17.0 QUALITY ASSURANCE

The Quality Assurance (QA) Program, including the following, is discussed in this chapter:

- QA for design, fabrication, construction, testing, and operation
- The Reliability Assurance Program (RAP)
- The Maintenance Rule (MR) Program

17.0.1 Introduction

The QA Program for design, fabrication, construction, testing, and operation; the Design Reliability Program; and the MR Program are discussed in this chapter.

17.0.2 Summary of Application

Section 17.0 of the North Anna 3 combined license (COL) Final Safety Analysis Report (FSAR), Revision 8, incorporates by reference Section 17.0 of the certified Economic Simplified Boiling-Water Reactor (ESBWR) Design Control Document (DCD), Revision 10, referenced in Title 10 of the *Code of Federal Regulations* (CFR) Part 52, "Licenses, Certifications, and Approvals for Nuclear Power Plants," Appendix E, "Design Certification Rule for the Economic Simplified Boiling-Water Reactor." In addition, in FSAR Section 17.0, the applicant provides the following:

Supplemental Information

- North Anna Power Station (NAPS) SUP 17.0-1

In Section 17.0 of the North Anna 3 COL FSAR, Revision 8, the applicant provides supplemental information that states:

> The QAPD [Quality Assurance Program Description] applicable to the COL licensee is described in Section 17.5. The licensee's QAPD describes the basis of the program, its scope of activities, and the control of work performed by suppliers.

17.0.3 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 Standard Design." In addition to the relevant requirements of the Commission regulations in 10 CFR Part 50, "Domestic Licensing of Production and Utilization Facilities," Appendix B, "Quality Assurance Criteria for Nuclear Power Plants and Fuel Reprocessing Plants," and in 10 CFR 52.79(a)(25) for QA during the design phase; the associated acceptance criteria are described in Section 17.5 of NUREG–0800, "Standard Review Plan for the Review of Safety Analysis Reports for Nuclear Power Plants (LWR Edition)," the Standard Review Plan (SRP).

17.0.4 Technical Evaluation

As documented in NUREG–1966, the Nuclear Regulatory Commission (NRC) staff reviewed and approved Section 17.0 of the certified ESBWR DCD. The staff reviewed Section 17.0 of the

North Anna 3 COL FSAR, Revision 8, 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 appropriately represents the complete scope of information relating to this review topic.[1] The staff's review confirmed that the information in the application and the information incorporated by reference address the relevant information related to this section.

The staff reviewed the information in the North Anna 3 COL FSAR as follows:

Supplemental Information

- NAPS SUP 17.0-1

In FSAR Section 17.0, the applicant states

> The QAPD applicable to the COL licensee is described in Section 17.5. The licensee's QAPD describes the basis of the program, its scope of activities, and the control of work performed by suppliers.

The staff's evaluation of North Anna 3 COL FSAR Section 17.0 is in Section 17.5 of this Safety Evaluation Report (SER).

The staff reviewed NAPS SUP 17.0-1 and determined that it adequately references FSAR Section 17.5 for a description of the basis of the QA Program, its scope of activities, and the control of work performed by suppliers.

17.0.5 Post Combined License Activities

There are no post COL activities related to this section.

17.0.6 Conclusion

The NRC staff's finding related to information incorporated by reference is in NUREG–1966. NRC staff reviewed the application and checked the referenced DCD. The staff's review confirmed that the applicant has addressed the required information, and no outstanding information is expected to be addressed in the North Anna 3 COL FSAR related to this section. Pursuant to 10 CFR 52.63(a)(5) and 10 CFR Part 52, Appendix E, Section VI.B.1, all nuclear safety issues relating to this section that were incorporated by reference have been resolved.

In addition, the staff compared the additional information in the COL application to the relevant NRC regulations, the guidance in Sections 17.1 and 17.5 of NUREG–0800, and other NRC regulatory guides (RGs). The staff's review finds that the applicant has adequately addressed the supplemental information by referencing FSAR Section 17.5.

17.1 Quality Assurance During Design

17.1.1 Introduction

This section of the North Anna 3 COL FSAR, Revision 8, addresses the QA Program related to the design phase, including the preparation of the COL application and site-specific design activities.

[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.

Nuclear Energy Institute (NEI) 06-14A, "Quality Assurance Program Description," is a technical report that was approved by the staff to be used as a generic template by early site permit (ESP) and COL applicants to implement NRC regulatory requirements related to QA programs (Agencywide Documents Access and Management System (ADAMS) Accession No. ML070510300). Upon the issuance of the North Anna 3 COL Chapter 17 SER with open items in 2009 (ADAMS Accession No. ML091240315), the North Anna Unit 3 QAPD was developed using NEI 06-14A, Revision 4. The North Anna Unit 3 QAPD included in Revision 8 of the North Anna 3 COL FSAR was written consistent with the SRP. The staff's requests for additional information (RAIs) from the initial review of the QAPD, their resolution, and the review of the North Anna 3 QAPD included in the North Anna 3 COL FSAR, Revision 8, were reviewed using SRP Section 17.5 and are addressed in Section 17.5 of this SER.

17.1.2 Summary of Application

Section 17.1 of the North Anna 3 COL FSAR, Revision 8, incorporates by reference Section 17.1 of the certified ESBWR DCD, Revision 10, referenced in 10 CFR Part 52, Appendix E. In addition, in FSAR Section 17.1, the applicant provides the following:

Supplemental Information

- NAPS SUP 17.1-1

In FSAR Revision 8 Section 17.1, the applicant provides supplemental information that states:

> QA applied during the preparation of the ESPA [early site permit application] is described in SSAR [site safety analysis report] Chapter 17, which is incorporated by reference.

- NAPS SUP 17.1-2

In FSAR Revision 8 Section 17.1, the applicant provides supplemental information that states:

> QA applied during COL application preparation and site specific design activities is addressed in Section 17.5.

17.1.3 Regulatory Basis

The regulatory basis of the information incorporated by reference is in NUREG–1966. In addition to the relevant requirements of the Commission regulations in 10 CFR Part 50, Appendix B and in 10 CFR 52.79(a)(25) for QA during the design phase, the associated acceptance criteria are described in Section 17.5 of NUREG–0800.

17.1.4 Technical Evaluation

As documented in NUREG–1966, NRC staff reviewed and approved Section 17.1 of the certified ESBWR DCD. The staff reviewed Section 17.1 of the North Anna 3 COL FSAR, Revision 8, 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 appropriately represents the complete scope of information relating to this review topic.[1] The staff's review confirmed

[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.

that the information in the application and the information incorporated by reference address the relevant information related to this section.

The staff reviewed the information in the North Anna 3 COL FSAR as follows:

Supplemental Information

- NAPS SUP 17.1-1

In FSAR Revision 8 Section 17.1, the applicant provides supplemental information that states:

> Quality Assurance (QA) applied during the preparation of the ESPA is described in SSAR Chapter 17, which is incorporated by reference.

- NAPS SUP 17.1-2

In FSAR Revision 8 Section 17.1, the applicant provides supplemental information that states:

> QA applied during COL application preparation and site specific design activities is addressed in Section 17.5.

The staff reviewed Supplemental Information NAPS SUP 17.1-1 and NAPS SUP 17.1-2 and determined that they adequately reference SSAR Chapter 17 and Section 17.5 of the North Anna 3 COL FSAR, Revision 8, for a description of the QA Program applied during the design phase and ESPA, including COL application preparation and site-specific design activities.

17.1.5 Post Combined License Activities

There are no post COL activities related to this section.

17.1.6 Conclusion

The NRC staff's finding related to information incorporated by reference is in NUREG–1966. NRC staff reviewed the application and checked the referenced DCD. The staff's review confirmed that the applicant has addressed the required information, and no outstanding information is expected to be addressed in the North Anna 3 COL FSAR related to this section. Pursuant to 10 CFR 52.63(a)(5) and 10 CFR Part 52, Appendix E, Section VI.B.1, all nuclear safety issues relating to this section that were incorporated by reference have been resolved.

In addition, the staff compared the additional supplemental information in the COL application to the relevant NRC regulations, the guidance in Sections 17.1 and 17.5 of NUREG–0800, and other NRC RGs. The staff's review in Section 17.5 of this SER concluded that the applicant has presented adequate information in the North Anna 3 COL FSAR, Revision 8, to meet the requirements.

17.2 Quality Assurance During Construction and Operations

17.2.1 Introduction

This section of the North Anna 3 COL FSAR, Revision 8, addresses the QA Program during the construction and operations phases of the plant, including adapting the design to the plant-specific implementation.

17.2.2 Summary of Application

Section 17.2 of the North Anna 3 COL FSAR, Revision 8, incorporates by reference Section 17.2 of the certified ESBWR DCD, Revision 10, referenced in 10 CFR Part 52, Appendix E. In addition, in FSAR Section 17.2, the applicant provides the following:

COL Items

- NAPS COL 17.2-1-A — QA Program for the Construction and Operations Phases
- NAPS COL 17.2-2-A — QA Program for Design Activities

The applicant provided additional information to address DCD COL Items 17.2-1-A and 17.2-2-A. The applicant stated that the QA Program in place during the construction and operations phases, including the adaptation of the design to the specific plant implementation, is described in Section 17.5 of the North Anna 3 COL FSAR.

17.2.3 Regulatory Basis

The regulatory basis of the information incorporated by reference is in NUREG–1966. In addition to the relevant requirements of the Commission regulations in 10 CFR Part 50, Appendix B and in 10 CFR 52.79(a)(25) for QA during the design phase, the associated acceptance criteria are described in Section 17.5 of NUREG–0800.

17.2.4 Technical Evaluation

As documented in NUREG–1966, NRC staff reviewed and approved Section 17.2 of the certified ESBWR DCD. The staff reviewed Section 17.2 of the North Anna 3 COL FSAR, Revision 8, 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 appropriately represents the complete scope of information relating to this review topic.[1] The staff's review confirmed that the information in the application and the information incorporated by reference address the relevant information related to this section.

The staff reviewed the information in the North Anna 3 COL FSAR as follows:

COL Items

- NAPS COL 17.2-1-A — QA Program for the Construction and Operations Phases
- NAPS COL 17.2-2-A — QA Program for Design Activities

The licensee's QA Program in place during the construction and operations phases, including the adaptation of the design to the specific plant implementation, is described in Section 17.5. These COL Items are addressed in Section 17.5 of this SER.

The staff reviewed COL Items NAPS COL 17.2-1-A and NAPS COL 17.2-2-A to determine whether they meet NRC regulations by following the guidance in SRP Section 17.5. SRP

[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.

Section 17.5 provides an outline of a QA program acceptable to the staff for the design certification, ESP, COL, construction permit, and operating license applicants. The staff developed SRP Section 17.5 using American Society of Mechanical Engineers (ASME) Nuclear Quality Assurance (NQA)-1–1994, "Quality Assurance Requirements for Nuclear Facility Applications," supplemented by additional regulatory and industry guidance for nuclear operating facilities. SRP Section 17.5 also addresses additional QA requirements in 10 CFR Part 50, Appendix A, "General Design for Nuclear Power Plants," General Design Criterion 1 (GDC 1), and in 10 CFR 52.79(a)(25). GDC 1 requires that a QA program be established and implemented. 10 CFR 52.79(a)(25) addresses QA program requirements for the design, fabrication, construction, and testing of the structures, systems, and components (SSCs) of a facility.

The staff's safety evaluation of North Anna 3 COL FSAR Section 17.2 is in Section 17.5 of this SER. The staff determined that COL Items NAPS COL 17.2-1-A and NAPS COL 17.2-2-A adequately reference FSAR Section 17.5 for a description of the QA Program applied during the design, construction, and operations phases, including the adaptation of the design to the specific plant implementation. The technical evaluations of COL Items NAPS COL 17.2-1-A and NAPS COL 17.2-2-A are in Subsection 17.5.4.21, "Additional Quality Assurance and Administrative Controls for the Plant Operational Phase," of this SER.

17.2.5 Post Combined License Activities

There are no post COL activities related to this section.

17.2.6 Conclusion

The NRC staff's finding related to information incorporated by reference is in NUREG–1966. NRC staff reviewed the application and checked the referenced DCD. The staff's review confirmed that the applicant has addressed the required information, and no outstanding information is expected to be addressed in the COL FSAR related to this section. Pursuant to 10 CFR 52.63(a)(5) and 10 CFR Part 52, Appendix E, Section VI.B.1, all nuclear safety issues relating to this section that were incorporated by reference have been resolved.

In addition, the staff compared the additional COL information in the application to the relevant NRC regulations, the guidance in Section 17.2 of NUREG–0800, and other NRC RGs. The staff's safety evaluation of North Anna 3 COL FSAR Section 17.2 is in Section 17.5 of this SER. The staff concluded that the North Anna 3 COL FSAR, Revision 8 Section 17.2, is acceptable and meets NRC regulatory requirements.

17.3 Quality Assurance Program Description

17.3.1 Introduction

This section of the North Anna 3 COL FSAR, Revision 8, addresses the overall QA Program.

17.3.2 Summary of Application

Section 17.3 of the North Anna 3 COL FSAR, Revision 8, incorporates by reference Section 17.3 of the certified ESBWR DCD, Revision 10, referenced in 10 CFR Part 52, Appendix E. In addition, in FSAR Section 17.3, the applicant provides the following:

COL Item

- NAPS COL 17.3-1-A Quality Assurance Program Document

In FSAR Section 17.3, the applicant states:

> The Quality Assurance Program Document applicable to the licensee is described in Section 17.5.

17.3.3 Regulatory Basis

The regulatory basis of the information incorporated by reference is in NUREG–1966. In addition to the relevant requirements of the Commission regulations in 10 CFR Part 50, Appendix B and in 10 CFR 52.79(a)(25) for QA during the design phase, the associated acceptance criteria are described in Section 17.5 of NUREG–0800.

17.3.4 Technical Evaluation

As documented in NUREG–1966, NRC staff reviewed and approved Section 17.3 of the certified ESBWR DCD. The staff reviewed Section 17.3 of the North Anna 3 COL FSAR, Revision 8, 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 appropriately represents the complete scope of information relating to this review topic.[1] The staff's review confirmed that the information in the application and the information incorporated by reference address the relevant information related to the QAPD.

The staff reviewed the information in the North Anna 3 COL FSAR as follows:

COL Item

- NAPS COL 17.3-1-A Quality Assurance Program Document

In FSAR Section 17.3, the applicant states:

> The Quality Assurance Program Document applicable to the licensee is described in Section 17.5.

The staff's review of this COL item is in Section 17.5 of this SER.

The staff reviewed COL Item NAPS COL 17.3-1-A to determine whether it meets NRC regulations by following the guidance in SRP Section 17.5. SRP Section 17.5 provides an outline of a QA program acceptable to the staff for the design certification, ESP, COL, construction permit, and operating license applicants. The staff developed SRP Section 17.5 using ASME NQA-1-1994 supplemented by additional regulatory and industry guidance for nuclear operating facilities. SRP Section 17.5 also addresses additional QA requirements in 10 CFR Part 50, Appendix A, GDC 1, and 10 CFR 52.79(a)(25). GDC 1 requires that a QA program be established and implemented. 10 CFR 52.79(a)(25) addresses QA program requirements for the design, fabrication, construction, and testing of the SSCs of a facility. The staff determined that COL Item 17.3-1-A adequately references FSAR Section 17.5 for details of the QAPD.

[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.

17.3.5 Post Combined License Activities

There are no post COL activities related to this section.

17.3.6 Conclusion

The NRC staff's finding related to information incorporated by reference is in NUREG–1966. NRC staff reviewed the application and checked the referenced DCD. The staff's review confirmed that the applicant has addressed the required information, and no outstanding information is expected to be addressed in the COL FSAR related to this section. Pursuant to 10 CFR 52.63(a)(5) and 10 CFR Part 52, Appendix E, Section VI.B.1, all nuclear safety issues relating to this section that were incorporated by reference have been resolved.

In addition, the staff compared the additional COL information in the application to the relevant NRC regulations, the guidance in Section 17.3 of NUREG–0800, and other NRC RGs. The staff's technical evaluation of the QAPD is in Section 17.5 of this SER. The staff concluded that the North Anna 3 COL FSAR, Revision 8 Section 17.3, is acceptable and meets NRC regulatory requirements.

17.4 Reliability Assurance Program During Design Phase

17.4.1 Introduction

This section of the North Anna 3 COL FSAR, Revision 8, addresses the Commission's direction in the staff requirements memorandum (SRM) dated June 28, 1995, for Item E, "Reliability Assurance Program," of SECY–95–132, "Policy and Technical Issues Associated with the Regulatory Treatment of Non-Safety Systems (RTNSS) in Passive Plant Designs (SECY-94-084)," dated May 22, 1995. The RAP was implemented using the guidance in Item E of SECY–95–132. The purposes of the RAP are to provide reasonable assurance that:

- A plant is designed, constructed, and operated consistent with the assumptions and risk insights for the SSCs in the scope of the RAP.
- These SSCs do not degrade to an unacceptable level of reliability, availability, or condition during plant operations.
- The frequency of transients that challenge these SSCs is minimized.
- These SSCs function reliably when challenged.

The purposes of the RAP can be achieved by implementing the program in two stages. The first stage applies to RAP activities that occur before the initial fuel load and is referred to as the Design-Reliability Assurance Program (D-RAP). The goal of the D-RAP is to ensure that the plant's design meets the considerations identified earlier through the plant's design, procurement, fabrication, construction, and preoperational testing activities and programs. The second stage applies to RAP activities for the operations phase of the plant's life cycle. The objective during this stage is to ensure that the reliability for the SSCs within the scope of the RAP is maintained during plant operations. Implementation of the D-RAP by the COL licensee is verified using the inspections, tests, analyses, and acceptance criteria (ITAAC) process, as well as inspections conducted during the detailed design and construction phases before the initial fuel load.

17.4.2 Summary of Application

Section 17.4 of the North Anna 3 COL FSAR, Revision 8, incorporates by reference Section 17.4 of the certified ESBWR DCD, Revision 10, referenced in 10 CFR Part 52, Appendix E. In addition, in FSAR Section 17.4, the applicant provides the following:

COL Item

- STD COL 17.4-1-A — Identifying Site-Specific Structures, Systems, and Components Within the Scope of the Reliability Assurance Program

In FSAR Section 17.4.1, "Introduction," the applicant states:

> There are no site specific SSCs within the scope of the Reliability Assurance Program (RAP). The quality elements for all SSCs within the scope of the Design Reliability Assurance Program (D-RAP) are in accordance with the Quality Assurance Program Description (QAPD).

In FSAR Section 17.4.6, "SSC Identification/Prioritization," the applicant states:

> The list of risk-significant SSCs will be confirmed via the ITAAC (see DCD Tier 1 Table 3.6-1).

- STD COL 17.4-2-A — Operation Reliability Assurance Activities

In FSAR Section 17.4.1, the applicant states:

> The objectives of reliability assurance during the operations phase are integrated into the Quality Assurance Program (Section 17.5), the MR Program (Section 17.6), and other operational programs. Specific reliability assurance activities are addressed within operational programs (e.g., maintenance rule, surveillance testing, inservice testing, inservice inspection, and quality assurance) and the maintenance programs.
>
> The MR Program incorporates the following aspects of operational reliability assurance (refer to Section 17.6):
>
> - Use of probabilistic risk assessment (PRA) importance measures, the expert panel process, and deterministic methods to determine the list of risk-significant SSCs.
> - Evaluation and maintenance of the reliability of SSCs in the scope of the D-RAP.
> - Monitoring the effectiveness of maintenance activities needed for operational reliability assurance.
> - Classifying, initially, as high-safety-significant, all SSCs that are in the scope of the D-RAP, or applying expert panel review for any exceptions.

- Use of historical data and industry operating experience on equipment performance, as available.

- Use of specific criteria to establish the level of performance or condition being maintained for SSCs within the scope of the MR Program; and use of monitoring to identify declining trends between surveillances and to minimize the likelihood of undetected performance or condition degradation to unacceptable levels, to the extent possible.

- Use of maintenance programs to determine the nature and frequency of maintenance activities to be performed on plant equipment, including SSCs within the scope of the MR Program.

In FSAR Section 17.4.9, "Operational Reliability Assurance Activities," the applicant states:

> Refer to Section 17.4.1 for the implementation of reliability assurance during the operations phase.

In FSAR Section 17.4.10, "Owner/Operator's Reliability Assurance Program," the applicant states:

> The MR Program is described in Section 17.6. Refer to Section 17.4.1 for the implementation of reliability assurance activities.

17.4.3 Regulatory Basis

The regulatory basis of the information incorporated by reference is in NUREG–1966.

In particular, the relevant guidance for the RAP, including the associated acceptance criteria, is in the following sources:

- Item E of SECY-95-132
- Section 17.4, Revision 1, "Reliability Assurance Program," of NUREG–0800

17.4.4 Technical Evaluation

As documented in NUREG–1966, NRC staff reviewed and approved Section 17.4 of the certified ESBWR DCD. The staff reviewed Section 17.4 of the North Anna 3 COL FSAR, Revision 8, 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 appropriately represents the complete scope of information relating to this review topic.[1] The staff's review confirmed that the information in the application and the information incorporated by reference address the relevant information related to the RAP.

The staff reviewed the information in the North Anna 3 COL FSAR as follows:

[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.

COL Items

- STD COL 17.4-1-A — Identifying Site-Specific Structures, Systems, and Components Within the Scope of the Reliability Assurance Program

In Section 17.4.13 of the referenced ESBWR DCD Tier 2, Revision 10, COL Item 17.4-1-A states:

> The COL Applicant will identify the site-specific SSCs within the scope of the RAP, and describe the quality elements for developing and implementing the D-RAP (that is, Organization, Design Control, Procedures and Instructions, Records, Corrective Action, and Audit Plans) that will be applied prior to the initial fuel load (Subsection 17.4.1).

The applicant addresses this COL item in Section 17.4.1 of the North Anna 3 COL FSAR, Revision 8.

ESBWR DCD Tier 2, Revision 10, contains COL Item 17.4-1-A to ensure that COL applications referencing the ESBWR design contain a list of site-specific RAP SSCs (i.e., the RAP SSCs identified in Section 17.4 of ESBWR DCD Tier 2 and updated, as needed, using COL site- and plant-specific information) and describe the quality elements for developing and implementing the plant-specific D-RAP, which are applied during all plant design and construction activities prior to the initial fuel load. It is necessary to identify the site-specific RAP SSCs prior to the detailed design, procurement, fabrication, construction, inspection, and testing phases of the plant, because the nonsafety-related RAP SSCs are subjected to the appropriate QA controls in accordance with SRP Section 17.5, Part V ("Non-safety-Related SSC Quality Controls"). The quality elements of the D-RAP are processes and controls to ensure that (1) the risk insights and key assumptions from probabilistic, deterministic, and other methods of analysis used to identify and quantify risk are consistent with the designed and constructed plant; and (2) the list of RAP SSCs is appropriately developed, maintained, updated, and communicated to the appropriate organizations.

The applicant stated in Section 17.4.1 of the North Anna 3 COL FSAR, Revision 8 that no site-specific SSCs are within the scope of the RAP. The staff evaluated this assertion as follows.

In Appendix 19AA of the North Anna 3 COL FSAR, Revision 8, the applicant describes an evaluation of site-specific parameters to confirm that the values assumed in the PRA for these parameters provide bounding treatments of the parameters with respect to the results of the PRA. The staff considered this evaluation in its review of Appendix 19AA of the North Anna 3 COL FSAR, Revision 8, and found it acceptable. Further, in Appendix 19AA of the FSAR, the applicant states that in addition to the bounding treatment of the PRA parameters, there were no departures from the standard design in any systems considered in the PRA model. Therefore, there were no site-specific design features that affected the PRA because the boundary of the certified design covers all of the SSCs necessary for the PRA. Regarding the RTNSS SSCs, Appendix 19A of the ESBWR DCD Tier 2, Revision 10, is incorporated by reference into North Anna 3 COL FSAR, Revision 8 with a single departure and no supplements. The departure specifies augmented design criteria for non-seismic structures housing the RTNSS Criterion C systems. This departure exceeds NRC expectations described in SECY-95-132 and will not result in the addition of site-specific nonsafety-related RTNSS systems beyond the scope of the DCD. Therefore, based on the review of information in Chapter 19 of North Anna 3 COL FSAR,

Revision 8, the staff agrees that the list of SSCs within the scope of the RAP for North Anna 3 is identified in Section 17.4 of the ESBWR DCD, Tier 2, Revision 10, which is incorporated by reference into North Anna 3 COL FSAR, Revision 8.

The COL applicant added the following new paragraph at the end of FSAR Section 17.4.6:

> The list of risk-significant SSCs will be confirmed via ITAAC (see DCD Tier 1 Table 3.6-1).

The staff found this statement acceptable since the D-RAP ITAAC in ESBWR DCD Tier 1, Table 3.6-1 will ensure that the design of the SSCs within the scope of the RAP is consistent with the risk insights and key assumptions from the probabilistic, deterministic, and other methods of analysis used to identify and quantify risk. This includes applying the quality elements of the D-RAP during design and construction activities to ensure that the list of RAP SSCs is appropriately developed, maintained, and communicated to the appropriate organizations.

- STD COL 17.4-2-A Operation Reliability Assurance Activities

In Section 17.4.13 of the referenced ESBWR DCD Tier 2, Revision 10, COL Item 17.4-2-A requires the applicant to describe operational reliability assurance activities that meet the objectives of the RAP during the operations phase. In FSAR Section 17.4.1, the applicant describes an acceptable process for integrating the RAP into operational programs to meet the objectives of the RAP during the operations phase. The process involves integrating the RAP into operational programs that include the (1) MR Program with all RAP SSCs categorized as having a high safety significance; (2) QA Program for safety-related SSCs established through Appendix B to 10 CFR Part 50 requirements; (3) QA controls for non-safety-related RAP SSCs established in accordance with Part V of SRP Section 17.5; and (4) inservice inspection, inservice testing, surveillance testing, and maintenance programs for the RAP SSCs. The applicant refers to FSAR Section 17.5 for the QA Program and Section 17.6 for the MR Program.

The second paragraph in Section 17.4.9 of the ESBWR DCD Tier 2, Revision 10 states that the COL holder is responsible for implementing the operational reliability assurance activities. The applicant replaced the second paragraph with the following sentence:

> Refer to Section 17.4.1 for the implementation of reliability assurance during the operations phase.

The staff found this replacement acceptable, because FSAR Section 17.4.1 describes how the applicant will implement the reliability assurance activities during the operations phase.

The fifth bullet in Section 17.4.10 of the ESBWR DCD Tier 2, Revision 10 describes the scope of the MR Program and that it is the responsibility of the licensee. The applicant replaced the fifth bullet with the following sentence:

> MR Program: The MR Program is described in Section 17.6.

The staff found this replacement acceptable because FSAR Section 17.6 describes the applicant's MR Program, which meets the scope defined under the fifth bullet in DCD Section 17.4.10. The staff's technical evaluation of North Anna 3 COL FSAR Section 17.6 is in Section 17.6 of this SER.

The last sentence in ESBWR DCD Tier 2, Revision 10, Section 17.4.10 states, “See Subsection 17.4.1 for COL information requirements.” The applicant replaced this sentence with the following sentence:

> Refer to Section 17.4.1 for the implementation of reliability assurance activities.

The staff found this replacement appropriate.

The staff reviewed the application and checked the referenced DCD. The staff's review confirmed that the applicant has adequately addressed the required information relating to COL Items STD COL 17.4-1-A and STD COL 17.4-2-A consistent with the applicable requirements described in Section 17.4.3 of this SER. Therefore, these COL items are closed.

17.4.5 Post Combined License Activities

There are no post COL activities related to this section.

17.4.6 Conclusion

The NRC staff’s finding related to information incorporated by reference is in NUREG–1966. NRC staff reviewed the application and checked the referenced DCD. The staff’s review confirmed that the applicant has addressed the required information, and no outstanding information is expected to be addressed in the COL FSAR related to this section. Pursuant to 10 CFR 52.63(a)(5) and 10 CFR Part 52, Appendix E, Section VI.B.1, all nuclear safety issues relating to the RAP that were incorporated by reference have been resolved.

In addition, the staff compared the additional information in the COL application to the relevant NRC regulations, the guidance in Section 17.4, Revision 1 of NUREG–0800, and other NRC RGs. The staff’s review concluded that the applicant has provided sufficient information to address the COL items and to satisfy the NRC requirements in Section 17.4.3 of this SER.

17.5 Quality Assurance Program Description – Design Certification, Early Site Permits, and New License Applicants

17.5.1 Introduction

This section of the North Anna 3 COL FSAR, Revision 8, discusses the overall QA Program; including the QA Program that is applicable during the design, construction, and operations phases of a nuclear power plant.

17.5.2 Summary of Application

Section 17.5 of the North Anna 3 COL FSAR, Revision 8 refers to Section 17.1 of the certified ESBWR DCD, Revision 10, referenced in 10 CFR Part 52, Appendix E. In addition, in FSAR Section 17.5, the applicant provides the following:

COL Items

- NAPS COL 17.2-1-A QA Program for the Construction and Operations Phases

- NAPS COL 17.2-2-A QA Program for Design Activities

In FSAR Section 17.5, the applicant states:

> QA applied to activities to adapt the design to specific plant implementation, construction, and operations is addressed in Dominion QAPD (Appendix 17AA). The QAPD is based on NEI 06-14A.

- NAPS COL 17.3-1-A Quality Assurance Program Document

In FSAR Section 17.5, the applicant states:

> QA applied to the DC activities is described in DCD Section 17.1.
>
> QA applied during the preparation of the ESP application is described in SSAR Chapter 17.

Supplemental Information

- NAPS SUP 17.5-2

In FSAR Section 17.5, the applicant states:

> QA applied to safety-related activities performed prior to start of construction (e.g., site investigation, design and safety analysis, early procurements) is described in the Dominion Nuclear Facility QAPD (Reference 17.5-201) topical report for the Dominion operating nuclear plants as supplemented by COL Project procedures.

- NAPS SUP 17.5-3

Supplemental Information NAPS SUP 17.5-3 addresses and resolves ESBWR DCD COL Items 17.2-1-A, 17.2-2-A, and 17.3-1-A. This supplemental information describes the QA Program that will be applied to the construction and operations phases. Appendices 17AA and 17BB of the North Anna 3 COL FSAR include the QAPD and the North Anna 3 QAPD, respectively, which will be applied during construction and operations.

17.5.3 Regulatory Basis

The relevant requirements of the Commission regulations for the QAPD, and the associated acceptance criteria, are in Section 17.5 of NUREG–0800.

The applicable regulatory requirements for Dominion's QAPD are as follows:

- Appendix B to 10 CFR Part 50 requires the applicant to include in the application a description of the QA Program that will be applied to the design, fabrication, construction, and testing of the SSCs of the facility and to establish QA requirements for the design, construction, and operation of those SSCs. The pertinent requirements of

Appendix B apply to all activities affecting the safety-related functions of the SSCs including designing, purchasing, fabricating, handling, shipping, storing, cleaning, erecting, installing, inspecting, testing, operating, maintaining, repairing, refueling, and modifying these activities.

- 10 CFR 52.79(a)(17) requires that the application include information with respect to compliance with technically relevant positions of the Three Mile Island requirements of 10 CFR 50.34(f).

- 10 CFR 52.79(a)(25) requires that the description of the QA program include a discussion of how the applicable requirements of Appendix B have been and will be satisfied and a discussion of how the QA program will be implemented.

- 10 CFR 52.79(a)(27) requires that the application include information on the managerial and administrative controls to be used for a nuclear power plant and a discussion of how the applicable requirements of Appendix B will be satisfied.

From March 24 through March 27, 2014, NRC staff conducted a limited scope inspection at Dominion's facility in Glen Allen, VA, as documented in Inspection Report 05200017/2014-202 dated April 15, 2014 (ADAMS Accession No. ML14101A098). The purpose of the NRC inspection was to verify that the QA processes and procedures were effectively implemented with regard to the North Anna 3 COL application. The NRC inspectors identified no findings of significance.

17.5.4 Technical Evaluation

Supplemental Information

- NAPS SUP 17.5-2

In RG 1.206, "Combined License Applications for Nuclear Power Plants (LWR Edition)," Regulatory Position C.I.17.5.3 states that applicants may use an existing QAPD that the NRC has approved for current use provided that the applicant identifies and justifies alternatives to or differences from the SRP in effect 6 months before the docket date of the application. The NRC staff issued RAI 17.5-1 (ADAMS Accession No. ML081760334), dated June 24, 2008, and requested that the applicant provide an evaluation for the existing QAPD at that time against the acceptance criteria in SRP Section 17.5.

In the response to RAI 17.5-1 dated August 4, 2008 (ADAMS Accession No. ML082200545), the applicant evaluated the QAPD with respect to SRP Section 17.5 acceptance criteria. The applicant provided a table illustrating each acceptance criterion in SRP Section 17.5, and whether the QAPD met the criteria or the criteria were not applicable. The table was included in the COL FSAR as Table 1.9-201. As a result of the evaluation, the applicant found that with the exception of some criteria, the QAPD conformed to the acceptance criteria in SRP Section 17.5. The staff found the applicant's response to RAI 17.5-1 acceptable. Therefore, RAI 17.5-1 is resolved and closed.

- NAPS SUP 17.5-3

On June 24, 2008, the staff issued RAI 17.5-2 (ADAMS Accession No. ML081760334) and requested that the applicant clarify the scope of work for each Appendix as it relates to design

and procurement activities, by identifying when and where these design and procurement activities will take place and specifying under which QAPD these activities will be conducted.

In the response to RAI 17.5-2 dated August 4, 2008 (ADAMS Accession No. ML082200545), the applicant provided the current scope of work for each Appendix as it relates to design and procurement activities. The applicant clarified that General Electric-Hitachi (GEH) (Wilmington, NC) would be responsible for design activities associated with the COL review, and Bechtel (Frederick, MD) would be responsible for construction site preparation. In addition, Bechtel would oversee procurement for items and services such as design work, and GEH would oversee activities for manufacturing and fabricating the reactor pressure vessel. These activities would be conducted under the North Anna 3 QAPD described in FSAR Appendix 17BB. The North Anna 3 QAPD would be ready for implementation by June 2009. The staff found the applicant's response to RAI 17.5-2 acceptable because the applicant had satisfactorily clarified the scope of each Appendix. Therefore, RAI 17.5-2 is resolved and closed.

The staff reviewed and evaluated the North Anna 3 QAPD supplemental information included in the RAI 17.5-2 response to determine whether it met NRC regulations by adhering to the guidance in SRP Section 17.5. SRP Section 17.5 provides the acceptance criteria for QA programs for DC, ESP, COL, and operating license applicants. The QAPD at this time for North Anna 3 was the top-level document that establishes the QA measures applied for activities related to the design, construction, and operation of an ESBWR at the North Anna 3 site. Part I, Section 1.1 of the North Anna 3 QAPD lists the quality activities to which the QAPD applies. Although this list is not all inclusive, the staff noted that siting is on the list. The staff issued RAI 17.5-3 (ADAMS Accession No. ML081760334) on June 24, 2008, and requested the applicant clarify how siting activities would be subject to this QAPD since the North Anna 3 ESP had been approved.

In the response to RAI 17.5-3 dated August 4, 2008 (ADAMS Accession No. ML082200545), the applicant stated that siting activities subject to the North Anna 3 QAPD are associated with any additional design work or measurements required to support construction. Additional subsurface measurement activities would be performed consistent with ASME NQA-1-1994, Basic Requirement 3, Supplement 3S-1, Basic Requirement 11, Supplement 11S-1, and subsurface investigation requirements in Subpart 2.20. The staff endorsed NQA-1-1994 as an acceptable approach to meet Appendix B to 10 CFR Part 50 requirements. Therefore, the staff finds the applicant's response to RAI 17.5-3 acceptable. Therefore, RAI 17.5-3 is resolved and closed.

In evaluating the adequacy of the North Anna 3 QAPD, NRC staff used the guidance in SRP Section 17.5, "Quality Assurance Program Description – Design Certification, Early Site Permit and New License Applicants," hereafter referred to as SRP Section 17.5. SRP Section 17.5 provides acceptance criteria for the design certification, ESP, COL, construction permit, and operating license applicants and is based on ASME NQA-1-1994, as supplemented by additional regulatory and industry guidance for nuclear operating facilities. SRP Section 17.5 also addresses additional QA requirements in 10 CFR Part 50, Appendix A, GDC 1, and 10 CFR 52.79(a)(25). GDC 1 requires that a QA program be established and implemented. 10 CFR 52.79(a)(25) addresses the QA program requirements for the design, fabrication, construction, and testing of the SSCs of a facility.

The staff reviewed Revision 8 of the North Anna 3 COL FSAR. Appendix 17AA of the FSAR is the Topical Report DOM-QA-2, "North Anna Unit 3 Quality Assurance Program Description," (North Anna 3 QAPD) Revision 6. The North Anna 3 QAPD addresses the QA Program that will

be applied to activities after submitting the COL application to adapt the design to plant-specific implementation, construction, and operations.

The North Anna 3 QAPD is based on NEI 06–14A, Revision 7. The NRC concluded that the NEI 06-14 template provides an acceptable format for establishing a QA program that meets the requirements of Appendix B to 10 CFR Part 50, as documented in the SE for NEI 06-14, "Final Safety Evaluation for Technical Report NEI 06-14,'Quality Assurance Program Description,' Revision 9," (ADAMS Accession No. ML101800497).

17.5.4.1 *Organization*

The North Anna 3 QAPD follows the guidance of SRP Section 17.5, Paragraph II.A, by providing an organizational description for a new plant license, the independence of working and checking organizations, and the interrelationships of new plant and existing utility organizations. The North Anna 3 QAPD describes an organizational structure that clearly delineates those management positions responsible for establishing, maintaining, and implementing regulatory requirements from corporate through operating plant positions. The North Anna 3 QAPD describes functional responsibilities and position descriptions during the construction, preoperational, and operations phases; and characterizes the controls and transitions between phases. It allows management to size the QA organization commensurate with its assigned duties and responsibilities.

On June 24, 2008, the staff issued RAI 17.5-4 (ADAMS Accession No. ML081760334) and requested that the applicant provide a flow chart to delineate the organizational interfaces and interrelationships between the North Anna corporate and onsite QA organizations.

In the response to RAI 17.5-4 (ADAMS Accession No. ML082200545) dated August 4, 2008, and supplemented by a letter dated September 11, 2008 (ADAMS Accession No. ML082610417), the applicant included Figures II.1-1 and II.1-2 to identify the organization for the construction and operations phases, respectively. The staff's subsequent review of NEI 06-14A, which was used by the applicant to develop the QAPD and the evaluation of the extent of information that the organizational section of the QAPD needed to include, was tracked as Open Item 17.5-4. The NRC reviewed NEI 06-14A and concluded that the NEI template can be used by applicants of 10 CFR Part 52 permits or licenses, as applicable, for establishing a QA program that complies with the requirements of 10 CFR Part 50, Appendix B and 10 CFR Part 52. The review of the North Anna 3 QAPD, which is formatted to NEI 06-14A, provides a clear illustration in the QAPD of the interrelationships between the North Anna corporate and onsite QA organizations. The staff therefore finds the response to RAI 17.5-4 acceptable, and Open Item 17.5-4 is resolved and closed.

The staff noted that the North Anna 3 QAPD provides a reference to North Anna 3 COL FSAR Chapter 13 for a more detailed description of the operating organization. The staff issued RAI 17.5-7 (ADAMS Accession No. ML081760334), dated June 24, 2008, and requested the applicant to clarify which regulation (i.e., 10 CFR 50.54(a) or 10 CFR 50.59, "Changes, tests, and experiments,") will be applied to changes in the operating organizational description included in FSAR Chapter 13.

The applicant chose to describe the detailed organizational responsibilities for operating the facility in Chapter 13 of the FSAR to minimize duplication of information between Chapters 13 and 17. This detailed description is incorporated by reference in Chapter 17. Because the organization is implementing the QA Program described in Chapter 17, the applicant will

manage any changes to the organization in accordance with 10 CFR 50.54(a) to ensure the appropriate review and approval process. On August 4, 2008, the applicant responded to RAI 17.5-7 (ADAMS Accession No. ML082200545) stating that FSAR Section 13.1.1 commits to the changes of the organization that will be reviewed under the provisions of 10 CFR 50.54(a). This review will ensure that any reduction in commitments under the QAPD will be submitted to and approved by NRC staff before implementation. On this basis, the staff finds the response to RAI 17.5-7 acceptable and therefore, RAI 17.5-7 is resolved and closed.

In establishing the QA Program controls, the North Anna 3 QAPD commits to implementing the quality requirements described in NQA-1-1994, Basic Requirement 1 and Supplement 1S-1, without alternatives or exceptions. The staff determined that the organization controls are in accordance with the guidance in SRP Section 17.5 and are therefore acceptable.

17.5.4.2 *Quality Assurance Program*

The North Anna 3 QAPD follows the guidance of SRP Section 17.5, Paragraph II.B for establishing the necessary measures to implement a QA program to ensure that the design, construction, and operation of nuclear power plants are in accordance with governing regulations and license requirements. The QA Program comprises those planned and systematic actions necessary to provide confidence that SSCs will perform their intended safety function, including certain nonsafety-related SSCs and activities that are significant contributors to plant safety. The QA Program requires a list or system identifying SSCs and activities applicable to the North Anna 3 QAPD.

10 CFR 52.79, "contents of applications; technical information in final safety analysis report," identifies the technical information required in the applicant's FSAR. NRC staff noted that an earlier version of the QAPD provides a reference to 10 CFR 50.34(b)(6)(ii). The staff issued RAI 17.5-5 (ADAMS Accession No. ML081760334), dated June 24, 2008, and requested the applicant to revise the cited regulation.

In the response to RAI 17.5-5 dated August 4, 2008 (ADAMS Accession NO. ML082200545), the applicant correctly cited 10 CFR 52.79(a)(27) rather than 10 CFR 50.34(b)(6)(ii). The change was shown on the attached FSAR markup. The applicant submitted FSAR Revision 1 in December 2008 without incorporating the reference to the regulation. Instead, the applicant decided to change it to "Regulations." In a conference call on February 25, 2009, the applicant mentioned that the change was based on the latest revision to NEI 06-14A that included the word "regulation." The staff's subsequent review of NEI 06-14A that the applicant had used to develop the QAPD, and the evaluation of the reference to the regulation, were tracked as Open Item 17.5-5.

The applicant's change to the North Anna 3 QAPD in Revision 8, as discussed in Section 17.1 of this SER, and the submittal of FSAR Revision 8 updated the commitment to 10 CFR 50.54(a), which references 10 CFR 52.79 requirements. Therefore, Open Item 17.5-5 is resolved and closed.

The North Anna 3 QAPD provides measures to assess the adequacy of the QAPD and to ensure its effective implementation at least once each year or at least once during the life of a quality-related activity, whichever is shorter. The period for assessing the QAPD during the operations phase may be extended to once every 2 years. In addition, consistent with SRP Section 17.5, Paragraph II.B.8, a grace period of 90 days is applied to activities that must be performed on a periodic basis. The grace period does not allow the "clock" for a particular

activity to be reset forward. However, the “clock” for an activity may be reset backwards when an activity is performed early.

The North Anna 3 QAPD follows the guidance of SRP Section 17.5, Paragraphs II.S and II.T, for describing the necessary measures to establish and maintain formal indoctrination and training programs for personnel performing, verifying, or maintaining activities within the scope of the QAPD to ensure that task-related proficiency is maintained. Plant technical specifications delineate the minimum qualifications for plant and support staff. Personnel complete the training for positions identified in 10 CFR 50.120, “Training and qualification of nuclear power plant personnel,” according to programs accredited by the National Nuclear Accrediting Board of the National Academy for Nuclear Training. The North Anna 3 QAPD provides the minimum training requirements for managers responsible for QAPD implementation and for the manager responsible for planning, implementing, and maintaining the QAPD.

The North Anna 3 QAPD commits the applicant to the quality requirements described in NQA-1-1994, Basic Requirement 2 and Supplements 2S-1, 2S-2, 2S-3, and 2S-4, with the following clarifications and exceptions:

- NQA-1-1994, Supplement 2S-1

  Supplement 2S-1 will include use of the guidance provided in Appendix 2A-1 the same as if it were part of the Supplement. During the operations phase, the following two alternatives may be applied to the implementation of this Supplement and Appendix:

  (1) In lieu of being certified as Level I, II, or III in accordance with NQA-1-1994, personnel that perform independent quality verification inspections, examinations, measurements, or tests of material, products, or activities will be required to possess qualifications equal to or better than those required for performing the task being verified; and the verification is within the skills of these personnel and/or is addressed by procedures. These individuals will not be responsible for the planning of quality verification inspections and tests (i.e., establishing hold points and acceptance criteria in procedures, and determining who will be responsible for performing the inspections), evaluating inspection training programs, nor certifying inspection personnel.

  The staff evaluated this proposed alternative and determined that it is consistent with inspection and test personnel initial qualification requirements specified in SRP Section 17.5, Paragraph II.T.5. Therefore, the staff concluded that this alternative is acceptable.

  (2) A qualified engineer may be used to plan inspections, evaluate the capabilities of an inspector, or evaluate the training program for inspectors. For the purpose of these functions, a qualified engineer is one who has a baccalaureate in engineering in a discipline related to the inspection activity (such as electrical, mechanical, civil) and has a minimum of five years engineering work experience with at least two years of this experience related to nuclear facilities. The staff evaluated this proposed alternative and determined that the designation of a qualified engineer to plan inspections, evaluate inspectors, or evaluate the inspector qualification programs is consistent with the training and qualification criteria of 10 CFR Part 50, Appendix B, Criterion II, “Quality Assurance Program,”

and NQA-1–1994, Supplement 2S-1. Therefore, the staff concluded that this alternative is acceptable.

The staff evaluated this proposed alternative and determined that the designation of a qualified engineer to plan inspections, evaluate inspectors, or evaluate the inspector qualification programs is consistent with the training and qualification criteria of Appendix B to 10 CFR Part 50, Criterion II, and NQA-1–1994, Supplement 2S-1. Therefore, the staff concluded that this alternative is acceptable.

- NQA-1-1994, Supplement 2S-2

  In lieu of Supplement 2S-2, for qualification of nondestructive examination personnel, North Anna 3 will follow the applicable standard cited in the version(s) of Section III and Section XI of the ASME Boiler and Pressure Vessel Code approved by the NRC for use at the North Anna 3 site.

  The staff evaluated this proposed alternative and determined that it is consistent with the regulation in 10 CFR Part 50, Appendix B, Criterion II. Therefore, the staff concluded that this alternative is acceptable.

- NQA-1-1994, Supplement 2S-3

  The requirement that prospective Lead Auditors have participated in a minimum of five audits in the previous 3 years is replaced by the following, “The prospective lead auditor shall demonstrate his/her ability to properly implement the audit process, as implemented by Dominion, to effectively lead an audit team, and to effectively organize and report results, including participation in at least one nuclear audit within the year preceding the date of qualification.”

  The staff evaluated this proposed alternative and determined that it is consistent with the regulation in 10 CFR Part 50, Appendix B, Criterion II. Therefore, the staff concluded that this alternative is acceptable.

  The staff evaluated this proposed alternative and determined that it is consistent with quality requirements in SRP Section 17.5 and is therefore acceptable.

In establishing the QA Program controls, the North Anna 3 QAPD commits to implement the quality requirements described in NQA-1-1994, Basic Requirement 2 and Supplements 2S-1, 2S-2, 2S-3, and 2S-4, with the exceptions and alternatives described above. The staff determined that the QA Program controls are in accordance with the guidance of SRP Section 17.5 and are therefore acceptable.

17.5.4.3 *Design Control*

The North Anna 3 QAPD follows the guidance of SRP Section 17.5, Paragraph II.C, for establishing the necessary measures to control the design; design changes; and temporary modifications (e.g., temporary bypass lines, electrical jumpers and lifted wires, and temporary setpoints) of items within the scope of the QAPD. The North Anna 3 QAPD includes provisions to control design inputs, outputs, changes, interfaces, records, and organizational interfaces among the applicant and the suppliers. These provisions ensure that the design inputs (such as design bases and the performance, regulatory, quality, and quality verification requirements) are

correctly translated into design outputs (such as analyses, specifications, drawings, procedures, and instructions). In addition, the North Anna 3 QAPD provides for individuals knowledgeable about QA principles to review design documents to ensure that they contain the necessary QA requirements.

In establishing design controls, the North Anna 3 QAPD commits to implement the requirements described in NQA-1-1994, Basic Requirement 3, and Supplement 3S-1, Subpart 2.20 for subsurface investigation and Subpart 2.7 for computer software QA controls without alternatives or exceptions. The staff determined that the design controls are in accordance with the guidance of SRP Section 17.5 and are therefore acceptable.

17.5.4.4 *Procurement Document Control*

The North Anna 3 QAPD follows the guidance of SRP Section 17.5, Paragraph II.D, for establishing the necessary administrative controls and processes to ensure that procurement documents include or reference applicable regulatory, technical, and QA Program requirements. Applicable technical, regulatory, administrative, quality, and reporting requirements (such as specifications, codes, standards, tests, inspections, and special processes); and the regulation in 10 CFR Part 21, "Reporting of Defects and Noncompliance," are invoked for the procurement of items and services.

The North Anna 3 QAPD commits the applicant to the quality requirements described in NQA-1-1994, Basic Requirement 4 and Supplement 4S-1, with the following alternatives and exceptions:

- NQA-1-1994, Supplement 4S-1

  Section 2.3 of Supplement 4S-1 includes a requirement that procurement documents require suppliers to have a documented QA program that implements NQA-1-1994, Part 1. In lieu of this requirement, Dominion may require suppliers to have a documented supplier QA program that is determined to meet the applicable requirements of 10 CFR 50 Appendix B, as appropriate to the circumstances of the procurement.

  The staff evaluated this proposed alternative and determined that it is consistent with 10 CFR Part 50, Appendix B, Criterion IV, "Procurement Document Control." Therefore, the staff concluded that this alternative is acceptable.

  With regard to service performed by a supplier, Dominion procurement documents may allow the supplier to work under the North Anna 3 QAPD, including the implementation of procedures, in lieu of the supplier's own QA program.

  The staff evaluated this proposed alternative and determined that the applicant's QAPD follows the guidance of SRP Section 17.5, Paragraph II.G. Specifically, the QAPD provides measures for evaluating prospective suppliers so that only qualified suppliers are selected; acceptance actions are performed for procuring products and services; and suppliers are periodically audited and evaluated to ensure that qualified suppliers continue to provide acceptable products and services. Therefore, the staff concluded that this alternative is acceptable.

  In NQA-1–1994, Section 3 of Supplement 4S-1 requires procurement documents to be reviewed prior to bidding for or awarding a contract. The quality assurance review of procurement documents is satisfied through review of the applicable procurement

specification, including the technical and quality procurement requirements, prior to bid or award of contract. Procurement document changes (e.g., scope, technical or quality requirements) will also receive the quality assurance review.

The staff evaluated this proposed alternative and determined that it is in accordance with SRP Section 17.5 and provides an adequate review of procurement documents before awarding a contract and after any changes. Therefore, the staff concluded that this alternative is acceptable.

Procurement documents for commercial-grade items that will be procured by Dominion for use as safety-related items shall contain technical and quality requirements such that the procured item can be appropriately dedicated.

The staff evaluated and determined that the Dominion's action is consistent with the staff guidance in Generic Letter (GL) 89–02, "Actions to Improve the Detection of Counterfeit and Fraudulently Marked Products," dated March 21, 1989; and GL 91–05, "Licensee Commercial-Grade Procurement and Dedication Programs," dated April 9, 1991; as delineated in SRP Section 17.5, Paragraphs II.U.1.d and II.U.1.e. Therefore, the staff concluded that this alternative is acceptable.

In establishing the procurement document controls, the North Anna 3 QAPD commits to implement the quality requirements described in NQA-1-1994, Basic Requirement 4 and Supplement 4S-1, with the alternatives and exceptions described above. The staff determined that the procurement document controls are in accordance with the guidance of SRP Section 17.5 and are therefore acceptable.

17.5.4.5 *Instructions, Procedures, and Drawings*

The North Anna 3 QAPD follows the guidance of SRP Section 17.5, Paragraph II.E, for establishing necessary measures and governing procedures to ensure that activities affecting quality are prescribed by and performed in accordance with documented instructions, procedures, and drawings.

In establishing controls for instructions, procedures, and drawings, the North Anna 3 QAPD commits to implement the quality requirements described in NQA-1-1994, Basic Requirement 5, without alternatives or exceptions. The staff determined that the controls for instructions, procedures, and drawings are in accordance with the guidance of SRP Section 17.5 and are therefore acceptable.

17.5.4.6 *Document Control*

The North Anna 3 QAPD establishes the necessary measures and governing procedures to ensure that activities affecting quality are prescribed by and performed in accordance with documented instructions, procedures, and drawings.

In establishing document controls, the North Anna 3 QAPD commits to implement the quality requirements described in NQA-1-1994, Basic Requirement 6, without alternatives or exceptions. The staff determined that the document controls are in accordance with the guidance of SRP Section 17.5 and are therefore acceptable.

17.5.4.7 *Control of Purchased Material, Equipment, and Services*

The North Anna 3 QAPD follows the guidance of SRP Section 17.5, Paragraph II.G, for establishing necessary measures and governing procedures that control the procurement of items and services to ensure conformance with specified requirements. The controls include measures for evaluating prospective suppliers and selecting only those that are qualified. In addition, controls include auditing and evaluating suppliers to ensure that qualified suppliers continue to provide acceptable products and services.

The program provides for acceptance actions such as source verification, receipt inspection, and pre- and post-installation tests and also reviews of documentation such as certificates of conformance to ensure that the procurement, inspection, and test requirements have been satisfied before relying on the item to perform its intended safety function. Purchased items (components, spares, and replacement parts necessary for plant operation, refueling, maintenance, and modifications) and services are subject to quality and technical requirements at least equivalent to those specified for original equipment or by properly reviewed and approved revisions to design documentation, thus ensuring that the items are suitable for the intended service and are of acceptable quality that is consistent with their effect on safety.

In establishing procurement verification controls, the North Anna 3 QAPD commits the applicant to the quality standards described in NQA-1-1994, Basic Requirement 7 and Supplement 7S-1, with the following clarifications and exceptions:

- NQA-1-1994, Supplement 7S-1

  North Anna 3 considers that other 10 CFR Part 50 licensees, authorized nuclear inspection agencies, National Institute of Standards and Technology (NIST), or other State and Federal agencies that may provide items or services to the Dominion North Anna 3 plant are not required to be evaluated or audited.

  The staff acknowledged that no additional audits or evaluations are required for 10 CFR Part 50 licensees, authorized nuclear inspection agencies, the National Voluntary Laboratory Accreditation Program (NVLAP) administered by NIST, and other State and Federal agencies performing work under quality programs that are acceptable to the NRC. However, the applicant remains responsible for ensuring that procured items or services conform to Appendix B to 10 CFR Part 50, to applicable ASME Code requirements, and to other regulatory requirements and commitments. The applicant also remains responsible for ensuring that the items or services are suitable for their intended application and for documenting the evaluations that support this conclusion. The staff concluded that this exception is consistent with SRP Section 17.5 and is therefore acceptable.

  When purchasing commercial-grade calibration services from a calibration laboratory, procurement source evaluation and selection measures do not need to be performed provided that all of the following conditions are met:

  - The purchase documents impose any additional technical and administrative requirements, as necessary, to comply with the North Anna 3 QA Program and technical provisions. At a minimum, the purchase document shall require that the calibration certificate/report include identification of the laboratory equipment/standard used.

- The purchase documents require reporting as-found calibration data when calibrated items are found to be out-of-tolerance.

- A documented review of the supplier's accreditation will be performed and will include a verification of each of the following:

    1. The calibration laboratory holds a domestic (United States) accreditation by any one of the following bodies, which are recognized by the International Laboratory Accreditation Cooperation Mutual Recognition Arrangement:

        a. NVLAP, administered by NIST;

        b. American Association for Laboratory Accreditation (A2LA);

        c. ACLASS Accreditation Services (ACLASS);

        d. International Accreditation Service (IAS);

        e. Laboratory Accreditation Bureau (L-A-B);

        f. Other NRC-approved laboratory accrediting body.

    2. The accreditation encompasses American Nuclear Society (ANS)/International Organization for Standardization/International Electrotechnical Commission (ISO/IEC) 17025, "General Requirements for the Competence of Testing and Calibration Laboratories."

    3. The published scope of accreditation for the calibration laboratory covers the necessary measurement parameters, range, and uncertainties.

The staff determined that the provisions of this exception are consistent with the guidance in SRP Section 17.5, Paragraph II.L.8, for the procurement of commercial-grade calibration services for safety-related applications and as documented in a previous staff SE (ADAMS Accession No. ML052710224). The staff expects full conformance to the guidance in SRP Section 17.5, Paragraphs II.L.8 and II.L.8.h that the alternative method is limited to domestic calibration suppliers.

- For NQA-1-1994, Section 8.1, Dominion considers documents that may be stored in approved electronic media under Dominion or vendor control, not physically located on the plant site, but are accessible from the respective nuclear facility site, as meeting the NQA-1 requirement for documents to be available at the site. When construction is complete, sufficient as-built documentation will be turned over to Dominion to support operations. The Dominion records management system will provide for timely retrieval of necessary records.

The staff determined that the implementation of this alternative would allow access to and review of the necessary documented evidence at the nuclear facility site, both before installation and before use. Therefore, the staff concluded that this alternative is acceptable.

- In lieu of the requirements of NQA-1-1994, Supplement 7S-1, Section 10, "Commercial Grade Items," controls for commercial-grade items and services are established in North Anna 3 documents using 10 CFR Part 21 and the guidance of Electrical Power Research Institute (EPRI) NP-5652, "Guideline for the Utilization of Commercial-Grade Items in Nuclear Safety-Related Applications (NCIG-07)," dated 1988 and as discussed in GL 89-02 and GL 91-05.

    - For commercial-grade items, special quality verification requirements are established and described in Dominion documents to provide the necessary assurance that an item will perform satisfactorily in service. The Dominion documents address determining the critical characteristics to ensure that an item is suitable for its intended use, that there is a technical evaluation of the item, that receipt requirements are met, and that there is a quality evaluation of the item.

  In establishing controls for commercial-grade dedication, the North Anna 3 QAPD commits to implement the quality requirements described in NQA-1-1994, Basic Requirement 7 and Supplement 7S-1; and in the guidance of EPRI NP-5652 as discussed in GL 89-02 and GL 91-05. The staff determined that the controls for commercial-grade dedication are in accordance with the guidance in SRP Section 17.5 and are therefore acceptable.

- Dominion will also use other appropriate and approved regulatory means and controls to support Dominion's commercial-grade dedication activities. Dominion will assume 10 CFR Part 21 reporting responsibility for all items that Dominion dedicates as safety-related.

  The staff evaluated this clarification and concluded that it is acceptable with the understanding that any work conducted under this QA Program, Dominion assumes reporting responsibility.

In establishing the controls for purchased materials, equipment, and services, the North Anna 3 QAPD commits to implement the quality requirements described NQA-1-1994, Basic Requirement 7 and Supplement 7S-1, with the exceptions and alternatives described above. The staff determined that the controls for purchased materials, equipment, and services are in accordance with the guidance of SRP Section 17.5 and are therefore acceptable.

17.5.4.8 *Identification and Control of Materials, Parts, and Components*

The North Anna 3 QAPD follows the guidance of SRP Section 17.5, Paragraph II.H, for establishing necessary measures for the identification and control of items such as materials — including consumables and items with a limited shelf life; parts, components, and partially fabricated subassemblies. The identification of items is maintained throughout fabrication, erection, installation, and use so that the item is traceable to its documentation.

In establishing the controls for the identification and control of materials, parts, and components; the North Anna 3 QAPD commits to implement the quality requirements described in NQA-1-1994, Basic Requirement 8 and Supplement 8S-1, without alternatives or exceptions. The staff determined that the controls for the identification and control of materials, parts, and components are in accordance with the guidance of SRP Section 17.5 and are therefore acceptable.

17.5.4.9 *Control of Special Processes*

The North Anna 3 QAPD follows the guidance of SRP Section 17.5, Paragraph II.I, for the control of special processes. The North Anna 3 QAPD establishes programs, procedures, and processes to ensure that special processes requiring interim controls to maintain quality (such as welding, heat treating, and nondestructive examination); are implemented and controlled in accordance with applicable codes, specifications, and standards.

In establishing the controls for special processes, the North Anna 3 QAPD commits to implement the quality requirements described in NQA-1-1994, Basic Requirement 9 and Supplement 9S-1, without alternatives or exceptions. The staff determined that the controls for special processes are in accordance with the guidance of SRP Section 17.5 and are therefore acceptable.

17.5.4.10 *Inspection*

The North Anna 3 QAPD follows the guidance of SRP Section 17.5, Paragraph II.J, for establishing necessary measures to implement inspections ensuring that items, services, and activities affecting safety meet established requirements and conform to documented specifications, instructions, procedures, and design documents. The inspection program establishes requirements for planning inspections, determining applicable acceptance criteria, setting the frequency of inspection, and identifying special tools needed to perform the inspection. Qualified personnel perform the inspections and are independent of those who performed or directly supervised the work.

In establishing inspection requirements, the North Anna 3 QAPD commits the applicant to the quality requirements described in NQA-1-1994, Basic Requirement 10, Supplement 10S-1; and Subparts 2.4, 2.5, and 2.8, with the following alternatives and exceptions:

- Subpart 2.4 commits Dominion to the use of the Institute of Electrical and Electronics Engineers (IEEE) Standard (Std) 336–1985, "IEEE Standard Installation, Inspection, and Testing Requirements for Power, Instrumentation, and Control Equipment at Nuclear Facilities." IEEE Std 336–1985 refers to IEEE Std 498–1985, "IEEE Standard Requirements for the Calibration and Control of Measuring and Test Equipment Used in Nuclear Facilities." Both IEEE Std 336–1985 and IEEE Std 498-1985 use the definition of "Safety Systems" from IEEE Std 603–1980, "IEEE Standard Criteria for Safety Systems for Nuclear Power Generating Stations." North Anna 3 commits to the definition of safety systems in IEEE Std 603–1980 but does not commit to the balance of that standard. This definition is only applicable to equipment in the context of Subpart 2.4.

- An additional exception to Subpart 2.4 is addressed in Part II, Section 12 of the QAPD.

- Where inspections at the operating facility are performed by persons within the same organization (e.g., maintenance group), Dominion takes exception to the requirements of NQA-1-1994, Supplement 10S-1, Section 3.1, in that the inspectors report to the site's Senior Manager for Safety and Licensing while performing those inspections.

The staff concluded that the North Anna 3 QAPD follows the guidance of SRP Section 17.5, Paragraph II.J, for inspections. The North Anna 3 QAPD establishes the necessary measures for implementing inspections to ensure that items, services, and activities affecting safety meet established requirements and conform to applicable documented specifications, instructions,

procedures, and design documents. The inspection program establishes requirements for planning inspections, determining applicable acceptance criteria, setting the frequency of inspections, and identifying special tools needed to perform the inspection. Properly qualified personnel independent of those who performed or directly supervised the work are required to perform the inspections.

In establishing the controls for inspections, the North Anna 3 QAPD commits to implement the quality requirements described in NQA-1-1994, Basic Requirement 10, Supplement 10S-1; and Subparts 2.4, 2.5, and 2.8, with the alternatives and exceptions described above. The staff determined that the controls for inspections are in accordance with the guidance of SRP Section 17.5 and are therefore acceptable.

17.5.4.11 *Test Control*

The North Anna 3 QAPD follows the guidance of SRP Section 17.5, Paragraph II.K, for establishing necessary measures and governing provisions to demonstrate that items within the scope of the QAPD will perform satisfactorily in service. Test programs include criteria for determining when testing is required, in order to demonstrate that the performance of equipment and plant systems is in accordance with the design. Testing programs also include provisions to establish and adjust test schedules, and to maintain the status for periodic or recurring tests when applicable. Tests are performed according to applicable procedures that include (as applicable and consistent with the effect on safety) (1) instructions and prerequisites for performing the tests; (2) the use of proper test equipment and acceptance criteria; (3) mandatory verification points as needed to confirm satisfactory test completion; (4) any special qualification requirements for personnel; and (5) any special environmental conditions. Test results are documented and evaluated by the organization performing the test and are reviewed by a responsible authority to assure that the test requirements have been satisfied.

In establishing provisions for testing, the North Anna 3 QAPD commits the applicant to comply with the quality requirements described in NQA-1-1994, Basic Requirement 11 and Supplement 11S-1. In establishing provisions to ensure that computer software used in applications affecting safety is prepared, documented, verified, tested, and used so that the expected outputs are obtained and the configuration control is maintained; the North Anna 3 QAPD commits the applicant to the quality requirements described in NQA-1-1994, Supplement 11S-2 and Subpart 2.7.

In establishing the test controls, the North Anna 3 QAPD commits to implement the quality requirements described in NQA-1-1994, Supplement 11S-2 and Subpart 2.7, to establish the appropriate provisions for testing and computer program testing with no alternatives or exceptions. The staff determined that the test controls are in accordance with the guidance of SRP Section 17.5 and are therefore acceptable.

17.5.4.12 *Control of Measuring and Test Equipment*

The North Anna 3 QAPD follows the guidance of SRP Section 17.5, Paragraph II.L, for establishing necessary measures to control the calibration; maintenance; and use of measuring and test equipment (M&TE) that provide information important to safe plant operation.

In establishing provisions for the control of M&TE, the North Anna 3 QAPD commits the applicant to comply with the quality standards described in NQA-1-1994, Basic Requirement 12 and Supplement 12S-1, with the following clarifications and exceptions:

- The out-of-calibration conditions described in Paragraph 3.2 of Supplement 12S-1 of NQA-1-1994 refers to when the M&TE is found to be out of the required accuracy limits (i.e., out of tolerance) during calibration.

  The staff determined that this clarification for the out-of-calibration conditions is consistent with SRP Section 17.5. Therefore, the staff concluded that this alternative is acceptable.

  M&TE is not required to be marked with the calibration status when it is impossible or impractical due to equipment size or configuration (such as the label will interfere with the operation of the device), provided that the required information is maintained in suitable documentation traceable to the device. This exception also applies to the calibration labeling requirement stated in NQA-1-1994, Subpart 2.4, Section 7.2.1 (ANSI/IEEE Std 336–1985).

  The staff determined that this alternative is consistent with NRC staff's guidance provided in SRP Section 17.5, Paragraph II.L.3. Therefore, the staff concluded that this alternative is acceptable.

In establishing the controls for M&TE, the North Anna 3 QAPD commits to implement the quality requirements described in NQA-1-1994, Basic Requirement 12 and Supplement 12S-1, with the alternatives and exceptions described above. The staff determined that the controls for M&TE are in accordance with the guidance of SRP Section 17.5 and are therefore acceptable.

17.5.4.13 ***Handling, Storage, and Shipping***

The North Anna 3 QAPD follows the guidance of SRP Section 17.5, Paragraph II.M, for establishing necessary measures to control the handling, storage, packaging, shipping, cleaning, and preservation of items to prevent inadvertent damage or loss and to minimize deterioration.

In establishing provisions for handling, storage, and shipping, the North Anna 3 QAPD commits the applicant to the quality standards described in NQA-1-1994, Basic Requirement 13 and Supplement 13S-1. The North Anna 3 QAPD also commits the applicant—during the construction and preoperational phase of the plant as applicable—to comply with the guidance of NQA-1-1994, Subpart 2.1, Subpart 2.2, Subpart 2.3, Subpart 3.2, and Appendix 2.1, with the following clarifications and exceptions:

- NQA-1-1994, Subpart 2.1

  Subpart 2.1, Sections 3.1 and 3.2 establish criteria for classifying items into cleanness classes, with requirements for each class. Instead of using the cleanness level system of Subpart 2.1 during the operational phase, Dominion may establish cleanness requirements on a case-by-case basis that are consistent with the other provisions of Subpart 2.1. Dominion will establish appropriate cleanliness controls for work on safety-related equipment to minimize the introduction of foreign material and to maintain system/component cleanliness throughout maintenance or modification activities, including documented verification of the absence of foreign materials before system closure.

  The staff determined that this alternative is consistent with NRC staff's guidance in SRP Section 17.5. Therefore, the staff concluded that this alternative is acceptable.

- NQA-1-1994, Subpart 2.2

  Subpart 2.2, Section 2.2 establishes criteria for classifying items into protection levels. Instead of classifying items into protection levels during the operational phase, Dominion may establish controls for the packaging, shipping, handling, and storage of such items on a case-by-case basis; with regard to the item's complexity, use, and sensitivity to damage. Before installation or use, the items are inspected and serviced as needed to assure that no damage or deterioration exists that could affect their functionality.

  The staff determined that this alternative is consistent with NRC staff's guidance in SRP Section 17.5. Therefore, the staff concluded that this alternative is acceptable.

  Subpart 2.2, Section 6.6 requires written records containing information on personnel access. As an alternative to this requirement, North Anna 3 documents establish controls for storage areas that describe those who are authorized to access areas and the requirements for recording personnel access. However, these records of access are not considered quality records and will be retained in accordance with the administrative controls of the applicable plant.

  The staff determined that these records did not meet the classification of a QA record as defined in NQA-1–1994 Supplement 17S-1, Section 2.7. Therefore, the staff concluded that this alternative is acceptable.

  Subpart 2.2, Section 7.1 refers to Subpart 2.15 for requirements related to the handling of items. The scope of Subpart 2.15 includes hoisting, rigging, and transporting items for the nuclear power plant during construction. The staff determined that this clarification is acceptable because it distinguishes between the requirements for construction and operations.

- NQA-1-1994, Subpart 2.3

  Subpart 2.3 of Section 2.3 requires the establishment of five zone designations for housekeeping cleanliness controls. Instead of the five-level zone designation during the operational phase, Dominion bases its control over housekeeping activities on a consideration of what is necessary and appropriate for the activity involved. The controls are implemented through procedures or instructions which, in the case of maintenance or modification work, are developed on a case-by-case basis. Factors considered in developing the procedures and instructions include cleanliness control, personnel safety, fire prevention and protection, and radiation control and security. The procedures and instructions make use of standard janitorial and work practices to the extent possible.

  The staff concluded that this clarification is consistent with SRP Section 17.5 and is therefore acceptable.

- NQA-1-1994, Subpart 3.2

  Subpart 3.2 of Appendix 2.1 establishes cleaning and cleanness controls for fluid systems and associated components. Dominion commits only to Section 3 precautions in accordance with RG 1.37, Revision 1, "Quality Assurance Requirements for Cleaning of Fluid Systems and Associated Components of Water-Cooled Nuclear Power Plants."

In addition, North Anna 3 QAPD states that a suitable chloride stress-cracking inhibitor should be added to the fresh water used to flush systems containing austenitic stainless steels.

The staff concluded that this clarification is consistent with SRP Section 17.5 and is therefore acceptable.

In establishing the controls for handling, storage, and shipping, the North Anna 3 QAPD commits to implement the quality requirements described in NQA-1-1994, Basic Requirement 12 and Supplement 12S-1, with the exceptions and alternatives described above. The staff determined that the controls for handling, storage, and shipping are in accordance with the guidance of SRP Section 17.5 and are therefore acceptable.

17.5.4.14 *Inspection, Test, and Operating Status*

The North Anna 3 QAPD follows the guidance of SRP Section 17.5, Paragraph II.N, for establishing necessary measures to identify the inspection, testing, and operating status of items and components within the scope of the QAPD to maintain personnel and reactor safety; and to avert the inadvertent operation of equipment.

In establishing the inspection, test, and operating status controls, the North Anna 3 QAPD commits to implement the quality requirements described in NQA-1-1994, Basic Requirement 14, without alternatives or exceptions. The staff determined that the test controls are in accordance with the guidance of SRP Section 17.5 and are therefore acceptable.

17.5.4.15 *Nonconforming Materials, Parts, or Components*

The North Anna 3 QAPD follows the guidance of SRP Section 17.5, Paragraph II.O for establishing necessary measures to control items, including services that do not conform to specified requirements to prevent their inadvertent installation or use. Nonconformances are evaluated for their impact on the operability of quality SSCs to ensure that the final condition does not adversely affect the safety, operation, or maintenance of the item or service. Results of evaluations of conditions adverse to quality are analyzed to identify quality trends that are documented and reported to upper management, in accordance with the applicable procedures.

In addition, the North Anna 3 QAPD establishes the necessary interfaces between the QA Program for the identification and control of nonconforming materials, parts, and components; and the non-QA reporting programs that satisfy the applicable requirements of 10 CFR 50.55(e) and/or 10 CFR Part 21 during the design, construction, and operation phases.

In establishing the controls for nonconforming materials, parts, or components, the North Anna 3 QAPD commits to implement the quality requirements described in NQA-1-1994, Basic Requirement 15 and Supplement 15S-1, without alternatives or exceptions. The staff determined that the controls for nonconforming materials, parts, or components are in accordance with the guidance of SRP Section 17.5 and are therefore acceptable.

17.5.4.16 *Corrective Action*

The North Anna 3 QAPD follows the guidance of SRP Section 17.5, Paragraph II.P for establishing necessary measures to promptly identify, control, document, classify, and correct conditions adverse to quality. The QAPD template requires personnel to identify known conditions adverse to quality. Reports of these conditions are analyzed to identify trends.

Significant conditions adverse to quality are documented and reported to the responsible management. In the case of suppliers working on safety-related activities or similar situations, the applicant or holder (as applicable) may delegate specific responsibility for the corrective action program, but the applicant or holder maintains responsibility for the program's effectiveness.

In addition, the North Anna 3 QAPD establishes the necessary interfaces between the QA corrective actions program and the non-QA reporting program to identify, evaluate, and report defects and non-compliance to satisfy the applicable requirements of 10 CFR 50.55(e) and/or 10 CFR Part 21.

In establishing the corrective action controls, the North Anna 3 QAPD commits to implement the quality requirements described in NQA-1-1994, Basic Requirement 16 without alternatives or exceptions. The staff determined that the corrective action controls are in accordance with the guidance of SRP Section 17.5 and are therefore acceptable.

17.5.4.17 *Quality Assurance Records*

The North Anna 3 QAPD follows the guidance of SRP Section 17.5, Paragraph II.Q, for establishing necessary measures to ensure that sufficient records of items and activities affecting quality are generated, identified, retained, maintained, and able to be retrieved.

Regulatory Position C.2 of RG 1.28, Revision 3, “Quality Assurance Program Requirements (Design and Construction),” provides record retention times for lifetime and nonpermanent records. In establishing the retention time for records, the North Anna 3 QAPD provides ESP and COL applicants with the guidance to base the retention on Regulatory Position C.2 and Table 1 of RG 1.28, Revision 3; or by including their specific table in the QAPD. Concerning the use of electronic records storage and retrieval systems, the North Anna 3 QAPD complies with the NRC guidance in GL 88-18, “Proposed Final NRC Generic Letter 88-18, Supplement 1”; “Guidance on Managing Quality Assurance Records in Electronic Media,” dated September 13, 1999; RIS 2000-18, “Guidance on Managing Quality Assurance Records in Electronic Media,” dated October 23, 2000; and associated Nuclear Information and Records Management Association (NIRMA) Technical Guidelines (TG) 11-1998, “Authentication of Records and Media”; TG 15- 1998, “Management of Electronic Records”; and TG 21-1998, “Electronic Records Protection and Restoration.”

In establishing provisions for records, the North Anna 3 QAPD commits the applicant to comply with the quality requirements described in NQA-1-1994, Basic Requirement 17 and Supplement 17S-1, with the following alternatives and exception:

- NQA-1-1994, Supplement 17S-1

  Supplement 17S-1, Section 4.2(b) requires records to be firmly attached in binders or placed in folders or envelopes for storage in steel file cabinets or on shelving in containers. For hard-copy records maintained by Dominion, the records are suitably stored in steel file cabinets or on shelving in containers, except that methods other than binders, folders, or envelopes may be used to organize the records for storage.

  The staff concluded that this alternative is consistent with SRP Section 17.5 and is therefore acceptable.

In establishing the controls for QA records, the North Anna 3 QAPD commits to implement the quality requirements described in NQA-1-1994, Basic Requirement 17 and Supplement 17S-1, with the exception described above. The staff determined that the controls for QA records are in accordance with the guidance of SRP Section 17.5 and are therefore acceptable.

17.5.4.18 *Quality Assurance Audits*

The North Anna 3 QAPD follows the guidance of SRP Section 17.5, Paragraph II.R, for establishing necessary measures to implement audits verifying that activities covered by the North Anna 3 QAPD are performed in conformance with the established requirements. The effectiveness of the audit program is reviewed as part of the overall audit process. The North Anna 3 QAPD provides for the applicant or holder (as applicable) to conduct periodic internal and external audits. Internal audits are conducted to determine the adequacy of the program and its procedures and to determine whether they are meaningful and comply with North Anna 3 QAPD requirements. Internal audits are performed with a frequency commensurate with safety significance and in such a manner as to ensure that an audit of all applicable QA Program elements is completed for each functional area within a period of 2 years after the initial determination that the audit program has been soundly established. External audits determine the adequacy of a supplier's or contractor's QA Program. The applicant's responsible management reviews audit results; these reviews are documented. Management responds to all audit findings and initiates corrective action where indicated. Where corrective actions are indicated, documented follow-up of applicable areas are conducted through inspections, reviews, re-audits, or other appropriate means to verify that corrective actions have been adequately implemented.

In establishing the controls for audits, the North Anna 3 QAPD commits to implement the quality requirements described in NQA-1-1994, Basic Requirement 18 and Supplement 18S-1, without alternatives or exceptions. The staff determined that the controls for audits are in accordance with the guidance of SRP Section 17.5 and are therefore acceptable.

17.5.4.19 *Nonsafety-Related SSC Quality Assurance Control*

17.5.4.19.1 Nonsafety-Related SSCs – Significant Contributors to Plant Safety

The North Anna 3 QAPD follows the guidance of SRP Section 17.5, Paragraph II.V.1, for establishing specific program controls to be applied to nonsafety-related SSCs that are significant contributors to plant safety and to which Appendix B of 10 CFR Part 50 does not apply. The North Anna 3 QAPD applies specific controls to these items in a selected manner, so as to target characteristics or critical attributes that render the SSC a significant contributor to plant safety consistent with applicable sections of the Dominion QA Program.

The staff determined that this approach, as described in the North Anna 3 QAPD, is acceptable because it is in alignment with the guidance of SRP Section 17.5, Paragraph II.V.1.

17.5.4.19.2 Nonsafety-Related SSCs Credited for Regulatory Events

In establishing the quality requirements for nonsafety-related SSCs credited for regulatory events, the North Anna 3 QAPD follows the guidance of SRP Section 17.5, Paragraph II.V.2; and Dominion commits to implement the following regulatory guidance:

- The quality requirements for the fire protection system are in accordance with Regulatory Position 1.7, "Quality Assurance," in RG 1.189, Revision 2, "Fire Protection for Operating Nuclear Power Plants," dated October 2009.

- The quality requirements for anticipated transient without scram (ATWS) equipment are in accordance with GL 85-06, "Quality Assurance Guidance for ATWS Equipment That Is Not Safety Related," dated January 16, 1985.

- The quality requirements for station blackout equipment are in accordance with Regulatory Position 3.5, "Quality Assurance and Specific Guidance for Station Blackout Equipment That Is Not Safety-Related," and Appendix A, "Quality Assurance Guidance for Non-Safety Systems and Equipment," in RG 1.155, "Station Blackout," dated August 1988.

The staff determined that this approach, as described in the North Anna 3 QAPD, is acceptable because it is in alignment with the guidance of SRP Section 17.5, Paragraph II.V.2.

17.5.4.20 *Regulatory Commitments*

The staff evaluated and determined that the North Anna 3 QAPD follows the guidance of SRP Section 17.5, Paragraph II.U, for describing regulatory commitments based on the following information. The QAPD establishes QA Program commitments. In the QAPD, the applicant provides assurance of compliance with the following RGs and other QA standards to supplement and support the QAPD:

- RG 1.8, Revision 3, “Qualification and Training of Personnel for Nuclear Power Plants.”

- RG 1.26, Revision 4, “Quality Group Classification and Standards for Water-, Steam-, and Radioactive-Waste-Containing Components of Nuclear Power Plants.” In the QAPD, the applicant provides assurance of compliance with the regulatory positions of this guidance for site-specific SSCs not classified by the ESBWR.

- RG 1.28, Revision 3, “Quality Assurance Program Requirements (Design and Construction).”

- RG 1.29, Revision 4, “Seismic Design Classification.” In the QAPD, the applicant provides assurance of compliance with the regulatory positions of this guidance for site-specific SSCs not classified by the ESBWR.

- RG 1.37, Revision 1, “Quality Assurance Requirements for Cleaning of Fluid Systems and Associated Components of Water-Cooled Nuclear Power Plants.”

- RG 1.54, Revision 1, “Service Level I, II, and III Protective Coatings Applied to Nuclear Power Plants.”

- RG 1.33, Revision 2, “Quality Assurance Program Requirements (Operations).”

- ASME NQA-1–1994 (Parts I, II, and III).

- NIRMA TGs, as described in Section 17 of the QAPD.

The staff issued RAI 17.5-6 (ADAMS Accession No. ML081760334), dated June 24, 2008, requesting the applicant to clarify its intent regarding its commitment to the guidance of RG 1.37, Revision 1 in DOM-QA-1. Specifically, the staff noted that Section 13.2 of the applicant's QAPD references the commitment to RG 1.37, Revision 1; but Part IV, "Regulatory Commitments," of the QAPD does not identify RG 1.37 as a commitment.

In the response to RAI 17.5-6 dated August 4, 2008 (ADAMS Accession No. ML082200545), the applicant stated that the omission of the commitment to RG 1.37 in Part IV of the QAPD was inadvertent. The applicant has revised the FSAR, including the North Anna 3 QAPD, to include the commitment to the guidance of RG 1.37. The staff finds the response to RAI 17.5-6 acceptable, and this RAI is therefore resolved and closed.

On December 2, 2010, the staff issued RAI 17.5-9 (ADAMS Accession No. ML103560116) which requests the following:

> Part IV, "Regulatory Commitments," of Appendix 17AA, "North Anna Power Station Unit 3 Quality Assurance Program Description," states under Regulatory Guide 1.28 that "in ANSI/ASME NQA-1-1983 and the NQA-1a-1993 Addenda provide an adequate basis for complying with the pertinent QA requirements of Appendix B during the design and construction phases of nuclear plants. Dominion commits to the basic and supplementary requirements of NQA-1-1994 in lieu of the 1993 edition and addendum of NQA-1 subject to the clarifications contained in Parts II, IV, and V." Please clarify whether "NQA-1a-1993" and [the] "1993 edition" are the correct references to be cited in this paragraph.

In the response to this RAI dated January 10, 2011 (ADAMS Accession No. ML110110612), the applicant stated:

> The reference to "NQA-1a-1993 Addenda" and "1993 edition" in FSAR Appendix 17AA, Part IV, "Regulatory Commitments," for Regulatory Guide 1.28 should be "NQA-1a-1983 Addenda" and "1983 edition," respectively. FSAR Appendix 17AA will be revised to correct this administrative error.

The staff verified that the FSAR was revised to incorporate this correction. Therefore, RAI 17.5-9 is resolved and closed.

17.5.4.21 *Additional Quality Assurance and Administrative Controls for the Plant Operational Phase*

The staff evaluated and determined that Part V, "Additional Quality Assurance and Administrative Controls for the Plant Operational Phase," of the QAPD provides requirements for meeting the regulatory positions of RG 1.33, Revision 2, as an alternative to RG 1.33. In a letter dated January 10, 2011 (ADAMS Accession No. ML110110612), the applicant verified that the North Anna 3 QAPD has incorporated the administrative controls in American Nuclear Standards Institute (ANSI) N18.7–1976/ANS-3.2, "Administrative Controls and Quality Assurance for the Operational Phase of Nuclear Power Plants," and in RG 1.33, Revision 2, which are not included in NQA-1–1994. The applicant also provided an annotated version of NEI 06–14A, Revision 7, Appendix 1, "Table of Where Regulatory Guide 1.33, Revision 2, and ANSI N18.7-1976 Requirements are addressed by NQA-1–1994 Standards and/or the NEI 06-14A QAPD," which documents this verification. The staff reviewed Part V of the QAPD and the annotated version of NEI 06–14A, Revision 7, Appendix 1. The staff evaluated and

determined that the alternative is consistent with the guidance in SRP Subsection 3.2.3.1, "Alternative for Commitment to RG 1.33," and is therefore acceptable.

On December 2, 2010, the staff issued RAI 17.5-8 (ADAMS Accession No. ML103560116) requesting information on Appendix 17AA to Chapter 17, which was based on NEI 06-14A. Consistent with the staff's safety evaluation of NEI 06-14A, applicants that do not wish to include a commitment to RG 1.33, Revision 2 in their QAPDs must explicitly address the provisions in Attachment 4 to NEI 06-14A, while also including Part V in their QAPDs. Accordingly, Dominion needed to submit (on the docket) the information in Attachment 4 to NEI 06-14A, as it pertains to the North Anna 3 application; or otherwise include an explicit commitment RG 1.33, Revision 2 in Part IV, "Regulatory Commitments," of Appendix 17AA.

In the response to RAI 17.5-8 dated January 10, 2011 (ADAMS Accession No. ML110110612), the applicant presented information identified in an accompanying "Table 1" showing how the QAPD met the requirements of RG 1.33, Revision 2. "Table 1" contains and addresses the provisions of NEI 06-14A, Attachment 4. The applicant stated that because the QAPD has since been revised (Revision 2 submitted on June 28, 2010), a revised Table 1 is provided in Attachment 1 to the RAI response. The revised Table 1 provides the comparison of how NQA-1-1994 and the North Anna 3 QAPD meet the requirements of RG 1.33, Revision 2 and ANSI N18.7-1976. In addition to the revised table, Attachment 1 included a summary of the Revision 2 changes to the North Anna Unit 3 QAPD. Furthermore, the applicant added that NEI 06-14A includes Part V which is required to be addressed; therefore it was incorporated into Revision 2 of the North Anna Unit 3 QAPD. The staff's review finds that the applicant's response is consistent with the guidance in SRP Section 17.5. The staff thus considers the QAPD revision acceptable, and therefore, RAI 17.5-8 is resolved and closed.

On February 9, 2011, the staff issued RAI 17.5-10 (ADAMS Accession No. ML110400768) requesting additional information on Appendix 17AA to Chapter 17, which is based on NEI 06-14A. The RAI state:

> Part V, "Additional Quality Assurance and Administrative Controls for the Operational Phase," Section 2, "Review of Activities Affecting Safe Plant Operation," of Appendix 17AA, describes the independent review function. However:
>
> 1. "Reviews of internal audit reports," as a task performed by the organization that executes the independent review functions, is missing from the North Anna Power Station Unit 3 Quality Assurance Program Description. Please explain the basis for not performing the above task.
>
> 2. In NEI 06-14, Revision 9 (NEI 06-14, Rev 7), the independent review function performs, in part, "Reviews proposed tests and experiments not described in the SAR prior to implementation. Verifies the determination of whether changes to proposed tests and experiments not described in the SAR require a technical specification change or license amendment." Whereas the North Anna Power Station Unit 3 Quality Assurance Program Description states "Reviews proposed tests and experiments not described in the SAR. Changes to proposed tests and experiments not described in the SAR that do require a technical specification change must be reviewed by the IRC prior to NRC submittal and implementation." Please provide

> justification for the deviation from the exact language used in NEI 06-14, Revision 9 (NEI 06-14A, Rev 7).

In the response to RAI 17.5-10 dated March 1, 2011 (ADAMS Accession No. ML110630198), the applicant stated:

> The two discrepancies noted in the question are the result of an administrative error that occurred during the COLA revision process. It is Dominion's intent that the North Anna 3 QAPD be consistent with NEI 06-14, Revision 9 (NEI 06-14A, Rev 7) with regard to the independent review function. Therefore, the North Anna 3 QAPD will be revised to include the internal audit report review requirement as an independent review organization task. Similarly, the description of the independent review function regarding tests and experiments will be revised to be consistent with the wording in the NEI template.

The staff accepted the response to RAI 17.5-10 and verified that the subsequent QAPD revision is consistent with the guidance in SRP Section 17.5. Therefore, RAI 17.5-10 is resolved and closed.

Additionally, the staff verified that the administrative controls included in SRP Section 17.5 were appropriately incorporated into the North Anna 3 COL FSAR. The staff therefore accepted the applicant's verification that all of the required administrative controls had been incorporated into the North Anna 3 QAPD.

Based on the preceding information, the staff concluded that the applicant's QAPD follows the guidance in SRP Section 17.5 for describing additional QA and administrative controls during the operational phase.

The staff evaluated the alternative for the commitment to RG 1.33 and determined that the alternative is consistent with the guidance in SRP Section 17.5 and is therefore acceptable.

17.5.5 Post Combined License Activities

There are no post COL activities related to this section.

17.5.6 Conclusion

NRC staff reviewed and evaluated Section 17.5 of the North Anna 3 COL FSAR, Revision 8 and the North Anna Unit 3 QAPD, Revision 6. The staff's review concludes that the QA Program described in the Dominion QAPD follows the NRC guidance in and conforms to the format of, SRP Section 17.5. The staff used the acceptance criteria of SRP Section 17.5 as the basis for evaluating the acceptability of Dominion's QA Program and find it in conformance with the provisions of 10 CFR 52.79(a)(17), 10 CFR 52.79(a)(25), 10 CFR 52.79(a)(27), 10 CFR Part 21, and 10 CFR Part 50, Appendix B. The staff finds that the program description adequately describes how the requirements of Appendix B will be implemented. The staff concludes that the proposed Dominion QAPD, Revision 6 complies with Appendix B to 10 CFR Part 50; 10 CFR 52.79(a)(17); 10 CFR 52.79(a)(25); 10 CFR 52.79(a)(27); and 10 CFR Part 21 and is therefore acceptable.

17.6 Maintenance Rule Program

17.6.1 Introduction

This FSAR section addresses the program for MR implementation based on the requirements of 10 CFR 52.79(a)(15) and 10 CFR 50.65, "Requirements for monitoring the effectiveness of maintenance at nuclear power plants"; and on the guidance in RG 1.160, "Monitoring the Effectiveness of Maintenance at Nuclear Power Plants"; and RG 1.182, "Assessing and Managing Risk Before Maintenance Activities at Nuclear Power Plants." RG 1.160 endorses Nuclear Management and Resource Council (NUMARC) 93–01 Revision 2, "Industry Guideline for Monitoring the Effectiveness of Maintenance at Nuclear Power Plants," which provides one acceptable method for implementing the MR (ADAMS Accession No. ML101020415).
RG 1.182 was issued in May 2000 and is a companion guide to RG 1.160. RG 1.182 provides guidance on implementing the provisions of 10 CFR 50.65(a)(4) by endorsing the February 22, 2000, revision to Section 11 of NUMARC 93–01, Revision 2.

17.6.2 Summary of Application

In the North Anna 3 COL FSAR, Section 17.6, Revision 8, the applicant provides the following:

COL Items

- STD COL 17.4-2-A Maintenance Rule Program

In FSAR Section 17.6, the applicant states:

> NEI 07-02A, "Generic FSAR Template Guidance for Maintenance Rule Program Description for Plants Licensed under 10 CFR Part 52," (Reference 17.6-4) is incorporated by reference with the following supplemental information:

Supplemental Information

- STD SUP 17.6-1

In FSAR Section 17.6, the applicant states:

> The text of the template provided in NEI 07-02A is generically numbered as "17.X." When the template is incorporated by reference into this section, numbering is changed from "17.X" to "17.6."

- STD SUP 17.6-2

In FSAR Section 17.6.3, the applicant states:

> Reliability during the operations phase is assured through the implementation of operational programs described in the FSAR, i.e., the MR Program (FSAR Section 17.6), the Quality Assurance Program (FSAR Section 17.5), the Inservice Inspection Program (FSAR Subsection 5.2.4, Section 6.6, and Subsection 3.8.1.7.3), and the Inservice Testing Program (FSAR Subsection 3.9.6, and Subsection 3.9.3.7.1(3)(e), as well as the Technical Specifications Surveillance Requirements (FSAR Chapter 16), and maintenance programs.

- STD SUP 17.6-3

In FSAR Subsection 17.6.1.1, the applicant states:

> In Paragraph 17.6.1.1.b, replace "(DRAP - see FSAR Section 17.Y)" with the following text "(See Section 17.4)".

- STD SUP 17.6-4

In FSAR Section 17.6.4, the applicant states:

> Condition monitoring of underground or inaccessible cables is incorporated into the MR Program. The cable condition monitoring program incorporates lessons learned from industry operating experience addresses regulatory guidance, and utilizes information from detailed design and procurement documents to determine the appropriate inspections, tests and monitoring criteria for underground and inaccessible cables within the scope of the maintenance rule (10 CFR 50.65).

17.6.3 Regulatory Basis

The regulatory basis of the information incorporated by reference is in the NRC final SER for NEI 07–02A, Revision 0 dated January 24, 2008 (ADAMS Accession No. ML073650081). NEI 07-02A, Revision 0 provides a complete generic program description for use in developing the section of the COL FSAR associated with Section 17.6 ("Maintenance Rule") of NUREG-0800.

In addition, the regulatory basis for accepting the MR Program is in the following:

- 10 CFR 50.65
- 10 CFR 52.79(a)(15), which requires a COL FSAR to contain a description of the program and its implementation for monitoring the effectiveness of maintenance necessary to meet the requirements of 10 CFR 50.65.
- RG 1.206, Regulatory Position C.I.17.6, "Description of the Applicant's Program for Implementation of 10 CFR 50.65, the Maintenance Rule."

17.6.4 Technical Evaluation

The staff reviewed Section 17.6 of the North Anna 3 COL FSAR, Revision 8, and checked the referenced Topical Report NEI 07-02A template guidance to ensure that the combination of the information in the COL FSAR and the information in NEI 07-02A appropriately represents the complete scope of information relating to this review topic.[1] The staff's review confirmed that the information in the application and the information incorporated by reference address the required information relating to this MR Program.

The staff reviewed the information in the North Anna 3 COL FSAR as follows:

[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.

COL Items

- STD COL 17.4-2-A Maintenance Rule Program

The applicant incorporates by reference NEI 07-02A with the following supplemental information. The text in the NEI template guidance is generically numbered as "17.X." The staff approved this template for FSAR Section 17.6 with site-specific inputs (ADAMS Accession No. ML073650081).

Supplemental Information

- STD SUP 17.6-1

Because the NEI template guidance is generically numbered as "17.X," the applicant has appropriately changed the numbering from "17.X" to "17.6." The staff finds this change acceptable.

- STD SUP 17.6-2

In FSAR Section 17.6.3, the applicant specifies the various FSAR sections that discuss the relationship of the MR Program to the RAP activities. The applicant states that the reliability of the SSCs during the operations phase is assured through the implementation of operational programs (i.e., the MR Program) in Section 17.6; the QA Program in Section 17.5; the Inservice Inspection Program in Section 5.2.4, Section 6.6, and Subsection 3.8.1.7.3; and the Inservice Testing Program in Section 3.9.6 and Subsection 3.9.3.7.1(3)e; the Technical Specifications Surveillance Requirements in Chapter 16; and the maintenance programs. The staff finds that the applicant has adequately addressed this information in FSAR Section 17.6.3.

- STD SUP 17.6-3

Because the NEI template guidance is generically numbered as "17.X" in Paragraph 17.6.1.1.b, the applicant appropriately replaces "(DRAP - see FSAR Section 17.Y)" with "(See Section 17.4)." The staff finds this change acceptable.

- STD SUP 17.6-4

In FSAR Section 17.6.4, the applicant provides supplemental information that discusses the relationship of the MR Program with the industry operating experience activities. In this section, the applicant incorporates condition monitoring of underground or inaccessible cables into the MR Program. The applicant states that the Cable Condition Monitoring Program (1) incorporates lessons learned from industry operating experience; (2) addresses regulatory guidance; and (3) uses detailed design and procurement information to establish appropriate inspections, tests, and monitoring criteria for underground and inaccessible cables within the scope of the MR (10 CFR 50.65). The staff's documented evaluation of the Cable Condition Monitoring Program is in Section 8.2.4 of this SER.

NRC staff reviewed the North Anna 3 COL FSAR, Revision 8, Table 13.4-201, "Operational Programs Required by NRC Regulations." The staff determined that the applicant had identified the MR Program and its associated implementation milestone. The License Condition for the operational program implementation schedule, which includes the MR Program, is in Section 13.4.4, "Post Combined License Activities," of this SER.

The staff concludes that the information above meets NRC requirements and is thus acceptable.

17.6.5 Post Combined License Activities

There are no post COL activities related to this section.

17.6.6 Conclusion

The NRC staff's finding related to information incorporated by reference is in NUREG–1966. NRC staff reviewed the application and checked the referenced DCD. The staff's review confirmed that the applicant has addressed the required information, and no outstanding information is expected to be addressed in the North Anna 3 COL FSAR related to this section. Pursuant to 10 CFR 52.63(a)(5) and 10 CFR Part 52, Appendix E, Section VI.B.1, all nuclear safety issues relating to the MR Program that were incorporated by reference have been resolved.

In addition, the staff compared the information in the COL application to the relevant NRC regulations; the guidance in Section 17.6, Revision 1 of NUREG–0800; and other NRC RGs. The staff's review concluded that the applicant has provided sufficient information to address the COL items and to satisfy the NRC requirements. Therefore, the staff finds that the information in Section 17.6 of the North Anna 3 COL FSAR is acceptable and meets the requirements of 10 CFR 52.79(a)(15) and 10 CFR 50.65.

References

1. 10 CFR 50.55a, “Codes and standards.”

2. 10 CFR 50.59, “Changes, tests, and experiments.”

3. 10 CFR 50.60, “Acceptance criteria for fracture prevention measures for light-water nuclear power reactors for normal operation.”

4. 10 CFR 50.120, “Training and qualification of nuclear power plant personnel.”

5. 10 CFR Part 50, “Domestic Licensing of Production and Utilization Facilities.”

6. 10 CFR Part 50, Appendix A, “General Design Criteria for Nuclear Power Plants.”

7. 10 CFR Part 50, Appendix B,

8. 10 CFR Part 52, “Licenses, Certifications, and Approvals for Nuclear Power Plants.”

9. 10 CFR Part 52, Appendix E, “Design Certification Rule for the ESBWR Design.”

10. 10 CFR 52.79, “Contents of applications; technical information in final safety analysis report.”

11. 10 CFR Part 21, “Reporting of Defects and Noncompliance.”

12. GDC 1, “Quality standards and records.”

13. GL 85-06, "Quality Assurance Guidance for ATWS Equipment That Is Not Safety Related," April 16, 1985. (ADAMS Accession No. ML031140390)

14. GL 1988-018, “Plant Record Storage on Optical Disks,” dated October 20, 1988. (ADAMS Accession No. ML031130450.)

15. GL 1989-002, “Actions to Improve the Detection of Counterfeit and Fraudulently Marked Products,” March 21, 1989. (ADAMS Accession No. ML031140060.)

16. GL 1991-005, “Licensee Commercial-Grade Procurement and Dedication Programs,” April 9, 1991. (ADAMS Accession No. ML031140508.)

17. NUREG-0800, “Standard Review Plan for the Review of Safety Analysis Reports for Nuclear Power Plants (LWR Edition),” March 2007. (ADAMS Accession No. ML070660036.)

18. NUREG–1966, “Final Safety Evaluation Report Related to the Certification of the Economic Simplified Boiling-Water Reactor Standard Design,” and its Supplement 1, April 2014. (ADAMS Accession Nos. ML14099A519, ML14099A522, ML14099A532, ML14100A187, ML14100A190, ML14100A194, ML14265A084.)

19. RG 1.8, Revision 3, “Qualification and Training of Personnel for Nuclear Power Plants,” May 2000. (ADAMS Accession No. 003706932.)

20. RG 1.26, Revision 4, “Quality Group Classification and Standards for Water-, Steam-, and Radioactive-Waste-Containing Components of Nuclear Power Plants,” March 2007.

21. RG 1.28, Revision 3, “Qualification and Training of Personnel for Nuclear Power Plants,” May 2000. (ADAMS Accession No. 003706932.)

22. RG 1.29, Revision 4, “Seismic Design Classification,” March 2007. (ADAMS Accession No. ML070310052.)

23. RG 1.33, Revision 2, “Quality Assurance Program Requirements (Operation),” February 1978. (ADAMS Accession No. ML003739995.)

24. RG 1.37, Revision 1, “Quality Assurance Requirements for Cleaning of Fluid Systems and Associated Components of Water-Cooled Nuclear Power Plants,” March 2007. (Withdrawn- See 79FR38963, July 9, 2014, ADAMS Accession No. ML13345A259.)

25. RG 1.54, Revision 1, “Service Level I, II, and III Protective Coatings Applied to Nuclear Power Plants,” October 2010. (ADAMS Accession No. ML102230344.)

26. RG 1.155, Station Blackout,” August 1988. (ADAMS Accession No. ML003716792.)

27. RG 1.160, “Monitoring the Effectiveness of Maintenance at Nuclear Power Plants,” March 1997. (ADAMS Accession No. ML003761662.)

28. RG 1.182, Revision 0, “Assessing and Managing Risk before Maintenance Activities at Nuclear Power Plants,” May 2000. (ADAMS Accession No. ML003740117.)

29. RG 1.189, Revision 2, Revision 2, “Fire Protection for Operating Nuclear Power Plants,” October 2009. (ADAMS Accession No. ML092580550.)

30. RG 1.206, “Combined License Applications for Nuclear Power Plants (LWR Edition),” June 2007. (ADAMS Accession No. ML070720184.)

31. RIS 2000-18, “Guidance on Managing Quality Assurance Records in Electronic Media,” October 23, 2000.

32. SECY-95-132, “Policy and Technical Issues Associated with the Regulatory Treatment of Non-Safety Systems (RTNSS) in Passive Plant Designs (SECY-94-084),” May 22, 1995, (ADAMS Accession No. ML003708005), and the related SRM dated June 28, 1995. (ADAMS Accession No. ML003708019.),

33. NEI 06-14A, Revision 7, “Quality Assurance Program Description,” August 2010. (ADAMS Accession No. ML102370305.)

34. SE on NEI 06-14, “Final Safety Evaluation for Technical Report NEI 06-14,’Quality Assurance Program Description,’ Revision 9,” July 13, 2010. (ADAMS Accession No. ML101800497)

35. NUMARC 93-01, Revision 2, “Industry Guideline for Monitoring the Effectiveness of Maintenance at Nuclear Power Plants,” April 1996. (ADAMS Accession No. ML101020415.)

36. ANSI N18.7-1976/ANS-3.2, “Administrative Controls and Quality Assurance for the Operational Phase of Nuclear Power Plants.”

37. ASME, NQA-1-1984, “Administrative Controls and Quality Assurance for the Operational Phase of Nuclear Power Plants.”

38. EPRI-NP-5652, “Guideline for the Utilization of Commercial-Grade Items in Nuclear Safety-Related Applications (NCIG-07),” June 1988. ,

39. IEEE Std 336-1985, “IEEE Standard Installation, Inspection, and Testing Requirements for Power, Instrumentation, and Control Equipment at Nuclear Facilities,” 1985.

40. IEEE Std 498-1985, “IEEE Standard Requirements for the Calibration and Control of Measuring and Test Equipment Used in Nuclear Facilities,” 1985.

41. IEEE Std 603-1980, “IEEE Standard Criteria for Safety Systems for Nuclear Power Generating Stations,” 1980.

42. NIRMA, TG 11-1998, "Authentication of Records and Media."

43. NIRMA, TG 15-1998, "Management of Electronic Records."

44. NIRMA, TG 21-1998, "Electronic Records Protection and Restoration.”