if fully flooded with unborated water. The CTS does not contain this information.

This change is acceptable because it provides appropriate limits for the new fuel storage racks. ITS 4.3.1.2.c and CTS 5.6.1.2 provides the  $k_{eff}$  limit for the new fuel racks when aqueous foam moderation is assumed. Providing the limit when flooded with unborated water is a complementary limit that should be provided. This change is designated as more restrictive because it adds a limit to the ITS that does not exist in the CTS.

#### RELOCATED SPECIFICATIONS

None

## DISCUSSION OF CHANGES

### CHAPTER 4.0, DESIGN FEATURES

---

#### REMOVED DETAIL CHANGES

- LA.1 (*Type 1 – Removing Details of System Design and System Description, Including Design Limits*) CTS 5.1 contains information on the site exclusion area, the low population zone, and unrestricted areas for radioactive gaseous and liquid effluents. CTS 5.1 includes Figure 5.1.1, Map Defining Unrestricted Areas for Radioactive Gaseous and Liquid Effluents, and Figure 5.1.2, Low Population Zone. The ITS does not contain this information. This changes the CTS by removing this information.

The removal of these details, which are related to system design, from the Technical Specifications is acceptable because this type of information is not necessary to be included in the Technical Specifications to provide adequate protection of public health and safety. The ITS still retains site location information which satisfies the Design Features description of 10 CFR 50.36(c)(3). Also, this change is acceptable because the removed information will be adequately controlled in the UFSAR. The UFSAR is controlled under 10 CFR 50.59 which ensures changes are properly evaluated. This change is designated as a less restrictive removal of detail change because information relating to system design is being removed from the Technical Specifications.

- LA.2 (*Type 1 – Removing Details of System Design and System Description, Including Design Limits*) CTS 5.2 describes the reactor containment building. The ITS does not contain this information. This changes the CTS by eliminating the description of the containment.

The removal of these details, which are related to system design, from the Technical Specifications is acceptable because this type of information is not necessary to be included in the Technical Specifications to provide adequate protection of public health and safety. The ITS still retains requirements on containment OPERABILITY in ITS 3.6.1. Also, this change is acceptable because the removed information will be adequately controlled in the UFSAR. The UFSAR is controlled under 10 CFR 50.59 which ensures changes are properly evaluated. This change is designated as a less restrictive removal of detail change because information relating to system design is being removed from the Technical Specifications.

- LA.3 (*Type 1 – Removing Details of System Design and System Description, Including Design Limits*) CTS 5.3.1 contains details of fuel assembly design, such as number of fuel rods per fuel assembly, the fuel rod nominal active fuel length, and the initial core loading maximum enrichment. The ITS does not contain these details and, instead, provides a general statement which states, "Each assembly shall consist of a matrix of Zircaloy or ZIRLO fuel rods with an initial composition of natural or slightly enriched uranium dioxide (UO<sub>2</sub>) as fuel material. This changes the CTS by eliminating the detailed description of fuel assemblies.

## DISCUSSION OF CHANGES

### CHAPTER 4.0, DESIGN FEATURES

---

The removal of these details, which are related to system design, from the Technical Specifications is acceptable because this type of information is not necessary to be included in the Technical Specifications to provide adequate protection of public health and safety. The ITS still retains requirements on fuel assembly enrichment and on core power distribution in ITS Section 3.2. Also, this change is acceptable because the removed information will be adequately controlled in the UFSAR. The UFSAR is controlled under 10 CFR 50.59 which ensures changes are properly evaluated. This change is designated as a less restrictive removal of detail change because information relating to system design is being removed from the Technical Specifications.

- LA.4 (*Type 1 – Removing Details of System Design and System Description, Including Design Limits*) CTS 5.3.2 contains details of control rod design, such as the nominal length of absorber material, percentage of each absorber material, and control rod cladding material. The ITS does not contain these details and, instead, provides a general statement which states, "The control material shall be silver indium cadmium as approved by the NRC." This changes the CTS by eliminating the detailed description of control rod assemblies.

The removal of these details, which are related to system design, from the Technical Specifications is acceptable because this type of information is not necessary to be included in the Technical Specifications to provide adequate protection of public health and safety. The ITS still retains requirements on control rod OPERABILITY in ITS Section 3.1. Also, this change is acceptable because the removed information will be adequately controlled in the UFSAR. The UFSAR is controlled under 10 CFR 50.59 which ensures changes are properly evaluated. This change is designated as a less restrictive removal of detail change because information relating to system design is being removed from the Technical Specifications.

- LA.5 (*Type 1 – Removing Details of System Design and System Description, Including Design Limits*) CTS 5.2 describes the reactor coolant system. The ITS does not contain this information. This changes the CTS by eliminating the description of the reactor coolant system.

The removal of these details, which are related to system design, from the Technical Specifications is acceptable because this type of information is not necessary to be included in the Technical Specifications to provide adequate protection of public health and safety. The ITS still retains requirements on reactor coolant system OPERABILITY, in ITS Section 3.4. Also, this change is acceptable because the removed information will be adequately controlled in the UFSAR. The UFSAR is controlled under 10 CFR 50.59 which ensures changes are properly evaluated. This change is designated as a less restrictive removal of detail change because information relating to system design is being removed from the Technical Specifications.

- LA.6 (*Type 1 – Removing Details of System Design and System Description, Including Design Limits*) CTS 5.5 describes the location of the meteorological tower. The ITS does not



**DISCUSSION OF CHANGES**  
**CHAPTER 4.0, DESIGN FEATURES**

---

contain this information. This changes the CTS by eliminating the location of the meteorological tower.

The removal of these details, which are related to system design, from the Technical Specifications is acceptable because this type of information is not necessary to be included in the Technical Specifications to provide adequate protection of public health and safety. 10 CFR 50.36(c)(4) states that Design Features are those features such as materials of construction and geometric arrangements which, if altered or modified, would have a significant effect on safety and are not covered in other TS section. The location of the meteorological tower does not meet these requirements. Also, this change is acceptable because the removed information will be adequately controlled in the UFSAR. The UFSAR is controlled under 10 CFR 50.59 which ensures changes are properly evaluated. This change is designated as a less restrictive removal of detail change because information relating to system design is being removed from the Technical Specifications.

**LESS RESTRICTIVE CHANGES**

None

**CHAPTER 4.0 - DESIGN FEATURES**  
**DETERMINATION OF NO SIGNIFICANT HAZARDS**  
**CONSIDERATIONS**  
**GENERIC NSHCs**

**DETERMINATION OF NO SIGNIFICANT HAZARDS CONSIDERATIONS**  
**CHAPTER 4.0 - DESIGN FEATURES**

---

**10 CFR 50.92 EVALUATION  
FOR  
ADMINISTRATIVE CHANGES**

The North Anna Power Station is converting to the Improved Technical Specifications (ITS) as outlined in NUREG-1431, "Standard Technical Specifications, Westinghouse Plants." Some of the proposed changes involve reformatting, renumbering, and rewording of Technical Specifications with no change in intent. These changes, since they do not involve technical changes to the Technical Specifications, are administrative.

This type of change is connected with the movement of requirements within the current requirements, or with the modification of wording that does not affect the technical content of the current Technical Specifications. These changes will also include nontechnical modifications of requirements to conform to the Writer's Guide or provide consistency with the Improved Standard Technical Specifications in NUREG-1431. Administrative changes are not intended to add, delete, or relocate any technical requirements of the current Technical Specifications.

In accordance with the criteria set forth in 10 CFR 50.92, the Company has evaluated these proposed Technical Specification changes and determined they do not represent a significant hazards consideration. The following is provided in support of this conclusion.

**1. Does the change involve a significant increase in the probability or consequences of an accident previously evaluated?**

The proposed change involves reformatting, renumbering, and rewording the existing Technical Specifications. The reformatting, renumbering, and rewording process involves no technical changes to the existing Technical Specifications. As such, this change is administrative in nature and does not affect initiators of analyzed events or assumed mitigation of accident or transient events. Therefore, this change does not involve a significant increase in the probability or consequences of an accident previously evaluated.

**2. Does the change create the possibility of a new or different kind of accident from any accident previously evaluated?**

The proposed change does not involve a physical alteration of the plant (no new or different type of equipment will be installed) or changes in methods governing normal plant operation. The proposed change will not impose any new or eliminate any old requirements. Thus, this change does not create the possibility of a new or different kind of accident from any accident previously evaluated.

**DETERMINATION OF NO SIGNIFICANT HAZARDS CONSIDERATIONS**  
**CHAPTER 4.0 - DESIGN FEATURES**

---

**3. Does this change involve a significant reduction in a margin of safety?**

The proposed change will not reduce a margin of safety because it has no effect on any safety analyses assumptions. This change is administrative in nature. Therefore, the change does not involve a significant reduction in a margin of safety.

**DETERMINATION OF NO SIGNIFICANT HAZARDS CONSIDERATIONS  
CHAPTER 4.0 - DESIGN FEATURES**

---

**10 CFR 50.92 EVALUATION  
FOR  
MORE RESTRICTIVE CHANGES**

The North Anna Power Station is converting to the Improved Technical Specifications (ITS) as outlined in NUREG-1431, "Standard Technical Specifications, Westinghouse Plants." Some of the proposed changes involve adding more restrictive requirements to the existing Technical Specifications by either making current requirements more stringent or by adding new requirements that currently do not exist.

These changes include additional commitments that decrease allowed outage times, increase the frequency of surveillances, impose additional surveillances, increase the scope of specifications to include additional plant equipment, increase the applicability of specifications, or provide additional actions. These changes are generally made to conform with NUREG-1431 and have been evaluated to not be detrimental to plant safety.

In accordance with the criteria set forth in 10 CFR 50.92, the Company has evaluated these proposed Technical Specification changes and determined they do not represent a significant hazards consideration. The following is provided in support of this conclusion.

**1. Does the change involve a significant increase in the probability or consequences of an accident previously evaluated?**

The proposed change provides more stringent requirements for operation of the facility. These more stringent requirements do not result in operation that will increase the probability of initiating an analyzed event and do not alter assumptions relative to mitigation of an accident or transient event. The more restrictive requirements continue to ensure process variables, structures, systems, and components are maintained consistent with the safety analyses and licensing basis. Therefore, this change does not involve a significant increase in the probability or consequences of an accident previously evaluated.

**2. Does the change create the possibility of a new or different kind of accident from any accident previously evaluated?**

The proposed change does not involve a physical alteration of the plant (no new or different type of equipment will be installed) or changes in methods governing normal plant operation. The proposed change does impose different requirements. However, these changes are consistent with the assumptions in the safety analyses and licensing basis. Thus, this change does not create the possibility of a new or different kind of accident from any accident previously evaluated.

**DETERMINATION OF NO SIGNIFICANT HAZARDS CONSIDERATIONS**  
**CHAPTER 4.0 - DESIGN FEATURES**

---

**3. Does this change involve a significant reduction in a margin of safety?**

The imposition of more restrictive requirements either has no effect on or increases the margin of plant safety. As provided in the discussion of change, each change in this category is, by definition, providing additional restrictions to enhance plant safety. The change maintains requirements within the safety analyses and licensing basis. Therefore, this change does not involve a significant reduction in a margin of safety.

**DETERMINATION OF NO SIGNIFICANT HAZARDS CONSIDERATIONS**  
**CHAPTER 4.0 - DESIGN FEATURES**

---

**10 CFR 50.92 EVALUATION  
FOR  
RELOCATED SPECIFICATIONS**

The North Anna Power Station is converting to the Improved Technical Specifications (ITS) as outlined in NUREG-1431, "Standard Technical Specifications, Westinghouse Plants." Some of the proposed changes involve relocating existing Technical Specification LCOs to licensee controlled documents.

The the Company has evaluated the current Technical Specifications using the criteria set forth in 10 CFR 50.36. Specifications identified by this evaluation that did not meet the retention requirements specified in the regulation are not included in the Improved Technical Specifications (ITS) submittal. These specifications have been relocated from the current Technical Specifications to the Technical Requirements Manual.

In accordance with the criteria set forth in 10 CFR 50.92, the Company has evaluated these proposed Technical Specification changes and determined they do not represent a significant hazards consideration. The following is provided in support of this conclusion.

**1. Does the change involve a significant increase in the probability or consequences of an accident previously evaluated?**

The proposed change relocates requirements and surveillances for structures, systems, components or variables that do not meet the criteria of 10 CFR 50.36 (c)(2)(ii) for inclusion in Technical Specifications as identified in the Application of Selection Criteria to the North Anna Technical Specifications. The affected structures, systems, components or variables are not assumed to be initiators of analyzed events and are not assumed to mitigate accident or transient events. The requirements and surveillances for these affected structures, systems, components or variables will be relocated from the Technical Specifications to the Technical Requirements Manual, which will be maintained pursuant to 10 CFR 50.59. In addition, the affected structures, systems, components or variables are addressed in existing surveillance procedures which are also controlled by 10 CFR.50.59 and subject to the change control provisions imposed by plant administrative procedures, which endorse applicable regulations and standards. Therefore, this change does not involve a significant increase in the probability or consequences of an accident previously evaluated.

**DETERMINATION OF NO SIGNIFICANT HAZARDS CONSIDERATIONS**  
**CHAPTER 4.0 - DESIGN FEATURES**

---

- 2. Does the change create the possibility of a new or different kind of accident from any accident previously evaluated?**

The proposed change does not involve a physical alteration of the plant (no new or different type of equipment will be installed) or change in the methods governing normal plant operation. The proposed change will not impose or eliminate any requirements and adequate control of existing requirements will be maintained. Thus, this change does not create the possibility of a new or different kind of accident from any accident previously evaluated.

- 3. Does this change involve a significant reduction in a margin of safety?**

The proposed change will not reduce a margin of safety because it has no significant effect on any safety analyses assumptions, as indicated by the fact that the requirements do not meet the 10 CFR 50.36 criteria for retention. In addition, the relocated requirements are moved without change and any future changes to these requirements will be evaluated per 10 CFR 50.59.

NRC prior review and approval of changes to these relocated requirements, in accordance with 10 CFR 50.92, will no longer be required. This review and approval does not provide a specific margin of safety which can be evaluated. However, since the proposed change is consistent with the Westinghouse Standard Technical Specifications, NUREG-1431 issued by the NRC, revising the Technical Specifications to reflect the approved level of detail gives assurance that this relocation does not result in a significant reduction in the margin of safety.



**DETERMINATION OF NO SIGNIFICANT HAZARDS CONSIDERATIONS**  
**CHAPTER 4.0 - DESIGN FEATURES**

---

10 CFR 50.92 EVALUATION  
FOR  
LESS RESTRICTIVE CHANGES - REMOVED DETAIL

The North Anna Power Station is converting to the Improved Technical Specifications (ITS) as outlined in NUREG-1431, "Standard Technical Specifications, Westinghouse Plants." Some of the proposed changes involve moving details out of the Technical Specifications and into the Technical Specifications Bases, the UFSAR, the TRM or other documents under regulatory control such as the Quality Assurance Program Topical Report. The removal of this information is considered to be less restrictive because it is no longer controlled by the Technical Specification change process. Typically, the information moved is descriptive in nature and its removal conforms with NUREG-1431 for format and content.

In accordance with the criteria set forth in 10 CFR 50.92, the Company has evaluated these proposed Technical Specification changes and determined they do not represent a significant hazards consideration. The following is provided in support of this conclusion.

**1. Does the change involve a significant increase in the probability or consequences of an accident previously evaluated?**

The proposed change relocates certain details from the Technical Specifications to other documents under regulatory control. The Bases, UFSAR, and Technical Requirement Manual will be maintained in accordance with 10 CFR 50.59. In addition to 10 CFR 50.59 provisions, the Technical Specification Bases are subject to the change control provisions in the Administrative Controls Chapter of the Technical Specifications. The UFSAR is subject to the change control provisions of 10 CFR 50.71(e). Other documents are subject to controls imposed by Technical Specifications or regulations. Since any changes to these documents will be evaluated, no significant increase in the probability or consequences of an accident previously evaluated will be allowed. Therefore this change does not involve a significant increase in the probability or consequences of an accident previously evaluated.

**2. Does the change create the possibility of a new or different kind of accident from any accident previously evaluated?**

The proposed change does not involve a physical alteration of the plant (no new or different type of equipment will be installed) or a change in the methods governing normal plant operations. The proposed change will not impose or eliminate any requirements, and adequate control of the information will be maintained. Thus, this change does not create the possibility of a new or different kind of accident from any accident previously evaluated.

**3. Does this change involve a significant reduction in a margin of safety?**

The proposed change will not reduce a margin of safety because it has no effect on any safety analysis assumptions. In addition, the details to be moved from the Technical Specifications to other documents are not being changed. Since any future changes to these details will be evaluated under the applicable regulatory change control mechanism,

**DETERMINATION OF NO SIGNIFICANT HAZARDS CONSIDERATIONS**  
**CHAPTER 4.0 - DESIGN FEATURES**

---

no significant reduction in a margin of safety will be allowed. A significant reduction in the margin of safety is not associated with the elimination of the 10 CFR 50.92 requirement for NRC review and approval of future changes to the relocated details. The proposed change is consistent with the Westinghouse Standard Technical Specifications, NUREG-1431, issued by the NRC Staff, revising the Technical Specifications to reflect the approved level of detail, which indicates that there is no significant reduction in the margin of safety.

**DETERMINATION OF NO SIGNIFICANT HAZARDS CONSIDERATIONS**  
**CHAPTER 4.0 - DESIGN FEATURES**

---

10 CFR 50.92 EVALUATION  
FOR  
LESS RESTRICTIVE CHANGES – CATEGORY 1  
RELAXATION OF LCO REQUIREMENTS

The North Anna Power Station is converting to the Improved Technical Specifications (ITS) as outlined in NUREG-1431, "Standard Technical Specifications, Westinghouse Plants." Some of the proposed changes involve relaxation of the current Technical Specification (CTS) Limiting Conditions for Operation (LCOs) by the elimination of specific items from the LCO or Tables referenced in the LCO, or the addition of exceptions to the LCO.

These changes reflect the ISTS approach to provide LCO requirements that specify the protective conditions that are required to meet safety analysis assumptions for required features. These conditions replace the lists of specific devices used in the CTS to describe the requirements needed to meet the safety analysis assumptions. The ITS also includes LCO Notes which allow exceptions to the LCO for the performance of testing or other operational needs. The ITS provides the protection required by the safety analysis and provides flexibility for meeting the conditions without adversely affecting operations since equivalent features are required to be OPERABLE. The ITS is also consistent with the plant current licensing basis, as may be modified in the discussion of individual changes. These changes are generally made to conform with NUREG-1431 and have been evaluated to not be detrimental to plant safety.

In accordance with the criteria set forth in 10 CFR 50.92, the Company has evaluated these proposed Technical Specification changes and determined they do not represent a significant hazards consideration. The following is provided in support of this conclusion.

**1. Does the change involve a significant increase in the probability or consequences of an accident previously evaluated?**

The proposed change provides less restrictive LCO requirements for operation of the facility. These less restrictive LCO requirements do not result in operation that will increase the probability of initiating an analyzed event and do not alter assumptions relative to mitigation of an accident or transient event in that the requirements continue to ensure process variables, structures, systems, and components are maintained consistent with the current safety analyses and licensing basis. Therefore, this change does not involve a significant increase in the probability or consequences of an accident previously evaluated.

**DETERMINATION OF NO SIGNIFICANT HAZARDS CONSIDERATIONS**  
**CHAPTER 4.0 - DESIGN FEATURES**

---

- 2. Does the change create the possibility of a new or different kind of accident from any accident previously evaluated?**

The proposed change does not involve a physical alteration of the plant (no new or different type of equipment will be installed) or a change in the methods governing normal plant operation. The proposed change does impose different requirements. However, the change is consistent with the assumptions in the current safety analyses and licensing basis. Thus, this change does not create the possibility of a new or different kind of accident from any accident previously evaluated.

- 3. Does this change involve a significant reduction in a margin of safety?**

The imposition of less restrictive LCO requirements does not involve a significant reduction in the margin of safety. As provided in the discussion of change, this change has been evaluated to ensure that the current safety analyses and licensing basis requirements are maintained. Therefore, this change does not involve a significant reduction in a margin of safety.

**DETERMINATION OF NO SIGNIFICANT HAZARDS CONSIDERATIONS**  
**CHAPTER 4.0 - DESIGN FEATURES**

---

10 CFR 50.92 EVALUATION  
FOR  
LESS RESTRICTIVE CHANGES – CATEGORY 2  
RELAXATION OF APPLICABILITY

The North Anna Nuclear Power Station is converting to the Improved Technical Specifications (ITS) as outlined in NUREG-1431, "Standard Technical Specifications, Westinghouse Plants." Some of the proposed changes involve relaxation of the applicability of current Technical Specification (CTS) Limiting Conditions for Operation (LCOs) by reducing the conditions under which the LCO requirements must be met.

Reactor operating conditions are used in CTS to define when the LCO features are required to be OPERABLE. CTS Applicabilities can be specific defined terms of reactor conditions or more general such as, "all MODES" or "any operating MODE." Generalized applicability conditions are not contained in ITS, therefore the ITS eliminates CTS requirements such as "all MODES" or "any operating MODE," replacing them with ITS defined MODES or applicable conditions that are consistent with the application of the plant safety analysis assumptions for operability of the required features.

CTS requirements may also be eliminated during conditions for which the safety function of the specified safety system is met because the feature is performing its intended safety function. Deleting applicability requirements that are indeterminate or which are inconsistent with application of accident analyses assumptions is acceptable because when LCOs cannot be met, the TS may be satisfied by exiting the applicability which takes the plant out of the conditions that require the safety system to be OPERABLE.

This change provides the protection required by the safety analysis and provides flexibility for meeting limits by restricting the application of the limits to the conditions assumed in the safety analyses. The ITS is also consistent with the plant current licensing basis, as may be modified in the discussion of individual changes. The change is generally made to conform with NUREG-1431 and has been evaluated to not be detrimental to plant safety.

In accordance with the criteria set forth in 10 CFR 50.92, the Company has evaluated these proposed Technical Specification changes and determined they do not represent a significant hazards consideration. The following is provided in support of this conclusion.

**1. Does the change involve a significant increase in the probability or consequences of an accident previously evaluated?**

The proposed change relaxes the conditions under which the LCO requirements for operation of the facility must be met. These less restrictive applicability requirements for the LCOs do not result in operation that will increase the probability of initiating an analyzed event and do not alter assumptions relative to mitigation of an accident or transient event in that the requirements continue to ensure that process variables, structures, systems, and components are maintained in the MODES and other specified conditions assumed in the safety analyses and licensing basis. Therefore, this change

**DETERMINATION OF NO SIGNIFICANT HAZARDS CONSIDERATIONS**  
**CHAPTER 4.0 - DESIGN FEATURES**

---

does not involve a significant increase in the probability or consequences of an accident previously evaluated.

- 2. Does the change create the possibility of a new or different kind of accident from any accident previously evaluated?**

The proposed change does not involve a physical alteration of the plant (no new or different type of equipment will be installed) or a change in the methods governing normal plant operation. The proposed change does impose different requirements. However, the requirements are consistent with the assumptions in the safety analyses and licensing basis. Thus, this change does not create the possibility of a new or different kind of accident from any accident previously evaluated.

- 3. Does this change involve a significant reduction in a margin of safety?**

The relaxed applicability of LCO requirements does not involve a significant reduction in the margin of safety. As provided in the discussion of change, this change has been evaluated to ensure that the LCO requirements are applied in the MODES and specified conditions assumed in the safety analyses and licensing basis. Therefore, this change does not involve a significant reduction in a margin of safety.

**DETERMINATION OF NO SIGNIFICANT HAZARDS CONSIDERATIONS**  
**CHAPTER 4.0 - DESIGN FEATURES**

---

**10 CFR 50.92 EVALUATION  
FOR  
LESS RESTRICTIVE CHANGES – CATEGORY 3  
RELAXATION OF COMPLETION TIME**

The North Anna Power Station is converting to the Improved Technical Specifications (ITS) as outlined in NUREG-1431, "Standard Technical Specifications, Westinghouse Plants." Some of the proposed changes involve relaxation of the Completion Times for Required Actions in the current Technical Specifications (CTS).

Upon discovery of a failure to meet an LCO, the ITS specifies times for completing Required Actions of the associated TS Conditions. Required Actions of the associated Conditions are used to establish remedial measures that must be taken within specified Completion Times (referred to as Allowed Outage Times (AOTs) in the CTS). These times define limits during which operation in a degraded condition is permitted. Adopting Completion Times from the ITS is acceptable because the Completion Times take into account the operability status of the redundant systems of required features, the capacity and capability of remaining features, a reasonable time for repairs or replacement of required features, and the low probability of a DBA occurring during the repair period. In addition, the ITS provides consistent Completion Times for similar conditions. These changes are generally made to conform with NUREG-1431 and have been evaluated to not be detrimental to plant safety.

In accordance with the criteria set forth in 10 CFR 50.92, the Company has evaluated these proposed Technical Specification changes and determined they do not represent a significant hazards consideration. The following is provided in support of this conclusion.

**1. Does the change involve a significant increase in the probability or consequences of an accident previously evaluated?**

The proposed change relaxes the Completion Time for a Required Action. Required Actions and their associated Completion Times are not initiating conditions for any accident previously evaluated and the accident analyses do not assume that required equipment is out of service prior to the analyzed event. Consequently, the relaxed Completion Time does not significantly increase the probability of any accident previously evaluated. The consequences of an analyzed accident during the relaxed Completion Time are the same as the consequences during the existing AOT. As a result, the consequences of any accident previously evaluated are not significantly increased. Therefore, this change does not involve a significant increase in the probability or consequences of an accident previously evaluated.

**DETERMINATION OF NO SIGNIFICANT HAZARDS CONSIDERATIONS**  
**CHAPTER 4.0 - DESIGN FEATURES**

---

- 2. Does the change create the possibility of a new or different kind of accident from any accident previously evaluated?**

The proposed change does not involve a physical alteration of the plant (no new or different type of equipment will be installed) or a change in the method governing normal plant operation. The Required Actions and associated Completion Times in the ITS have been evaluated to ensure that no new accident initiators are introduced. Thus, this change does not create the possibility of a new or different kind of accident from any accident previously evaluated.

- 3. Does this change involve a significant reduction in a margin of safety?**

The relaxed Completion Time for a Required Action does not involve a significant reduction in the margin of safety. As provided in the discussion of change, the change has been evaluated to ensure that the allowed Completion Time is consistent with safe operation under the specified Condition, considering the operability status of the redundant systems of required features, the capacity and capability of remaining features, a reasonable time for repairs or replacement of required features, and the low probability of a DBA occurring during the repair period. Therefore, this change does not involve a significant reduction in a margin of safety.



**DETERMINATION OF NO SIGNIFICANT HAZARDS CONSIDERATIONS**  
**CHAPTER 4.0 - DESIGN FEATURES**

---

**10 CFR 50.92 EVALUATION  
FOR  
LESS RESTRICTIVE CHANGES – CATEGORY 4  
RELAXATION OF REQUIRED ACTION**

The North Anna Power Station is converting to the Improved Technical Specifications (ITS) as outlined in NUREG-1431, "Standard Technical Specifications, Westinghouse Plants." Some of the proposed changes involve relaxation of the Required Actions in the current Technical Specifications (CTS).

Upon discovery of a failure to meet an LCO, the ITS specifies Required Actions to complete for the associated Conditions. Required Actions of the associated Conditions are used to establish remedial measures that must be taken in response to the degraded conditions. These actions minimize the risk associated with continued operation while providing time to repair inoperable features. Some of the Required Actions are modified to place the plant in a MODE in which the LCO does not apply. Adopting Required Actions from the ITS is acceptable because the Required Actions take into account the operability status of redundant systems of required features, the capacity and capability of the remaining features, and the compensatory attributes of the Required Actions as compared to the LCO requirements. These changes are generally made to conform with NUREG-1431 and have been evaluated to not be detrimental to plant safety.

In accordance with the criteria set forth in 10 CFR 50.92, the Company has evaluated these proposed Technical Specification changes and determined they do not represent a significant hazards consideration. The following is provided in support of this conclusion.

**1. Does the change involve a significant increase in the probability or consequences of an accident previously evaluated?**

The proposed change relaxes Required Actions. Required Actions and their associated Completion Times are not initiating conditions for any accident previously evaluated and the accident analyses do not assume that required equipment is out of service prior to the analyzed event. Consequently, the relaxed Required Actions do not significantly increase the probability of any accident previously evaluated. The Required Actions in the ITS have been developed to provide appropriate remedial actions to be taken in response to the degraded condition considering the operability status of the redundant systems of required features, and the capacity and capability of remaining features while minimizing the risk associated with continued operation. As a result, the consequences of any accident previously evaluated are not significantly increased. Therefore, this change does not involve a significant increase in the probability or consequences of an accident previously evaluated.

**DETERMINATION OF NO SIGNIFICANT HAZARDS CONSIDERATIONS**  
**CHAPTER 4.0 - DESIGN FEATURES**

---

- 2. Does the change create the possibility of a new or different kind of accident from any accident previously evaluated?**

The proposed change does not involve a physical alteration of the plant (no new or different type of equipment will be installed) or a change in the methods governing normal plant operation. The Required Actions and associated Completion Times in the ITS have been evaluated to ensure that no new accident initiators are introduced. Thus, this change does not create the possibility of a new or different kind of accident from any accident previously evaluated.

- 3. Does this change involve a significant reduction in a margin of safety?**

The relaxed Required Actions do not involve a significant reduction in the margin of safety. As provided in the discussion of change, this change has been evaluated to minimize the risk of continued operation under the specified Condition, considering the operability status of the redundant systems of required features, the capacity and capability of remaining features, a reasonable time for repairs or replacement of required features, and the low probability of a DBA occurring during the repair period. Therefore, this change does not involve a significant reduction in a margin of safety.

**DETERMINATION OF NO SIGNIFICANT HAZARDS CONSIDERATIONS**  
**CHAPTER 4.0 - DESIGN FEATURES**

---

**10 CFR 50.92 EVALUATION**  
**FOR**  
**LESS RESTRICTIVE CHANGES – CATEGORY 5**  
**DELETION OF SURVEILLANCE REQUIREMENT**

The North Anna Power Station is converting to the Improved Technical Specifications (ITS) as outlined in NUREG-1431, "Standard Technical Specifications, Westinghouse Plants." Some of the proposed changes involve deletion of Surveillance Requirements in the current Technical Specifications (CTS).

The CTS require safety systems to be tested and verified Operable prior to entering applicable operating conditions. The ITS eliminates unnecessary CTS Surveillance Requirements that do not contribute to verification that the equipment used to meet the LCO can perform its required functions. Thus, appropriate equipment continues to be tested in a manner and at a frequency necessary to give confidence that the equipment can perform its assumed safety function. These changes are generally made to conform with NUREG-1431 and have been evaluated to not be detrimental to plant safety.

In accordance with the criteria set forth in 10 CFR 50.92, the Company has evaluated these proposed Technical Specification changes and determined they do not represent a significant hazards consideration. The following is provided in support of this conclusion.

**1. Does the change involve a significant increase in the probability or consequences of an accident previously evaluated?**

The proposed change deletes Surveillance Requirements. Surveillances are not initiators to any accident previously evaluated. Consequently, the probability of an accident previously evaluated is not significantly increased. The equipment being tested is still required to be Operable and capable of performing the accident mitigation functions assumed in the accident analysis. As a result, the consequences of any accident previously evaluated are not significantly affected. Therefore, this change does not involve a significant increase in the probability or consequences of an accident previously evaluated.

**2. Does the change create the possibility of a new or different kind of accident from any accident previously evaluated?**

The proposed change does not involve a physical alteration of the plant (no new or different type of equipment will be installed) or a change in the methods governing normal plant operation. The remaining Surveillance Requirements are consistent with industry practice and are considered to be sufficient to prevent the removal of the subject Surveillances from creating a new or different type of accident. Thus, this change does not create the possibility of a new or different kind of accident from any accident previously evaluated.

**DETERMINATION OF NO SIGNIFICANT HAZARDS CONSIDERATIONS**  
**CHAPTER 4.0 - DESIGN FEATURES**

---

**3. Does this change involve a significant reduction in a margin of safety?**

The deleted Surveillance Requirements do not result in a significant reduction in the margin of safety. As provided in the discussion of change, the change has been evaluated to ensure that the deleted Surveillance Requirements are not necessary for verification that the equipment used to meet the LCO can perform its required functions. Thus, appropriate equipment continues to be tested in a manner and at a frequency necessary to give confidence that the equipment can perform its assumed safety function. Therefore, this change does not involve a significant reduction in a margin of safety.

**DETERMINATION OF NO SIGNIFICANT HAZARDS CONSIDERATIONS**  
**CHAPTER 4.0 - DESIGN FEATURES**

---

**10 CFR 50.92 EVALUATION**  
**FOR**  
**LESS RESTRICTIVE CHANGES – CATEGORY 6**  
**RELAXATION OF SURVEILLANCE REQUIREMENT ACCEPTANCE CRITERIA**

The North Anna Power Station is converting to the Improved Technical Specifications (ITS) as outlined in NUREG-1431, "Standard Technical Specifications, Westinghouse Plants." Some of the proposed changes involve the relaxation of Surveillance Requirements acceptance criteria in the current Technical Specifications (CTS).

The CTS require safety systems to be tested and verified Operable prior to entering applicable operating conditions. The ITS eliminates or relaxes the Surveillance Requirement acceptance criteria that do not contribute to verification that the equipment used to meet the LCO can perform its required functions. For example, the ITS allows some Surveillance Requirements to verify Operability under actual or test conditions. Adopting the ITS allowance for "actual" conditions is acceptable because required features cannot distinguish between an "actual" signal or a "test" signal. Also included are changes to CTS requirements that are replaced in the ITS with separate and distinct testing requirements which, when combined, include Operability verification of all TS required components for the features specified in the CTS. Adopting this format preference in the ISTS is acceptable because Surveillance Requirements that remain include testing of all previous features required to be verified OPERABLE. Changes which provide exceptions to Surveillance Requirements to provide for variations which do not affect the results of the test are also included in this category. These changes are generally made to conform with NUREG-1431 and have been evaluated to not be detrimental to plant safety.

In accordance with the criteria set forth in 10 CFR 50.92, the Company has evaluated these proposed Technical Specification changes and determined they do not represent a significant hazards consideration. The following is provided in support of this conclusion.

**1. Does the change involve a significant increase in the probability or consequences of an accident previously evaluated?**

The proposed change relaxes the acceptance criteria of Surveillance Requirements. Surveillances are not initiators to any accident previously evaluated. Consequently, the probability of an accident previously evaluated is not significantly increased. The equipment being tested is still required to be Operable and capable of performing the accident mitigation functions assumed in the accident analysis. As a result, the consequences of any accident previously evaluated are not significantly affected. Therefore, this change does not involve a significant increase in the probability or consequences of an accident previously evaluated.

**DETERMINATION OF NO SIGNIFICANT HAZARDS CONSIDERATIONS**  
**CHAPTER 4.0 - DESIGN FEATURES**

---

2. **Does the change create the possibility of a new or different kind of accident from any accident previously evaluated?**

The proposed change does not involve a physical alteration of the plant (no new or different type of equipment will be installed) or a change in the methods governing normal plant operation. Thus, this change does not create the possibility of a new or different kind of accident from any accident previously evaluated.

3. **Does this change involve a significant reduction in a margin of safety?**

The relaxed acceptance criteria for Surveillance Requirements do not result in a significant reduction in the margin of safety. As provided in the discussion of change, the relaxed Surveillance Requirement acceptance criteria have been evaluated to ensure that they are sufficient to verify that the equipment used to meet the LCO can perform its required functions. Thus, appropriate equipment continues to be tested in a manner that gives confidence that the equipment can perform its assumed safety function. Therefore, this change does not involve a significant reduction in a margin of safety.

**DETERMINATION OF NO SIGNIFICANT HAZARDS CONSIDERATIONS**  
**CHAPTER 4.0 - DESIGN FEATURES**

---

**10 CFR 50.92 EVALUATION  
FOR  
LESS RESTRICTIVE CHANGES - CATEGORY 7  
RELAXATION OF SURVEILLANCE FREQUENCY**

The North Anna Power Station is converting to the Improved Technical Specifications (ITS) as outlined in NUREG-1431, "Standard Technical Specifications, Westinghouse Plants." Some of the proposed changes involve the relaxation of Surveillance Frequencies in the current Technical Specifications (CTS).

CTS and ITS Surveillance Frequencies specify time interval requirements for performing surveillance testing. Increasing the time interval between Surveillance tests in the ITS results in decreased equipment unavailability due to testing which also increases equipment availability. In general, the ITS contain test frequencies that are consistent with industry practice or industry standards for achieving acceptable levels of equipment reliability. Adopting testing practices specified in the ITS is acceptable based on similar design, like-component testing for the system application and the availability of other Technical Specification requirements which provide regular checks to ensure limits are met. Relaxation of Surveillance Frequency can also include the addition of Surveillance Notes which allow testing to be delayed until appropriate unit conditions for the test are established, or exempt testing in certain MODES or specified conditions in which the testing can not be performed.

Reduced testing can result in a safety enhancement because the unavailability due to testing is reduced and; in turn, reliability of the affected structure, system or component should remain constant or increase. Reduced testing is acceptable where operating experience, industry practice or the industry standards such as manufacturers' recommendations have shown that these components usually pass the Surveillance when performed at the specified interval, thus the frequency is acceptable from a reliability standpoint. Surveillance Frequency changes to incorporate alternate train testing have been shown to be acceptable where other qualitative or quantitative test requirements are required which are established predictors of system performance. Surveillance Frequency extensions can be based on NRC-approved topical reports. The NRC staff has accepted topical report analyses that bound the plant-specific design and component reliability assumptions. These changes are generally made to conform with NUREG-1431 and have been evaluated to not be detrimental to plant safety.

In accordance with the criteria set forth in 10 CFR 50.92, the Company has evaluated these proposed Technical Specification changes and determined they do not represent a significant hazards consideration. The following is provided in support of this conclusion.

**1. Does the change involve a significant increase in the probability or consequences of an accident previously evaluated?**

The proposed change relaxes Surveillance Frequencies. The relaxed Surveillance Frequencies have been established based on achieving acceptable levels of equipment reliability. Consequently, equipment which could initiate an accident previously evaluated will continue to operate as expected and the probability of the initiation of any accident previously evaluated will not be significantly increased. The equipment being

**DETERMINATION OF NO SIGNIFICANT HAZARDS CONSIDERATIONS**  
**CHAPTER 4.0 - DESIGN FEATURES**

---

tested is still required to be Operable and capable of performing any accident mitigation functions assumed in the accident analysis. As a result, the consequences of any accident previously evaluated are not significantly affected. Therefore, this change does not involve a significant increase in the probability or consequences of an accident previously evaluated.

**2. Does the change create the possibility of a new or different kind of accident from any accident previously evaluated?**

The proposed change does not involve a physical alteration of the plant (no new or different type of equipment will be installed) or a change in the methods governing normal plant operation. Thus, this change does not create the possibility of a new or different kind of accident from any accident previously evaluated.

**3. Does this change involve a significant reduction in a margin of safety?**

The relaxed Surveillance Frequencies do not result in a significant reduction in the margin of safety. As provided in the discussion of change, the relaxation in the Surveillance Frequency has been evaluated to ensure that it provides an acceptable level of equipment reliability. Thus, appropriate equipment continues to be tested at a Frequency that gives confidence that the equipment can perform its assumed safety function when required. Therefore, this change does not involve a significant reduction in a margin of safety.



**DETERMINATION OF NO SIGNIFICANT HAZARDS CONSIDERATIONS**  
**CHAPTER 4.0 - DESIGN FEATURES**

---

10 CFR 50.92 EVALUATION  
FOR  
LESS RESTRICTIVE CHANGES – CATEGORY 8  
DELETION OF REPORTING REQUIREMENTS

The North Anna Power Station is converting to the Improved Technical Specifications (ITS) as outlined in NUREG-1431, "Standard Technical Specifications, Westinghouse Plants." Some of the proposed changes involve the deletion of requirements in the current Technical Specifications (CTS) to send reports to the NRC.

The CTS includes requirements to submit reports to the NRC under certain circumstances. However, the ITS eliminates these requirements for many such reports and, in many cases, relies on the reporting requirements of 10 CFR 50.73 or other regulatory requirements. The ITS changes to reporting requirements are acceptable because the regulations provide adequate reporting requirements, or the reports do not affect continued plant operation. Therefore, this change has no effect on the safe operation of the plant. These changes are generally made to conform with NUREG-1431 and have been evaluated to not be detrimental to plant safety.

In accordance with the criteria set forth in 10 CFR 50.92, the Company has evaluated these proposed Technical Specification changes and determined they do not represent a significant hazards consideration. The following is provided in support of this conclusion.

**1. Does the change involve a significant increase in the probability or consequences of an accident previously evaluated?**

The proposed change deletes reporting requirements. Sending reports to the NRC is not an initiator to any accident previously evaluated. Consequently, the probability of any accident previously evaluated is not significantly increased. Sending reports to the NRC has no effect on the ability of equipment to mitigate an accident previously evaluated. As a result, the consequences of any accident previously evaluated is not significantly affected. Therefore, this change does not involve a significant increase in the probability or consequences of an accident previously evaluated.

**2. Does the change create the possibility of a new or different kind of accident from any accident previously evaluated?**

The proposed change does not involve a physical alteration of the plant (no new or different type of equipment will be installed) or a change in the methods governing normal plant operation. Thus, this change does not create the possibility of a new or different kind of accident from any accident previously evaluated.

**DETERMINATION OF NO SIGNIFICANT HAZARDS CONSIDERATIONS**  
**CHAPTER 4.0 - DESIGN FEATURES**

---

**3. Does this change involve a significant reduction in a margin of safety?**

The deletion of reporting requirements does not result in a significant reduction in the margin of safety. The ITS eliminates the requirements for many such reports and, in many cases, relies on the reporting requirements of 10 CFR 50.73 or other regulatory requirements. The change to reporting requirements does not affect the margin of safety because the regulations provide adequate reporting requirements, or the reports do not affect continued plant operation. Therefore, this change does not involve a significant reduction in a margin of safety.

**ENVIRONMENTAL ASSESSMENT  
CHAPTER 4.0 - DESIGN FEATURES**

---

This proposed Technical Specification change has been evaluated against the criteria for and identification of licensing and regulatory actions requiring environmental assessment in accordance with 10 CFR 51.21. It has been determined that the proposed change meets the criteria for categorical exclusion as provided for under 10 CFR 51.22(c)(9). The following is a discussion of how the proposed Technical Specification change meets the criteria for categorical exclusion.

10 CFR 51.22(c)(9): Although the proposed change involves changes to requirements with respect to inspection or surveillance requirements,

- (i) proposed change involves No Significant Hazards Considerations (refer to the Determination of No Significant Hazards Considerations section of this Technical Specification Change Request);
- (ii) there is no significant change in the types or significant increase in the amounts of any effluents that may be released offsite since the proposed changes do not affect the generation of any radioactive effluents nor do they affect any of the permitted release paths; and
- (iii) there is no significant increase in individual or cumulative occupational radiation exposure.

Accordingly, the proposed change meets the eligibility criteria for categorical exclusion set forth in 10 CFR 51.22(c)(9). Based on the aforementioned and pursuant to 10 CFR 51.22 (b), no environmental assessment or environmental affect statement need be prepared in connection with issuance of an amendment to the Technical Specifications incorporating the proposed change of this request.

**CHAPTER 4.0 - DESIGN FEATURES**

**DETERMINATION OF NO SIGNIFICANT HAZARDS  
CONSIDERATIONS**

**SPECIFIC NSHCs**

There are no specific NSHCs.