

16.0 TECHNICAL SPECIFICATIONS

16.1 Introduction

Technical specifications (TS) impose limits, operating conditions, and other requirements on reactor facility operation for the protection of public health and safety. The North Anna Nuclear Power Plant Unit 3 plant-specific technical specifications (PTS) are derived from the analyses and evaluations in the Economic Simplified Boiling-Water Reactor (ESBWR) generic design control document (DCD) and the North Anna 3 Final Safety Analysis Report (FSAR). In accordance with Title 10 of the *Code of Federal Regulations* (10 CFR) 50.36, "Technical Specifications"; 10 CFR 50.36a, "Technical Specifications on Effluents from Nuclear Power Reactors"; and 10 CFR 52.79(a)(30); Dominion Virginia Power (Dominion) provided PTS and the associated PTS bases for North Anna 3 in Chapter 16, "Technical Specifications," of Part 2, "Final Safety Analysis Report," and Part 4, "Technical Specifications," of the combined license (COL) application.

16.2 Summary of Application

Chapter 16 of the North Anna 3 COL FSAR, Revision 7 incorporates by reference Chapters 16 and 16B (the generic TS [GTS] and the associated GTS bases [bases], respectively) of the certified ESBWR DCD, Revision 9. In addition, in FSAR Chapter 16, the applicant provides the following:

COL Item

- STD COL 16.0-1-A COL Applicant Bracketed Items

The applicant provides additional information in Part 4 of the North Anna 3 COL application to address the ESBWR DCD standard (STD) COL [Item] 16.0-1-A. The applicant replaced information indicated with brackets in the GTS and bases with site-specific information (site-specific TS and bases).

Supplemental Information

- STD SUP 16.0-1

The applicant provides the following supplemental (SUP) information stating that the PTS and PTS bases are maintained as separate documents.

The proposed PTS consist of the GTS and site-specific information. Dominion also proposed bases for the PTS, which consist of the GTS bases and site-specific information.

The GTS items regarding site-specific information that a COL applicant must provide include the PTS information necessary to complete a particular GTS provision (e.g., incorporation of the U.S. Nuclear Regulatory Commission [NRC] approved methodology into a plant's licensing basis). Detailed design information, equipment selection, instrumentation settings, and other information not available at the time of design certification (DC) are necessary to establish the values or information included in the PTS. The GTS and bases indicate each preliminary or missing information item with brackets and a COL item number. Although the ESBWR generic

DCD refers to this preliminary or missing information as COL applicant bracketed items, and the COL application designates this information collectively as STD COL 16.0-1-A, this report identifies this information collectively as COL Item 16.0-1-A. Except for the completion of this COL item, the PTS and bases are identical to the GTS and bases.

Exemptions

In a previous version of North Anna's Unit 3 Part 7, Revision 1 Dominion proposed two exemptions from ESBWR GTS and bases in the PTS and bases. In Part 7, Revision 6 Dominion proposed no exemptions from the GTS and bases.

COL Item Resolution

Table 16.1 of this report lists the GTS requirements and associated bases that contain placeholders for preliminary or missing information associated with COL items. The COL applicant must finalize these items to complete the PTS and bases. This table also lists the method (i.e., Option 1, 2, or 3, described below) that Dominion used to resolve each COL item, thereby completing the associated provisions in the PTS and bases.

The listed resolution method (RM) for each COL item is taken from Part 4 of the COL application and is based on the interim staff guidance (ISG) DC/COL-ISG-08, "Necessary Content of Plant-Specific Technical Specifications When a Combined License Is Issued," and Section 16.0, "Technical Specifications," Revision 3, (issued in March 2010) of NUREG-0800, "Standard Review Plan for the Review of Safety Analysis Reports for Nuclear Power Plants (LWR Edition)," (the Standard Review Plan (SRP)). This guidance lists three acceptable RMs for resolving COL items and finalizing the PTS. For each COL item, the applicant must provide one of the following:

- a site-specific value or site-specific information (Option 1)
- a useable value or useable information that is bounding to the site-specific value or information (Option 2)
- a staff-approved administrative control TS for the use of an NRC-approved methodology to determine the site-specific value or information and establish a document for recording the site-specific value or information outside the PTS (Option 3)

The GTS contains bracketed, optional provisions that provide operational flexibility. However, adopting that flexibility in the PTS requires a site-specific justification in accordance with the reviewer's notes in Table 16.0-1-A of the ESBWR DCD. In most cases, Dominion has not adopted this flexibility in the North Anna 3 PTS. The RM for such items is listed as Option 1 in Table 16.1 because finalizing bracketed information, where the brackets provide for operational flexibility, is equivalent to providing site-specific information and has been applied by the applicant, is shown as Option 1 in Table 16.1.

For all COL items listed in the table, the staff has verified that the PTS and bases have been updated in accordance with the stated RM.

Table 16.1. Site-Specific Information To Resolve COL Item 16.0-1-A

COL Item Number	GTS Reference	Information Needing Finalization (See description in Revision 9 of ESBWR DCD, Tier 2, Section 16.0, Table 16.0-1-A and Revision 4 of the COL application, Part 4)	Resolution Method
1.1-1	GTS 1.1	Pressure and temperature (P/T) limits report (PTLR) definition.	Option 2
3.1.3-1	GTS 3.1.3 Required Action A.1 and bases	Stuck control rod separation requirements between “slow” control rod(s). (Operational flexibility not adopted.)	Option 1
3.1.3-2	Surveillance Requirement (SR) 3.1.3.4 and bases	Maximum scram time limits for operable control rods. If adopting slow control rod optional allowance, the SR should state, “Verify each control rod scram time from fully withdrawn to [60%] rod insertion is \leq [] seconds.” Otherwise, the SR should state, “Perform applicable SRs of LCO 3.1.4.” (Operational flexibility not adopted.)	Option 1
3.1.4-1	GTS 3.1.4 and bases; Limiting Condition for Operation (LCO) 3.1.4 and bases; Action A and bases; Table 3.1.4-1 Notes and bases; bases’ applicable safety analyses (ASA) discussion; bases for SR 3.1.4.2 and SR 3.1.4.3.	“Slow” control rod optional allowance. (Operational flexibility not adopted.) Dominion removed the bracketed provisions for “slow” scram times in the GTS and bases.	Option 1
3.1.5-1	SR 3.1.5.1 and bases	Minimum and nominal control rod scram accumulator pressure.	Option 2
3.1.7-1	GTS 3.1.7 Required Action A.1 and bases	Alternative action for sodium pentaborate concentration not within limits. (Operational flexibility not adopted.)	Option 1
3.3.1.1-2	Bases for SR 3.3.1.1.4	Allowance to exclude certain sensors or other instrumentation components from response time testing. (Operational flexibility not adopted.)	Option 1
3.3.1.2-1	Bases for SR 3.3.1.2.4	Allowance to exclude certain portions of the actuation circuitry from response time testing. (Operational flexibility not adopted.)	Option 1
3.3.1.4-2	Bases for SR 3.3.1.4.7	Allowance to exclude certain sensors or other instrumentation components from response time testing. (Operational flexibility not adopted.)	Option 1
3.3.1.5-2	Bases for SR 3.3.1.5.4	Allowance to exclude certain portions of the actuation circuitry from response time testing. (Operational flexibility not adopted.)	Option 1
3.3.5.1-2	Bases for SR 3.3.5.1.4	Allowance to exclude certain sensors or other instrumentation components from response time testing. (Operational flexibility not adopted.)	Option 1

COL Item Number	GTS Reference	Information Needing Finalization (See description in Revision 9 of ESBWR DCD, Tier 2, Section 16.0, Table 16.0-1-A and Revision 4 of the COL application, Part 4)	Resolution Method
3.3.5.2-1	Bases for SR 3.3.5.2.4	Allowance to exclude certain portions of the actuation circuitry from response time testing. (Operational flexibility not adopted.)	Option 1
3.3.5.3-2	Bases for SR 3.3.5.3.4	Allowance to exclude certain sensors or other instrumentation components from response time testing. (Operational flexibility not adopted.)	Option 1
3.3.5.4-1	Bases for SR 3.3.5.4.4	Allowance to exclude certain portions of the actuation circuitry from response time testing. (Operational flexibility not adopted.)	Option 1
3.3.6.1-2	Bases for SR 3.3.6.1.4	Allowance to exclude certain sensors or other instrumentation components from response time testing. (Operational flexibility not adopted.)	Option 1
3.3.6.2-1	Bases for SR 3.3.6.2.4	Allowance to exclude certain portions of the actuation circuitry from response time testing. (Operational flexibility not adopted.)	Option 1
3.3.6.3-2	Bases for SR 3.3.6.3.4	Allowance to exclude certain sensors or other instrumentation components from response time testing. (Operational flexibility not adopted.)	Option 1
3.3.6.4-1	Bases for SR 3.3.6.4.4	Allowance to exclude certain portions of the actuation circuitry from response time testing. (Operational flexibility not adopted.)	Option 1
3.3.7.1-2	Bases background for GTS 3.3.7.1	Control room habitability area (CRHA) option for design features to protect occupant exposures to hazardous chemicals. (Not adopted based on FSAR Section 6.4.5 and resolution of related Request for Additional Information (RAI) 02.02.03-8.)	Option 1
3.3.7.1-3	Bases for SR 3.3.7.1.4	Allowance to exclude certain sensors or other instrumentation components from response time testing. (Operational flexibility not adopted.)	Option 1
3.3.7.2-1	Bases background for GTS 3.3.7.2	CRHA option for design features to protect occupant exposures to hazardous chemicals. (Not adopted based on FSAR Section 6.4.5 and resolution of related RAI 02.02.03-8.)	Option 1
3.3.7.2-2	Bases for SR 3.3.7.2.4	Allowance to exclude certain portions of the actuation circuitry from response time testing. (Operational flexibility not adopted.)	Option 1
3.4.4-1	LCO 3.4.4 and bases; SRs 3.4.4.1, 2, 3, 4, and 5 and bases; bases background	Reference to PTLR or plant-specific P/T curves as figures in TS 3.4.4. (Adopted PTLR.)	Option 2
3.4.4-2	Notes to SR 3.4.4.4, and SR 3.4.4.5 and bases	Temperature for applicability of verification that reactor vessel flange and head flange temperatures are within limits.	Option 2

COL Item Number	GTS Reference	Information Needing Finalization (See description in Revision 9 of ESBWR DCD, Tier 2, Section 16.0, Table 16.0-1-A and Revision 4 of the COL application, Part 4)	Resolution Method
3.4.4-3	Bases references for GTS 3.4.4	Topical reports providing the methodology for determining the P/T limits. (Adopted PTLR.)	Option 2
3.7.2-1 (related to COL Item 6.4-2-A)	GTS 3.7.2 Required Action B.2 and bases; bases background discussion; bases ASA discussion; bases for LCO 3.7.2; bases for SR 3.7.2.7	CRHA option for design features to protect occupant exposures to hazardous chemicals. (Not adopted based on FSAR Section 6.4.5 and resolution of related RAI 02.02.03-8.)	Option 1
3.7.4-1	LCO 3.7.4 and bases; bases ASA discussion; bases for Required Action A.1	LCO 3.7.4 alternative to requiring the main turbine bypass system to be operable. The alternative LCO is to make applicable the LCO 3.2.2, "Minimum Critical Power Ratio (MCPR)," limits for an inoperable main turbine bypass system, as specified in the core operating limits report (COLR). (Operational flexibility not adopted.)	Option 1
3.7.4-2	SR 3.7.4.1 frequency and bases	Surveillance interval for cycling a turbine bypass valve. (Retained 31-day frequency. Operational flexibility not adopted.)	Option 1
3.7.6-1	LCO 3.7.6 and bases; bases ASA discussion; bases for Required Action A.1	LCO 3.7.6 alternative to requiring all selected control rod run-in (SCRRI) and select rod insert (SRI) functions to be operable. The alternative LCO is to make applicable the LCO 3.2.2 MCPR limits for an inoperable SCRRI and/or SRI function, as specified in the COLR. (Operational flexibility not adopted.)	Option 1
3.8.1-1	SR 3.8.1.2 and bases	Acceptance criteria for battery charger testing (minimum duration of test in hours) consistent with battery size. (Manufacturer's recommendations are the basis for bounding value for test duration.)	Option 2
3.8.1-4	Bases for SR 3.8.1.1	Battery cell parameters consistent with the manufacturer's specifications.	Option 1
3.8.1-5	Bases background for GTS 3.8.1, and bases for SR 3.8.1.1	Battery margin for aging factor and state of charge uncertainty (from expected battery life).	Option 1
3.8.3-1	Conditions B, C, and G; Required Actions B.2 and C.2; bases for Actions B, C, and G; bases for SR 3.8.3.1	Acceptance criteria for verification that battery is fully charged—maximum float current—consistent with manufacturer's recommendations.	Option 1

COL Item Number	GTS Reference	Information Needing Finalization (See description in Revision 9 of ESBWR DCD, Tier 2, Section 16.0, Table 16.0-1-A and Revision 4 of the COL application, Part 4)	Resolution Method
3.8.3-3	GTS 3.8.3: Actions A and G and SR 3.8.3.5; SR 3.8.3.2; bases background; bases for Actions A, B, C, and G; bases for SRs 3.8.3.2 and 3.8.3.5	Battery cell parameters consistent with the manufacturer's specifications. Minimum connected cell float voltage. Minimum pilot cell float voltage.	Option 1
3.8.3-4	SR 3.8.3.6 frequency and bases	Battery margin for aging factor and state of charge uncertainty (based on the manufacturer's recommendations).	Option 1
3.9.5-1	SR 3.9.5.2 and bases; bases for LCO 3.9.5	Minimum control rod drive scram accumulator pressure.	Option 2
4.1-1	GTS 4.1	Plant-specific description of site location.	Option 1
5.2.2-1	GTS 5.2.2	Non-licensed operator manning requirements for multi-unit site. (Not applicable; North Anna 3 is a single-unit facility.)	Option 1
5.3.1-1	GTS 5.3.1	Unit staff qualification requirements.	Option 1
5.4.1-1	GTS 5.4.1.a	Guidance documents for written procedures.	Option 1
5.4.1-2	GTS 5.4.1.b	Guidance documents for emergency operating procedures.	Option 1
5.5.6-1	GTS 5.5.6	Outdoor Liquid Storage Tank Radioactivity Monitoring Program. (Not applicable to North Anna 3.)	Option 1
5.5.9-1	GTS 5.5.9	Containment Leakage Rate Testing Program plant-specific exceptions to RG 1.163. (Dominion requested no additional plant-specific exceptions.)	Option 1
5.5.10-1	GTS 5.5.10.a	Battery cell parameters consistent with the manufacturer's specifications. Minimum connected cell float voltage.	Option 1
5.5.11-1	GTS 5.5.11	Setpoint Control Program references to NRC staff-approved setpoint methodology and the associated NRC safety evaluation report (SER).	Option 1
5.5.12-1	GTS 5.5.12	CRHA Boundary Program requirements for hazardous chemical releases. (Not adopted based on FSAR Section 6.4.5 and resolution of related RAI 02.02.03-8.)	Option 1
5.6.1-1	GTS 5.6.1	Applicant to determine if allowance for multiple-unit stations is applicable to PTS. If applicable, a single annual radiological environmental operating report may be prepared. (Allowance applies because North Anna 1, 2 and 3 are on the same site.)	Option 1
5.6.1-2	GTS 5.6.1	Applicant to determine format of annual radiological environmental operating report. (Multi-unit format applies.)	Option 1

COL Item Number	GTS Reference	Information Needing Finalization (See description in Revision 9 of ESBWR DCD, Tier 2, Section 16.0, Table 16.0-1-A and Revision 4 of the COL application, Part 4)	Resolution Method
5.6.2-1	GTS 5.6.2	Applicant to determine if allowance for multi-unit stations is applicable to PTS. If applicable, a single radioactive effluent release report, with content required for a multi-unit report, may be prepared. (Allowance applies because North Anna Units 2 and 3 are on the same site.)	Option 1
5.6.3-1	GTS 5.6.3	COLR reference to Specification 3.7.4, "Main Turbine Bypass System" (see COL Item 3.7.4-1). (Operational flexibility not adopted.)	Option 1
5.6.3-2	GTS 5.6.3.a	Reference in TS 5.6.3.a to any additional individual specifications that address core operating limits.	Option 1
5.6.4-1	GTS 5.6.4	Applicant to add list of analytical methods used to determine the reactor coolant system P/T limits in specification for PTLR, if PTLR adopted in PTS. In lieu of a PTLR, the applicant may insert its plant-specific P/T curves as figures in PTS 3.4.4 and omit PTS 5.6.4. (Adopted PTLR.)	Option 2

The above COL items are listed in Revision 9 to ESBWR DCD, Table 16.0-1-A, which provides the COL applicant with guidance on the necessary site-specific information for each item.

16.3 Regulatory Basis

The regulatory basis of the information incorporated by reference is in NUREG–1966, "Final Safety Evaluation Report Related to the Certification of the Economic Simplified Boiling-Water Reactor," (FSER related to the ESBWR DCD). In addition, the relevant requirements of the Commission regulations for TS, and the associated acceptance criteria, are in Section 16.0 of NUREG–0800.

The applicable regulatory requirements for TS are as follows:

- 10 CFR 50.36 and 50.36a
- 10 CFR 52.79(a)(30)

Section 182a of the Atomic Energy Act of 1954 (the Act) as amended (42 U. S. C. 2232), requires that applicants for nuclear power plant operating licenses will state the following:

Such technical specifications, including information of the amount, kind, and source of special nuclear material required, the place of the use, the specific characteristics of the facility, and such other information as the Commission may, by rule or regulation, deem necessary in order to enable it to find that the utilization of special nuclear material will be in accord with the common defense and security and will provide adequate protection to the health and safety of the public. Such technical specifications shall be a part of any license issued.

In 10 CFR 50.36, the Commission established the regulatory requirements related to TS content. In doing so, the Commission emphasized matters related to the prevention of

accidents and the mitigation of the consequences of accidents. As recorded in the Statements of Consideration, “Technical Specifications for Facility Licenses; Safety Analysis Reports” (33 FR 18610, December 17, 1968), the Commission noted that applicants are expected to incorporate into their TS “those items that are directly related to maintaining the integrity of the physical barriers designed to contain radioactivity.” In 10 CFR 50.36(c), the NRC requires the TS for utilization facilities to contain (1) safety limits, limiting safety system settings, and limiting control settings; (2) limiting conditions for operation (LCOs); (3) surveillance requirements; (4) design features; and (5) administrative controls.

In 10 CFR 50.36(c)(2)(ii), the NRC requires the TS to include an LCO for each item that meets one or more of the following four criteria:

- “Criterion 1. Installed instrumentation that is used to detect, and indicate in the control room, a significant abnormal degradation of the reactor coolant pressure boundary.”
- “Criterion 2. A process variable, design feature, or operating restriction that is an initial condition of a design basis accident or transient analysis that either assumes the failure of or presents a challenge to the integrity of a fission product barrier.”
- “Criterion 3. A structure, system, or component that is part of the primary success path and which functions or actuates to mitigate a design basis accident or transient that either assumes the failure of or presents a challenge to the integrity of a fission product barrier.”
- “Criterion 4. A structure, system, or component which operating experience or probabilistic risk assessment has shown to be significant to public health and safety.”

Regulatory Guidance

In 1992, the NRC issued standard TS (STS) to clarify the content and format of requirements necessary to ensure the safe operation of nuclear power plants. These STS were developed from the results of the TS improvement program in accordance with 10 CFR 50.36; the Commission’s “Proposed Policy Statement on TS Improvements for Nuclear Power Reactors,” published on February 6, 1987 (52 FR 3788) (interim policy statement); and SECY-93-067, “Final Policy Statement on TS Improvements for Nuclear Power Reactors,” published on July 22, 1993 (58 FR 39132) (final policy statement). The NRC published major revisions to the STS in 1995 (Revision 1), 2001 (Revision 2), 2004 (Revision 3), and 2012 (Revision 4).

The STS for boiling-water reactors (BWRs) are in the two NRC documents listed below.

- NUREG–1433, “Standard Technical Specifications, General Electric Plants (BWR/4),” Volumes 1 and 2
- NUREG–1434, “Standard Technical Specifications, General Electric Plants (BWR/6),” Volumes 1 and 2

For each document, Volume 1 contains the TS and Volume 2 contains the associated TS bases. The STS include the bases for safety limits, limiting safety system settings, LCOs, and associated action and surveillance requirements.

The STS reflect the results of a detailed review of the application of the Commission's interim policy statement criteria to generic system functions. The NRC published these results—known as the split report (ML11264A057)—in a May 9, 1988, letter from T. E. Murley (NRC) to the nuclear steam supply system (NSSS) vendor-owner groups (e.g., W. S. Wilgus of the Babcock & Wilcox Owners Group and R. F. Janecek of the BWR Owners' Group). The split report provides the results of the NRC staff's review of the NSSS vendor-owner groups' application of the Commission's interim policy statement criteria to the existing STS (e.g., NUREG-0123 for General Electric Plants) LCOs. The STS also reflect the results of extensive discussions about various drafts of the STS to ensure that the application of TS criteria will consistently reflect detailed system configurations and operating characteristics for all reactor designs. Therefore, the STS bases provide abundant information about the extent to which the STS reflect requirements that are necessary to protect public health and safety.

In the final policy statement, the Commission expressed the view that satisfying the guidance in the policy statement also satisfies Section 182a of the Act and 10 CFR 50.36. The final policy statement describes the safety benefits of the STS. It also encourages licensees to use the STS as the basis for license amendments to partially or completely convert existing TS requirements to improved TS based on the STS.

The format and content of the PTS and bases in a COL application referencing a certified design should be based on the GTS and bases for the certified design. PTS and bases may include appropriate plant-specific departures from the referenced certified GTS and bases when warranted.

16.4 Technical Evaluation

As documented in NUREG-1966, NRC staff reviewed and approved Chapter 16 of the certified ESBWR DCD. The staff reviewed Chapter 16, of the North Anna 3 COL application and checked the referenced ESBWR DCD to ensure that the combination of the information in the COL FSAR and the information in the ESBWR DCD represents the complete scope of information relating to the review topic.¹ The staff's review confirmed that the information in the application and the information incorporated by reference address the required information related to this chapter.

The staff reviewed the PTS and bases which are in Part 4 of the North Anna 3 COL application, and the FSAR Chapter 16 which is in Part 2 of the COL application's FSAR, to ensure that this information incorporates by reference the latest revision to ESBWR DCD Section 16.0, "Introduction." DCD Section 16.0 contains guidance (i.e., reviewer's notes) for providing site-specific information to resolve the COL items, which are indicated by brackets in DCD Chapters 16 and 16B, the GTS and bases. The COL items are listed in Section 16.2, Table 16.1 of this SER. The PTS and bases contain the latest revision of the GTS and bases and the site-specific information in accordance with COL Item 16.0-1-A of the ESBWR DCD. The GTS and bases and the inserted site-specific information form a complete set of PTS and bases for staff review and approval. Part 4 of the COL application also describes and justifies the proposed RM for each COL item.

¹ See "*Finality of Referenced NRC Approvals*" in SER Section 1.2.2, for a discussion on the staff's review related to verification of the scope of information to be included in a COL application that references a design certification.

The staff confirmed that the PTS and bases, as presented in Part 4 of the COL application, incorporate the GTS and bases. The staff also reviewed the site-specific information provided in accordance with COL Item 16.0-1-A, as listed in Section 16.2, Table 16.1 of this report. The staff focused the COL application review on the completion of the site-specific information in the PTS and bases.

Completion of the ESBWR Design Certification Rule (DCR)

NRC staff separately reviewed the GTS and bases on Docket No. 052-010 as part of the ESBWR DC review. The staff's review of the GTS and bases is documented in Chapter 16 of the ESBWR DC FSER. Because the staff's DC review of the GTS and bases applies to the PTS and bases, the staff did not review information in the PTS and bases that is identical to information in the GTS and bases.

Completion of the staff's technical evaluation of the PTS and bases was contingent on NRC approval and certification of the ESBWR design and publication of the ESBWR DCR. Consequently, the staff verified that except for the COL items, the PTS and bases are identical to the GTS and bases that have received final NRC approval. This technical evaluation thereby incorporates the resolution of all issues related to the GTS and bases that remain open at the time of the North Anna 3 COL application.

Resolution of COL Items Listed in Table 16.1

Dominion proposed to resolve each COL item using one of the three options permitted by DC/COL-ISG-08, as described on page 16-2 of this SER.

Option 1. The staff determines whether the site-specific information provided under Option 1 is acceptable by verifying that the information is accurate and useable for unit operation. To make this determination, the staff (1) compares the information with the FSAR and the conditions in the associated reviewer's note in ESBWR DCD Section 16.0; and (2) reviews the justification included in the COL application. The following are the COL items resolved using Option 1:

- Optional provisions that would provide additional operational flexibility. The associated reviewer's notes for such COL items require the COL applicant to provide additional site-specific justifications in order to incorporate the operational flexibility in the PTS. These COL items are indicated in Table 16.1 by the phrase "(Operational flexibility not adopted)."
 - action and surveillance requirements for slow control rods (COL Items 3.1.3-1, 3.1.3-2 and 3.1.4-1)
 - action requirements for an out-of-limit sodium pentaborate concentration in the standby liquid control system accumulator (COL Item 3.1.7-1)
 - exclusion of instrumentation components from response time testing (COL Items 3.3.1.1-2, 3.3.1.2-1, 3.3.1.4-2, 3.3.1.5-2, 3.3.5.1-2, 3.3.5.2-1, 3.3.5.3-2, 3.3.5.4-1, 3.3.6.1-2, 3.3.6.2-1, 3.3.6.3-2, 3.3.6.4-1, 3.3.7.1-3, and 3.3.7.2-2)
 - specifying a minimum critical power ratio (MCPR) penalty in lieu of requiring an operable main turbine bypass system (COL Items 3.7.4-1 and 5.6.3-1)
 - specifying a surveillance frequency of greater than 31 days for cycling turbine bypass valves (COL Item 3.7.4-2)

- specifying an MCPR penalty in lieu of requiring operable SCRRRI/SRI functions (COL Item 3.7.6-1)

For these COL items, Dominion elected to omit these allowances from the PTS. In each case, the resulting specification is more restrictive on unit operation than would be allowed by the omitted provision. Therefore, the resolution of these COL items is acceptable.

- Provisions related to protections against hazardous chemicals (COL Items 3.3.7.1-2, 3.3.7.2-1, 3.7.2-1, and 5.5.12-1). Dominion did not adopt these optional provisions based on the resolution of RAI 02.02.03-8 as discussed in Chapter 2 of this SER, and the evaluation of hazardous chemicals in FSAR Section 6.4.5 which is being tracked as Confirmation Item, 2-1.
- Unit staff minimum qualification standards (COL Item 5.3.1-1) in GTS 5.3.1. Dominion resolved this item in accordance with the reviewer's note in DCD Section 16.0, Table 16.0-1-A, by specifying the use of an overall qualification statement referencing an American National Standards Institute (ANSI) standard acceptable to the NRC staff, as follows:

GTS 5.3.1	Each member of the unit staff shall meet or exceed the minimum qualifications of [Regulatory Guide 1.8, Revision 3, 2000, or more recent revisions, or ANSI Standard acceptable to the NRC staff]. [The staff not covered by Regulatory Guide 1.8 shall meet or exceed the minimum qualifications of Regulations, Regulatory Guides, or ANSI Standards acceptable to NRC staff].
PTS 5.3.1	Each member of the unit staff shall meet or exceed the minimum qualifications of Regulatory Guide 1.8, Revision 3, 2000, with the following exception: <ul style="list-style-type: none"> a. During cold license operator training prior to Commercial Operation, the Regulatory Position C.1.b of Regulatory Guide 1.8, Revision 2, 1987, applies. Cold license operator candidates meet the training elements defined in ANS/ANSI 3.1-1993 but are exempt from the experience requirements defined in ANS/ANSI 3.1-1993.

The proposed minimum qualification standards reference Regulatory Guide (RG) 1.8, "Qualification and Training of Personnel for Nuclear Power Plants," Revision 3, issued May 2000; and American Nuclear Society (ANS)/ANSI 3.1-1993, "Selection, Qualification, and Training of Personnel for Nuclear Power Plants," which are acceptable to the NRC staff. RG 1.8 will cover all North Anna 3 staff, so the second bracketed sentence is omitted. Therefore, the resolution of this COL item is acceptable.

- Guidance documents for written procedures (COL Items 5.4.1-1 and 5.4.1-2) in GTS 5.4.1. In PTS 5.4.1, Dominion retained the GTS bracketed references to Appendix A to RG 1.33, Revision 2, "Quality Assurance Program Requirements (Operation)," issued February 1978 and Generic Letter 82-33, "Supplement 1 to NUREG-0737—Emergency Response Capabilities," dated December 17, 1982, which

are appropriate for North Anna 3. Therefore, the resolution of these COL items is acceptable.

- Containment leakage rate-testing program exceptions to RG 1.163, "Performance-Based Containment Leak-Test Program," (COL Item 5.5.9-1) in GTS 5.5.9.a. In PTS 5.5.9.a, Dominion omitted the GTS 5.5.9.a bracketed placeholder for exceptions because Dominion did not propose any exceptions for North Anna 3. Therefore, the resolution of this COL item is acceptable.
- Annual radiological environmental operating report allowance for multiple-unit stations to submit a single report (COL Item 5.6.1-1) and the report format (COL Item 5.6.1-2) in GTS 5.6.1. In accordance with the reviewer's note in DCD Section 16.0, Table 16.0-1-A, Dominion retained in PTS 5.6.1 the GTS bracketed note (without the brackets) allowing a single report to be submitted for a multiple-unit station. Dominion also retained (without the brackets) the GTS bracketed phrase on the report format: "[in the format of the table in the Radiological Assessment Branch Technical Position, Revision 1, November 1979]." This information applies to North Anna 3 and is acceptable to the staff. Therefore, the resolution of these COL items is acceptable.
- Radioactive effluent release report allowance for multiple-unit stations to submit a single report (COL Item 5.6.2-1) in GTS 5.6.2. In accordance with the reviewer's note in DCD Section 16.0, Table 16.0-1-A, Dominion retained in PTS 5.6.2 the GTS bracketed note (without the brackets) allowing a single report to be submitted for a multiple-unit station. This information applies to North Anna 3 and is acceptable to the staff. Therefore, the resolution of this COL item is acceptable.
- References to any additional individual specifications that address core operating limits (COL Item 5.6.3-2) in GTS 5.6.3. Dominion omitted the GTS bracketed placeholder in PTS 5.6.3 because no additional plant-specific specifications address core operating limits. Therefore, the resolution of this COL item is acceptable.
- Description of site location (COL Item 4.1-1) in GTS 4.1. The staff verified that the PTS 4.1 description of the North Anna 3 site location is accurate. Therefore, the resolution of this COL item is acceptable.
- Non-licensed operator manning requirements (COL Item 5.2.2-1) in GTS 5.2.2. The reviewer's note in DCD Section 16.0, Table 16.0-1-A requires the COL applicant to determine whether the unit will be on a multi-unit site and clarifies that "two unit sites with both units shutdown or defueled require a total of three non-licensed operators for the two units." Because North Anna 3 is a stand-alone ESBWR unit, Dominion omitted the bracketed statement and retained the existing GTS 5.2.2.a unbracketed statement in PTS 5.2.2.a, which applies to both single-unit and two-unit sites. Therefore, the resolution of this COL item is acceptable.
- Outdoor liquid storage tank radioactivity monitoring program (COL Item 5.5.6-1). GTS 5.5.6, "Explosive Gas and [Storage Tank] Radioactivity Monitoring Program," contains bracketed provisions and a surveillance program for unprotected outdoor liquid radioactive waste storage tanks. The reviewer's note in DCD Section 16.0, Table 16.0-1-A requires the COL applicant to incorporate the GTS 5.5.6 bracketed requirements in PTS 5.5.6, if the site design includes such storage tanks. Because North Anna 3 does not include such storage tanks, PTS 5.5.6 omits these bracketed requirements. Therefore, the resolution of this COL item is acceptable.

- Battery cell parameters (COL Items 3.8.1-4, 3.8.3-3, and 5.5.10-1). The applicant has provided the site-specific values for battery parameters based on the manufacturer's recommendations for the BAE 2V-24OPzS-3000 battery, as in Table 16.2 below.

The applicant completes the bases for PTS surveillance requirement (SR) 3.8.1.1, by replacing the GTS bracketed value with the plant-specific value of 2.22 volts per cell (Vpc) at 25 degrees Celsius (C) (77 degrees Fahrenheit [F]) for the minimum float voltage. This value is based on the battery manufacturer BAE's recommendation for the optimum long-term battery performance by limiting the formation of lead sulfate and self-discharge. Therefore, the staff finds the minimum float voltage of 2.22 Vpc at 25 degrees C for the optimum long-term battery performance acceptable. The staff also finds that the proposed location of "battery terminals" for monitoring the battery temperature for voltage compensation is acceptable because it is consistent with the battery manufacturer BAE's recommendation. Therefore, COL Item 3.8.1-4 is resolved.

The applicant completed Actions A and G, SR 3.8.3.2, and SR 3.8.3.5 and the associated bases of PTS 3.8.3, "Battery Parameters," by replacing the GTS bracketed values with the site-specific value of 2.09 volts (V) as the minimum battery cell float voltage. This value is based on the manufacturer BAE's recommendation.

Table 16.2. Battery Cell Parameters

COL Item	Location	Parameter/Information	PTS Value
3.8.1-4	"SR" section of bases for PTS SR 3.8.1.1	Minimum float voltage for a battery cell and for a battery with 120 cells	<ul style="list-style-type: none"> • 2.22 volts per cell (Vpc) • 266.4 V at 25 °C (77 °F) at the battery terminals
		Location for monitoring battery temperature for voltage compensation	Battery terminals
3.8.3-3	"Background" section of bases for PTS 3.8.3	Nominal specific gravity value of a fully charged battery cell	1.240
		Number of battery cells in battery	120
		Approximate open circuit voltage for a battery with 120 cells and a battery cell voltage corresponding to the nominal specific gravity value of a fully charged battery cell	<ul style="list-style-type: none"> • 249.6 V • ≥ 2.07 Vpc to 2.09 Vpc
		Time period that a fully charged battery cell will maintain its capacity without further charging	30 days
		Battery cell float voltage (over-potential) for optimal long-term performance and its benefit	<ul style="list-style-type: none"> • 2.22 to 2.24 Vpc at 25 °C (77 °F) • limits the formation of lead sulfate and self-discharge
		Nominal float voltage for a battery cell and for a battery with 120 cells	<ul style="list-style-type: none"> • 2.23 Vpc at 25 °C (77 °F) • 267.6 V
	PTS 3.8.3:	Minimum battery cell float voltage	2.09 V

COL Item	Location	Parameter/Information	PTS Value
	<ul style="list-style-type: none"> Condition A Required Action A.3 Bases for Actions A, B, C, and G Condition G SR 3.8.3.2 and bases SR 3.8.3.5 and bases 		
	SR 3.8.3.2 bases and SR 3.8.3.5 bases	Nominal float voltage for a battery cell and for a battery with 120 cells	<ul style="list-style-type: none"> 2.23 Vpc at 25 °C (77 °F) 267.6 V
		Battery cell float voltages addressed by PTS 5.5.10	< 2.13 Vpc but > 2.09 Vpc at 25 °C (77 °F)
		Short-term absolute minimum battery cell voltage	2.09 Vpc
	SR 3.8.3.4 bases	Battery pilot cell electrolyte design minimum temperature	16 °C (60 °F)
5.5.10-1	PTS 5.5.10.a	Minimum battery cell float voltage	< 2.13 V

The applicant also replaced other bracketed information with appropriate site-specific values. The staff found that a battery cell with a flooded lead-acid construction has a nominal specific gravity of 1.240. This specific gravity corresponds to a battery cell that has an open circuit voltage of 2.07 to 2.09 Vpc for a 120-cell battery at 25 degrees C (77 degrees F). Per the manufacturer's instruction, the battery cell will maintain its capacity for 30 days without further charging once it is fully charged with its open-circuit voltage greater than or equal to 2.07 to 2.09 Vpc. The staff calculated the open-circuit voltage to be 2.085 Vpc ($1.240 + 0.845$), using the Institute of Electrical and Electronics Engineers (IEEE) Standard (Std) 450–2010, "IEEE Recommended Practice for Maintenance, Testing, and Replacement of Vented Lead-Acid Batteries for Stationary Applications," which is consistent with the manufacturer's recommendation. NRC staff finds the site-specific value of 2.09 Vpc for the short-term absolute minimum battery cell float voltage and the values of other associated parameters, such as the specific gravity and duration of capacity retention, to be acceptable. Therefore, COL Item 3.8.3-3 is resolved.

The applicant completed PTS 5.5.10, "Battery Monitoring and Maintenance Program," which requires establishing a program that provides for battery restoration and maintenance, by replacing GTS bracketed values with site-specific values for a specified battery cell float voltage. Specifically, PTS 5.5.10.a states that the program must include "with battery cell float voltage < 2.13 V, actions to restore cell(s) to ≥ 2.13 V and perform SR 3.8.3.5." SR 3.8.3.5 verifies that each required battery-connected cell float voltage is ≥ 2.09 V. The value of 2.13 V for implementing programmatic actions for restoration and maintenance is based on the manufacturer's recommendation. The staff finds that the value cell float voltage selected for the battery restoration and maintenance program to be consistent with IEEE Std 450–2010 and, therefore, acceptable. Therefore, COL Item 5.5.10-1 is resolved.

- Battery margin including the aging factor and state-of-charge uncertainty (COL Item 3.8.1-5). The applicant completed the "Background" section of the bases for

PTS 3.8.1 by replacing the GTS bracketed value with the plant-specific value of 80 percent of the battery ampere-hour rating for the battery end-of-life capacity limit. This value is based on the battery manufacturer BAE's recommendation. The staff finds this value acceptable because the battery sizing includes an aging factor of 125 percent that will provide a 100-percent design demand load with 80 percent of the battery ampere-hour rating, which is consistent with IEEE Std 485–2010, "IEEE Recommended Practice for Sizing Lead-Acid Batteries for Stationary Applications," and IEEE Std 450-2010. Therefore, COL Item 3.8.1-5 is resolved.

- Battery margin including the aging factor and state-of-charge uncertainty (COL Item 3.8.3-4). The applicant completed PTS SR 3.8.3.6 by replacing the GTS bracketed value with the plant-specific value of a battery capacity greater than or equal to 80 percent of the manufacturer's ampere-hour rating, when subjected to a performance discharge test. This test determines the overall degradation of the battery from age and usage. The staff finds that the battery capacity of 80 percent will meet 100-percent of the design demand loads, because the battery sizing includes an aging factor of 125 percent. The staff also finds that the proposed value is consistent with IEEE Std 450 and IEEE Std 485, which recommend that the battery be replaced if its capacity is below 80 percent of the manufacturer's rating. Therefore, the proposed performance discharge test battery capacity acceptance criterion value of greater than or equal to 80 percent of the manufacturer's ampere-hour rating is acceptable. Thus, COL Item 3.8.3-4 is resolved.
- The applicant completed PTS 3.8.3 Conditions B, C, and G; and Required Actions B.2 and C.2; the bases for Actions B, C, and G; and the bases for SR 3.8.3.1 by providing the float current acceptance criterion for verifying a fully charged battery (COL Item 3.8.3-1). Dominion intends to use batteries manufactured by BAE in the 250 V Safety-Related DC (direct current) System. For the selected batteries, a 30 amp battery float current is based on returning the battery to 95% charge and assumes a 5% design margin to account for uncertainties in the use of float current to measure the state of charge of the battery. These values are recommended by the battery manufacturer and are used to complete the GTS bracketed items in the North Anna 3 TS Bases for TS 3.8.3. Therefore, COL 3.8.3-1 is resolved.
- The applicant completed COL Item 5.5.11-1 regarding PTS 5.5.11, "Setpoint Control Program," by replacing the bracketed information in paragraph b with a reference to the NRC-approved setpoint methodology, NEDE-33304P-A, "GEH ESBWR Setpoint Methodology," Revision 4, issued May 2010, which was approved as part of the ESBWR DC review as documented in NUREG–1966, Section 7.1.4. Specifically, paragraph b states the following:

The Limiting Trip Setpoint (LTSP), Nominal Trip Setpoint (NTSP_F), Allowable Value (AV), As-Found Tolerance (AFT), and As-Left Tolerance (ALT) for each Technical Specification required automatic protection instrumentation function shall be calculated in conformance with the instrumentation setpoint methodology previously reviewed and approved by the NRC in NEDE-33304P-A, "GEH ESBWR Setpoint Methodology," Revision 4, dated May 2010, (Public Version ML101450251), and the conditions stated in the associated NRC safety evaluation, Letter to GEH from NRC, "Final Safety Evaluation Report for the Economic Simplified

Boiling Water Reactor Design,” dated March 9, 2011, (ML110050215, specifically Chapter 7 FSER ML110030049 and Chapter 16 FSER ML110030064).

Therefore, COL Item 5.5.11-1 is resolved.

Option 2. The staff determines whether the site-specific information provided under Option 2 is acceptable by verifying that the information is bounding and useable for unit operation. This verification is based on (1) a comparison of the information with the FSAR and the conditions in the associated reviewer’s note in DCD Section 16.0, Table 16.0-1-A; and (2) a review of the justification in the COL application that includes how the bounding value was determined. The applicant selected Option 2 for resolving the following COL items:

- Battery charger surveillance test duration (COL Item 3.8.1-1). The applicant stated in Item 19 of the Introduction to Part 4 of the COL application that the proposed minimum test duration of 8 hours for battery charger testing in PTS SR 3.8.1.2 is bounding based on the GUTOR manufacturer’s recommendations for battery charger test duration. An 8-hour time period is sufficient for the charger temperature to be stabilized and maintained for at least 2 hours. The staff concludes that 8 hours is a useable bounding value for the battery charger test duration. Therefore, the proposed resolution of COL Item 3.8.1-1 is acceptable.
- Requirements related to the reactor coolant system P/T limits report (PTLR) (COL Items 1.1-1, 3.4.4-1, 3.4.4-2, 3.4.4-3, and 5.6.4-1). Revision 5, Part 4 of the North Anna 3 COL application identified NEDC-33441P, “GE Hitachi Nuclear Energy Methodology for the Development of ESBWR Reactor Pressure Vessel Pressure-Temperature Curves,” Revision 6 as the document that contains the analytical methods used to determine the reactor coolant system P/T limits. The staff’s evaluation of the P/T limits and P/T methodology for North Anna 3 is in Section 5.3.2 of this SER. Based on the staff’s determination that the P/T limits in NEDC-33441P are useable bounding values for North Anna 3, the applicant completed the PTLR-related COL Items by (1) removing brackets from around PTS 5.6.4; (2) replacing the associated bracketed placeholder for the P/T methodology in GTS 5.6.4.b with a reference to NEDC-33441P Revision 5 issued in February 2011, in PTS 5.6.4.b and in the “References” section of the bases for PTS 3.4.4; and (3) removing the brackets from “[PTLR]” in PTS Sections 1.1 and 3.4.4. The staff finds that referencing Revision 5 of NEDC-33441P in the PTS and bases is acceptable because it describes the NRC-approved P/T methodology and bounding P/T limits that are applicable to North Anna 3. Therefore, these PTLR-related COL items are resolved in accordance with Option 2
- Minimum control rod drive scram accumulator pressure (COL Items 3.1.5-1 and 3.9.5-1). The applicant proposes to replace the bracketed information in the bases for SR 3.1.5.1 as follows:

The GTS SR 3.1.5.1 bases state the following:

The minimum accumulator pressure of [12.76 MPaG (1850 psig)] is well below the expected pressure of 14.82 MPaG (2150 psig) (Ref. 2)].

The PTS SR 3.1.5.1 bases, instead state the following:

The minimum accumulator pressure of 12.75 MPaG (1849 psig) reflects a bounding value based on the ABWR CRD HCU accumulator minimum pressure value. Using the ABWR minimum pressure value is bounding and thereby justified based on:

- a) ESBWR frictional pressure loss is similar to the ABWR design,
- b) ESBWR control rod is lighter in weight than the ABWR control rod,
- c) ESBWR normal reactor pressure on scram initiation is similar to ABWR, and
- d) Mechanical losses should be bounded, since the basic mechanical designs are the same.

For the reasons stated above in the proposed bases for PTS SR 3.1.5.1, the staff concludes that the value of 12.75 megapascals gauge (MPaG) (1,849 pounds per square inch gauge [psig]) is a useable bounding value for the minimum accumulator pressure and is therefore acceptable as a control rod operability criterion in PTS 3.1.5 and PTS 3.9.5. Because the “expected pressure” value is not a criterion for control rod operability, stating it in the bases for PTS SR 3.1.5.1 is not necessary. Therefore, the proposed resolution of COL Items 3.1.5-1 and 3.9.5-1 is acceptable.

Option 3. The staff determines whether the site-specific information provided under Option 3 is acceptable by verifying that the PTS administrative program for controlling the relocated information (1) conforms to the GTS, if the GTS contains such a program, or conforms to applicable regulatory requirements; (2) specifies using an NRC-approved methodology for determining site-specific information to be maintained outside of the PTS; (3) specifies establishing a document to record the most recent version of the relocated information; (4) specifies controlling changes to the specified document in accordance with 10 CFR 50.59, “Changes, Tests and Experiments,” and the specified NRC-approved methodology; and (5) specifies the schedule for providing the NRC with updates to the specified document. The staff also verifies that the PTS include appropriate references to the proposed PTS administrative program, if they are needed to establish a connection between the relocated information and the associated individual PTS requirements.

Dominion does not need to use Option 3 to resolve any COL items, because the two areas of site-specific information to which Option 3 would potentially apply were resolved as part of the ESBWR DCD. These areas are (1) instrumentation allowable values for as-found trip settings, and (2) the list of required instrumentation functions for post accident monitoring (PAM). The GTS specifies instrumentation allowable values by (a) removing all instrumentation settings and (b) specifying a setpoint control program that meets the acceptance criteria stated above for a PTS administrative program under Option 3. The only COL information needed to complete the PTS instrumentation requirements is in PTS 5.5.11. COL Item 5.5.11-1 guidance in Table 16.0-1-A of DCD Section 16.0 states that a COL applicant may complete this item by providing the reference to the NRC-approved setpoint methodology. As described above, the applicant resolved COL Item 5.5.11-1 using Option 1. Dominion incorporated GTS 5.5.11 by reference into the PTS. Because the ESBWR DCD references RG 1.97, “Criteria for Accident Monitoring Instrumentation for Nuclear Power Plants,” Revision 4, issued in June 2006, the DC

applicant recognized that the list of PAM instrumentation functions specified in GTS 3.3.3.2, "PAM Instrumentation," could not be finalized before the issuance of a COL. Therefore, the GTS include Specification 5.5.14, "PAM Instrumentation Program," which requires a program to provide controls to establish accident-monitoring instrumentation required by GTS 3.3.3.2 to include all Type A, B, and C functions as determined by RG 1.97, Revision 4. Dominion incorporated GTS 5.5.14 by reference into the PTS. Therefore, the staff finds that PTS 5.5.11 and 5.5.14 are acceptable. Based on the above information, COL Item 16.0-1-A is resolved.

In the SER with Open Items, the staff stated that RAI 16-1 was a SER open item because the applicant had not completed all the COL items in Table 16.1. The staff's review of the COL application finds the options to resolve each COL item acceptable and in accordance with DC/COL-ISG-08; therefore, Open Item RAI 16-1 is resolved and closed. Also, in SER with Open Items, staff stated that 16-1 was a SER open item concerning the resolution of the two exemption requests, completion of all the items in Table 16.1, and the incorporation of ESBWR certified design GTS and bases. The applicant's two exemptions requests are no longer part of the COL application. The completion of the COL items is fully described above and the staff finds this acceptable and in accordance with DC/COL-ISG-08. The incorporation of the ESBWR certified design GTS and bases is described above and the staff verified that, except for the COL items, the PTS and bases are identical to the GTS and bases that have received final NRC approval. Therefore, Open Item 16-1 is now resolved and closed. Further, in the SER with Open Items, staff stated that item [1-1] was a SER open item to track completion of the SER on the ESBWR GTS and bases. As stated earlier in Section 16.4 of this document the staff's review of the GTS and bases is completed and documented as part of the ESBWR DC FSER. Therefore, SER Open Item [1-1] is resolved and closed.

The staff also determined, after reviewing Part 7 of the COL Application, that the North Anna 3 COL application contains no Tier 1, Tier 2*, or Tier 2 departures from the ESBWR generic DCD that affect the PTS and bases. The COL application also contains no issues concerning information outside of the generic DCD that need to be resolved before completing the review of the PTS and bases.

16.5 Post Combined License Activities

There are no post-COL activities related to this chapter.

16.6 Conclusion

The NRC staff reviewed the application and checked the referenced DCD. The staff's review confirms that the applicant has addressed the required information, and no outstanding information is expected to be addressed in the COL FSAR related to this chapter. The results of the NRC staff's technical evaluation of the information incorporated by reference in the North Anna COL application are documented in NUREG-1966.

In addition, the staff compared the additional COL site-specific information (site-specific TS) in the application to the relevant NRC regulations, the acceptance criteria defined in NUREG-0800 Section 16.0, and other regulatory guidance. The staff's evaluation finds that the site-specific information is acceptable and that the PTS and bases, without any exemptions, are complete and accurate for use in the operation of North Anna 3. The staff's review confirms that the applicant has adequately addressed COL Items STD COL 16.0-1-A and STD SUP 16.0-1.

Therefore, the staff concludes that the PTS and bases satisfy 10 CFR 50.36; 10 CFR 50.36a; 10 CFR 52.79(a)(30).