17. QUALITY ASSURANCE

17.3 Quality Assurance During the Design Phase

17.3.1 Introduction

Revision 16 of the Westinghouse AP1000 Design Control Document (DCD) proposes to implement the Westinghouse Quality Management System (QMS), Revision 5, for the AP1000 project. The NRC approved Revision 5 to the Westinghouse QMS by letter dated September 13, 2002 (Reference 1). Revision 0 of APP-GW-GLR-109, "DCD Revision to Incorporate ASME NQA-1-1994 for AP1000" (TR-109), presents the technical justification for implementing the QMS for the AP1000 project. Technical Report 109 justifies standard changes to the AP1000 DCD Sections 3.8, 5.2, 5.4, 17.3, and Appendix 1A. Technical Report 109 also incorporates American Society of Mechanical Engineers (ASME) Nuclear Quality Assurance (NQA) Standard NQA-1-1994, "Quality Assurance Requirements for Nuclear Facility Applications," into the DCD for AP1000.

17.3.2 Evaluation

17.3.2.1 Technical Report 109

U.S. Nuclear Regulatory Commission (NRC) Regulatory Guide (RG) 1.28, Revision 3, "Quality Assurance Program Requirements (Design and Construction)," issued August 1985, endorsed NQA-1-1983 as an acceptable method for complying with the provisions of Appendix B, "Quality Assurance Criteria for Nuclear Power Plants and Fuel Reprocessing Plants," to 10 CFR Part 50, "Domestic Licensing of Production and Utilization Facilities," with regard to the requisite quality assurance (QA) program for the design and construction phases of nuclear power plants.

In Revision 15 of the DCD for the AP1000, Westinghouse committed to the guidance of ASME NQA-1b-1991. As stated in TR-109, the proposed change would revise the version of NQA-1 referenced and committed to in the AP1000 DCD from NQA-1b-1991 to NQA-1-1994. The NRC staff compared the two versions of NQA-1 and found that the 1994 edition differed from the 1991 edition primarily in format. NQA-1-1994 consolidates NQA-1 and NQA-2 into a single multipart document and restructures its format to facilitate use of various parts of the standard. The basic requirements of the 1991 edition were substantially unchanged. Additionally, Westinghouse evaluated the changes from NQA-1b-1991 to NQA-1-1994. As documented in TR-109, these changes include (1) reordering of definitions, (2) addition of functions for which personnel need to be qualified, (3) addition of "siting" to the list of activities affecting quality and the list of quality functions to be audited, (4) addition of a paragraph for inspection requirements, and (5) removal of the allowance related to obsolete drawings. Westinghouse determined that these changes did not represent a reduction in commitment and did not impact the AP1000 design.

By letter dated June 6, 2008 (Reference 2), Westinghouse responded to the NRC request for additional information (RAI SRP17.3-CQVP-01) regarding missing changes to Revision 16 of the AP1000 DCD associated with TR-109. Specifically, the NRC staff noted that DCD Sections 3.8.3.6, 5.2.3.4.1, and 5.2.4.6 were not modified as described in TR-109, nor did Revision 4 of APP-GW-GLR-134, "AP1000 DCD Impacts to Support COLA Standardization" (TR-134), capture the changes. In its response, Westinghouse stated that Revision 5 of TR-134 would capture the supportive changes described in TR-109. The NRC staff confirmed that TR-134, Revision 5, captures the proposed changes. In addition, the NRC staff confirmed that the changes described in TR-109 and Revision 5 of TR-134 are included in Revision 17 of the AP1000 DCD.

As stated above, Westinghouse currently implements QMS, Revision 5, which commits to NQA-1-1994. In October 2008, the NRC conducted an inspection at Westinghouse (Reference 3). The purpose of the Westinghouse QA implementation inspection was to verify that design activities conducted for the AP1000 project comply with Revision 5 to the Westinghouse QMS and with the requirements of Appendix B to 10 CFR Part 50 and 10 CFR Part 21, "Reporting of Defects and Noncompliance." The inspectors verified that Revision 5 of the QMS is adequately implemented and identified three nonconformances to the requirements of Appendix B to 10 CFR Part 50. Westinghouse has responded to the nonconformances and addressed the actions to correct and prevent recurrence of these nonconformances in letter dated February 3, 2009 (Reference 4). The NRC determined that the actions to correct and prevent recurrence of these nonconformances were adequately addressed by Westinghouse (Reference 5).

As required by 10 CFR 52.63, "Finality of Standard Design Certifications," Westinghouse provided justification for TR-109 in its letter dated May 26, 2007 (Reference 6). Westinghouse stated that DCD Revision 16 includes changes to the certified design information that have resulted from inputs provided by the COL applicants that will reference the AP1000 DCD. Westinghouse stated that the consensus group of AP1000 COL applicants has confirmed all of these changes, and the changes will result in an increased standardization of the certification information that all AP1000 COL applicants will adopt. Based on the NRC staff review of QMS, Revision 5, the NRC staff concludes that the adoption of NQA-1-1994 will result in increased standardization of the design certification information.

17.3.2.2 NRC Staff Inspection of Westinghouse Quality Management System Implementation

The NRC staff may inspect Westinghouse's implementation of the QMS as it relates to the AP1000 project in the near future. An inspection report will document this inspection, which will be described in Section 17.3.1.2 of the staff's final safety evaluation report input. The NRC staff identifies this as Open Item OI-SRP 17.3-CQVP-01.

17.3.3 Conclusion

Based on the NRC staff's previous approval and subsequent inspection of the implementation of Revision 5 of the QMS, the NRC staff concludes that Westinghouse's adoption of NQA-1-1994 is acceptable for Revision 16 of the AP1000 DCD. Based on its review, the NRC staff finds that the Westinghouse QMS, as described in the AP1000 DCD Revision 17, meets the criteria of 10 CFR 52.63(a)(1)(vii) and Appendix B to 10 CFR Part 50 and is, therefore, acceptable.

17.3.3 References

1. Letter, William Ruland, NRC, to H. A. Sepp, Westinghouse Electric Company, "Westinghouse Quality Management System (QMS), Revision 5," September 13, 2002, Agencywide Documents Access and Management System (ADAMS) Accession Number ML022540895), September 13, 2002.

2. Letter, Westinghouse Electric Company to NRC, "AP1000 Response to Request for Additional Information (SRP 17.3)," June 6, 2008, ADAMS Accession No. ML081620072.

3. U.S. Nuclear Regulatory Commission, Inspection Report No. 05200006/2008-201, NOTICE OF NONCONFORMANCE," December 24, 2008, ADAMS Accession No. ML083440558.

4. Letter, Westinghouse Electric Company to NRC, "WEC Response to NRC Inspection Report No. 05200006/2008-201, Notice of Nonconformance," ADAMS Accession No. ML090500732.

5. Letter, Juan Peralta, NRC, to R.B. Sisk, Westinghouse Electric Company, "Westinghouse Electric Corporation Response to NRC Inspection Report 05200006/2008-201, Notice of Nonconformance," February 20, 2009, ADAMS Accession No. ML090500781.

6. Letter, Westinghouse Electric Company to NRC, "Westinghouse Application to Amend the AP1000 Design Certification Rule," May 26, 2007, ADAMS Accession No. ML071580412.

17.4 <u>Reliability Assurance Program During the Design Phase</u>

17.4.1 Introduction

In the AP1000 design certification amendment (DCA) request, Westinghouse proposed changes to the description of the AP1000 reliability assurance program (RAP). The program has two parts. The first, accomplished during the design phase, is called the design reliability assurance program (D-RAP). The second, formerly called the operational reliability assurance program (O-RAP), is no longer required. References to the O-RAP were removed and operational phase reliability assurance activities (OPRAA)s that accomplish the objectives of the RAP after initial fuel load are now described.

The DCA also clarifies the association between the Maintenance Rule template and Nuclear Energy Institute (NEI) document NEI 07-02A, "Generic FSAR Template

Guidance for Maintenance Rule Program Description for Plants Licensed Under 10 CFR Part 52." The DCA added certain structures, systems, and components (SSCs) to the D-RAP and updated the basis for SSC inclusion in the D-RAP as a result of updates to the risk analysis and decisions of the applicant's expert panel.

Finally, the DCA proposed a change to the ITAAC. The staff documented its evaluation of this change in Section 17.6, "Tier 1 Information."

In addition to reviewing the amended DCD, the staff reviewed AP1000 Combined License Standard Technical Reports APP-GW-GLR-117, Revision 1, "Incorporation of the Maintenance Rule" (TR-117), and APP-GW-GLN-132, "Changes to D-RAP Component List" (TR-132). The staff also reviewed applicable sections of APP-GW-GLN-134, "AP1000 DCD Impacts to Support COLA Standardization" (TR-134). These sections identify changes to Chapter 17 of the AP1000 DCD. Related changes also appear in Chapter 14 and Chapter 16 of DCD Tier 2, as well as in Section 3.7 of DCD Tier 1. This information is generic to the design and is expected to apply to all COL applications that reference the AP1000 design certification.

17.4.2 Evaluation

The RAP has two stages. The first is referred to as the D-RAP. The second stage applies to reliability assurance activities for an operating plant; the objective during this stage is to ensure that the reliability of SSCs within the scope of the RAP is maintained during plant operations through OPRAAs. Programs that are required by other regulations accomplish these reliability assurance activities. A separate, duplicative program would not be beneficial. Accordingly, Item E of the staff requirements memorandum dated June 28, 1995, associated with 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, states that no separate O-RAP is required for licensees under 10 CFR Part 52, "Licenses, Certifications, and Approvals for Nuclear Power Plants." Instead, the applicants are to incorporate the activities of the RAP after the design phase into existing plant programs. The following are examples of programs that include OPRAAs:

- maintenance rule
- quality assurance
- inservice testing
- inservice inspection
- technical specifications surveillance test
- AP1000 investment protection short-term availability controls
- site maintenance

The assignment to OPRAAs of activities formerly identified as within the O-RAP is consistent with the guidance given in SECY-95-132 and with Section 17.4 of NUREG-0800, "Standard Review Plan for the Review of Safety Analysis Reports for Nuclear Power Plants" (referred to as the SRP). For this reason, the staff finds it acceptable. This change also meets the requirement of 10 CFR 52.63(a)(1)(vii) in that it "Contributes to increased standardization of the certification information."

The applicant has deleted from the DCD Section 17.4.7.2, “D-RAP, Phase II”; Section 17.4.7.2.1, “Information Available to Combined License Applicant”; and Section 17.4.7.3, “D-RAP, Phase III.” The applicant justified these deletions by the incorporation of NEI 07-02A. The staff has endorsed NEI 07-02A and determined that it provides an acceptable method for complying with the requirement in 10 CFR 52.79(a)(15). Specifically, final safety analysis reports must describe the program for monitoring the effectiveness of maintenance to meet the requirements of 10 CFR 50.65, “Requirements for Monitoring the Effectiveness of Maintenance at Nuclear Power Plants” (also known as the Maintenance Rule), as well as how the program is to be implemented. This will satisfy the acceptance criteria of SRP Section 17.6, “Maintenance Rule,” and is therefore acceptable to the staff. This change also meets the requirement of 10 CFR 52.63(a)(1)(vii) in that it “Contributes to increased standardization of the certification information.”

The applicant has deleted four subsections of Revision 16 of the AP1000 DCD that addressed COL information items. COL information item 17.5.3 states that “The COL applicant or holder will establish PRA importance measures, the expert panel process, and other deterministic methods to determine the site-specific list of SSCs under the scope of the RAP.”

NEI 07-02A, Section 17.X.1.1, “Maintenance rule scoping per 10 CFR 50.65(b),” addresses this information item. Section 17.X.1.1 provides guidance on PRA insights for the SSCs, the establishment of the expert panel, the process for updating and maintaining the Maintenance Rule scope and SSC classifications, and the use of other deterministic methods for scoping SSCs.

In Revision 16 of the AP1000 DCD, COL information item 17.5.5 states the following:

> The following activities are represented in Figure 17.4-1 as “Plant Maintenance Program.” The Combined License applicant is responsible for performing the tasks necessary to maintain the reliability of risk-significant SSCs. Reference 8 contains examples of cost-effective maintenance enhancements, such as condition monitoring and shifting time-directed maintenance to condition-directed maintenance.

NEI 07-02A, Section 17.X.3, “Maintenance Rule Program Relationship with Reliability Assurance Activities,” addresses this information. Section 17.X.3 provides guidance on the implementation of operational programs for reliability assurance. These programs include quality assurance, Maintenance Rule, maintenance, surveillance testing, inservice inspection, and inservice testing.

Combined license Information item 17.5.6 states, “The Maintenance Rule (10 CFR 50.65) is relevant to the Combined License applicant’s maintenance activities in that it prescribes SSC performance-related goals during plant operation.”

NEI 07-02A specifically addresses performance-related goals throughout the document. Specifically, Section 17.X.1.1 provides guidance on how SSCs in the Maintenance Rule program are evaluated against performance criteria to determine if goals must be established. In Section 17.X.1.2, the guidance states that goals are established for SSCs classified as (a)(1) status. Section 17.X.1.4 specifies a periodic evaluation of the performance, condition monitoring, goals, and preventive maintenance activities for SSCs in the Maintenance Rule program.

In Revision 16 of the AP1000 DCD, COL information item 17.5.7 states the following:

> In addition to performing the specific tasks necessary to maintain SSC reliability at its required level, the O-RAP activities include:
>
> - Reliability data base—Historical data available on equipment performance. The compilation and reduction of this data provides the plant with source of component reliability information.
> - Surveillance and testing—In addition to maintaining the performance of the components necessary for plant operation, surveillance and testing provides a high degree of reliability for the safety-related SSCs.
> - Maintenance plan—This plan describes the nature and frequency of maintenance activities to be performed on plant equipment. The plan includes the selected SSCs identified in the D-RAP.

These bulleted items are covered under NEI 07-02A, Section 17.X.3. The first bulleted item is also captured in Section 17.X.4, "Maintenance Rule Program Relationship with Industry Operating Experience Activities."

The staff considers NEI 07-02A to be an acceptable way to address these COL information items. These information items are considered to be closed for COL holders that implement programs consistent with this guidance. This change also meets the requirement of 10 CFR 52.63(a)(1)(vii) in that it "Contributes to increased standardization of the certification information."

Most components included in the D-RAP (listed in Table 17.4-1) are listed on the basis of their high risk importance. Specifically, a basic event with a risk achievement worth (RAW) greater than 2 or a risk reduction worth (RRW) greater than 0.005 is considered important to risk, as are the associated SSCs. SSCs may be assigned to the D-RAP for other reasons (for example, an appropriately constituted expert panel judges them to be important). The D-RAP list identifies only the expert panel as the basis for the inclusion of certain components, which implies that these components do not meet the quantitative risk importance criteria. The staff requested additional information to justify this conclusion in four cases:

(1) Reactor coolant pump switchgear circuit breakers:

ECS ES 31	ECS ES 41	ECS ES 51	ECS ES 61
ECS ES 32	ECS ES 42	ECS ES 52	ECS ES 62

In a letter from R. Sisk dated September 5, 2008 (Agencywide Documents Access and Management System (ADAMS) Accession No. ML082520823), the applicant provided additional information to justify the classification of the reactor coolant pump (RCP) without reference to the RAW. The failures of the RCP switchgear circuit breakers are captured in the following events.

RC1CB051GO	PUMP A FAILS TO TRIP—BREAKER FAILS TO OPEN
RC1CB052GO	PUMP A FAILS TO TRIP—BREAKER FAILS TO OPEN
RC1CB053GO	PUMP A FAILS TO TRIP—BREAKER FAILS TO OPEN
RC1CB054GO	PUMP A FAILS TO TRIP—BREAKER FAILS TO OPEN
RC1CB061GO	PUMP B FAILS TO TRIP—BREAKER FAILS TO OPEN
RC1CB062GO	PUMP B FAILS TO TRIP—BREAKER FAILS TO OPEN
RC1CB063GO	PUMP B FAILS TO TRIP—BREAKER FAILS TO OPEN
RC1CB064GO	PUMP B FAILS TO TRIP—BREAKER FAILS TO OPEN

In addition, the applicant stated the following:

> Fault tree logic requires all four pumps to shutdown; however, there are two breakers for each pump with only one of two breakers necessary to shutdown one pump. Consequently, CCF of the RCP switchgear circuit breakers is not modeled and, therefore, the RCP circuit breakers are in the D-RAP (Table 17.4-1) only due to the recommendation of the expert panel (EP).

Revision 15 of the DCD reported that following an event such as a loss-of-coolant accident (LOCA), steam generator tube rupture, or a stuck-open valve in the main steam line, RCPs must trip, or operator action will be required to achieve safe shutdown. Failure to trip RCPs can prevent operation of the core makeup tanks. Consequently, the staff expects a common-cause failure (CCF) to trip all RCPs to be significant, even if it does not lead to core damage in large LOCAs and some medium LOCAs.

This was confirmed in APP-GW-GL-022, “AP1000 Probabilistic Risk Assessment,” Revision 8 (the PRA report), which reported the CCF of RCP circuit breakers to open, represented by event RPX-CB-GO (see Table 29-2, “Common-Cause Failure Calculations,” p. 29-22). Item 36 in Table 50-23 of the same report, “Risk Importances Sorted by Risk Increase,” shows RPX-CB-GO to be a member of more than 400 cutsets with a RAW of nearly 52. It appears in reactor coolant loop, RCN, and RCT fault trees. It should appear in Table 50-6, “Common Cause Importances—Risk Increase,” following IWX-XMTR on pages 50–27, but it does not.

The staff cannot identify a basis for deleting this CCF from the PRA model. The staff has asked the applicant to identify where removal of such a risk-significant CCF was evaluated and to justify the removal. Alternatively, the applicant should restore this basic event to the PRA model and revise the DCD appropriately. **The NRC staff identifies this as Open Item OI-SRP 17.4-SPLA-01.**

(2) 125-volt (V) direct current (dc) 24-hour batteries, inverters, and chargers

The batteries provide power for the protection and safety monitoring system and safety-related valves. By letter from R. Sisk dated September 5, 2008 (ADAMS Accession No. ML082520823), the applicant reported that the risk-significance criteria are not met by the basic events for these components without considering common cause. The risk-significance criteria for including the inverters, batteries, and battery charges based on the PRA modeling of common cause for these components supports inclusion in the D-RAP. The rationale for inclusion is changed to RAW/CCF for 125-V dc 24-hour batteries, inverters, and chargers. This is acceptable to the staff.

(3) In-containment refueling water storage tank (IRWST) vents (PXS MT 03)

These vents provide a pathway to vent steam from the tank into the containment. By letter from R. Sisk dated September 5, 2008 (ADAMS Accession No. ML082520823), the applicant reported that the method of modeling documented in APP-GW-GL-022 had been revised in the change discussed in APP-GW-GLR-102, "AP1000 Probabilistic Risk Assessment Update Report" (TR-102).

The risk significance of IRWST vents based on the new PRA modeling for large-release frequency (LRF) supports inclusion in the D-RAP. The rationale for inclusion now reflects RAW for the IRWST vents. This is acceptable to the staff.

(4) Automatic depressurization system (ADS) stage 1, 2, and 3 motor-operated valves (MOVs)

In the AP1000 design certification PRA, the applicant reported a RAW value of greater than $4x10^1$ for the event that represents failure-to-open for 32 combinations of three MOVs in ADS stages 2 and 3.

By letter from R. Sisk dated September 5, 2008 (ADAMS Accession No. ML082520823), the applicant reported that the criteria for including ADS stage 1, 2, and 3 MOVs based on the PRA modeling (risk significance) of basic events before consideration of common cause for these components does not support inclusion of these MOVs in the D-RAP.

However, two common-cause groupings model CCFs of the ADS MOVs. One models the CCF to operate the MOVs of the ADS first, second, and third stages. The criteria for including ADS stage 1, 2, and 3 MOVs based on LRF risk significance of this CCF supports inclusion of stage 1, 2 and 3 ADS MOVs in the D-RAP. The other grouping models the CCFs of 32 combinations of three stage 2 and stage 3 MOVs to fail to operate. The criteria for including ADS stage 2 and 3 MOVs based on CDF and LRF risk significance supports inclusion of stage 2 and stage 3 MOVs in the D-RAP.

The rationale for including these MOVs in D-RAP now reflects RAW/CCF for ADS stage 1, 2, and 3 MOVs. This is acceptable to the staff.

Several additions to the D-RAP have been identified on the basis of risk significance in the internal events Level 1 PRA:

- chemical and volume control letdown discharge isolation valve inside reactor containment (CVS-PL-V045)
- chemical and volume control letdown discharge isolation valve outside reactor containment (CVS-PL-V047)
- a new diverse actuation system cabinet outside the main control room
- 6,900–V alternating current (ac) buses ECS-ES-1 and -2, which are ac power buses fed by the onsite diesel generators and offsite power
- normal residual heat removal system (RNS) stop check valves (RNS-PL-V007A/B and -V015A/B) on the discharge of the RNS pumps, which prevent backflow from the reactor coolant system (RCS)

In addition, two components have been added on the basis of the Level 2 PRA:

- RNS check valve (RNS-PL-V013), which provides a flow path from the RNS pumps to the RCS
- RNS check valve (RNS-PL-V056), which provides a flow path from the cask loading pit to the RNS pump inlet

These additions are consistent with DCD Section 17.4.7.1.5, “SSCs to Be Included in D-RAP,” and thus they are acceptable to the staff.

17.4.3 Conclusion

Westinghouse proposes changes to the RAP, described in the AP1000 DCA request. Both the removal of references to the O-RAP and the description of OPRAAs that complement the D-RAP to accomplish RAP objectives are consistent with Section 17.4 of the SRP. For this reason, they are acceptable to the staff.

The staff has endorsed adoption of NEI 07-02A, which allows closure of certain COL information items. COL information items 17.5.3, 17.5.5, 17.5.6, and 17.5.7 are considered to be closed for COL holders that implement programs consistent with this guidance.

The applicant added certain SSCs to the D-RAP and updated the basis for SSC inclusion in the D-RAP to include updates to the risk analysis and decisions of the applicant’s expert panel. These changes result from proposed design changes and updated risk analysis. Once OI-SRP 17.4-SPLA-01 is resolved, they will be consistent with the previously approved methodology and therefore acceptable to the staff.

These changes meet the requirement of 10 CFR 52.63(a)(1)(vii) (“Contributes to increased standardization of the certification information”).

17.4.4 References

1. Nuclear Energy Institute (NEI), NEI-07-02A, "Generic FSAR Template Guidance for Maintenance Rule Program Description for Plants Licensed Under 10 CFR Part 52." Washington DC. March 2008. (ML080910149)

17.6 Tier 1 Information

17.6.1 Information

Certain SSCs were added to the AP1000 design reliability assurance program D-RAP. The basis for SSC inclusion in the D-RAP was revised in some cases as a result of updates to the risk analysis and decisions of the applicant's expert panel. In addition, Westinghouse proposed a change to the ITAAC for D-RAP.

In addition to reviewing the amended DCD, the staff reviewed AP1000 Combined License Standard Technical Report APP-GW-GLN-132, "Changes to D-RAP Component List" (TR-132). The staff also reviewed applicable sections of APP-GW-GLN-134, "AP1000 DCD Impacts to Support COLA Standardization" (TR-134) and APP-GW-GLE-007, "ITAAC Changes" (Impact Document 07). In these, changes to Section 3.7 of Tier 1 of the AP1000 DCD are identified. Related changes also appear in Chapters 14, 16, and 17 of DCD Tier 2. This information is generic to the design and is expected to apply to all COL applications that reference the AP1000 Design Certification.

17.6.1 Evaluation

Several additions to the D-RAP have been identified on the basis of risk significance in the internal events Level 1 PRA:

- Chemical and volume control (CVS) letdown discharge isolation valve inside reactor containment (CVS-PL-V045)
- CVS letdown discharge isolation valve outside reactor containment (CVS-PL-V047)
- Normal residual heat removal system (RNS) stop check valves (RNS-PL-V007A/B and -V015A/B) on the discharge of the RNS pumps, which prevent backflow from the RCS

In addition, two components have been added on the basis of the Level 2 PRA:

- RNS Check Valve (RNS-PL-V013), which provides a flow path from the RNS pumps to the RCS.
- RNS Check Valve (RNS-PL-V056), which provides a flow path from the cask loading pit to the RNS pump inlet.

Finally, the nominal voltage of the 24-hour batteries was changed from 125 Vdc to 250Vdc.

The NRC staff identifies these additions and changes as Confirmatory Item CI-SRP17.4-SPLA-01. Subject to satisfactory resolution to the confirmatory item the additions and changes will be consistent with DCD Subsection 17.4.7.1.5, “SSCs to be Included in D-RAP.” They will be reflected in DCD Tier 1, Section 3.7, “Design Reliability Assurance Program,” Table 3.7-1, “Risk-Significant Components,” and therefore these changes to Tier 1 will be acceptable to the staff.

In APP-GW-GLE-007, "ITAAC Changes," (Impact Document 07), the applicant proposed an alternative to the existing D-RAP ITAAC. In Table 3.7-3, “Inspections, Tests, Analyses and Acceptance Criteria,” the approved existing acceptance criterion is as follows:

> A report exists and concludes that the estimated reliability of each as-built component identified in Table 3.7-1 is at least equal to the assumed reliability and that industry experience including operations, maintenance, and monitoring activities were assessed in estimating the reliability of these SSCs.

To this, the applicant proposed to add:

> For an as-built component with reliability less than the assumed reliability an evaluation shall show that the net effect of as-built component reliabilities does not reduce the overall reliability. Or, an evaluation shall show that there is not a significant adverse effect on the core melt frequency or the large release frequency in the PRA applicable to the plant.

The staff cannot conclude that the proposed alternative will satisfy its objectives for ITAAC.

D-RAP ITAAC should provide assurance that the reliability and availability of risk-significant SSCs are consistent with the certified design (subject to deviations and plant-specifics approved in the COL and reflected in the FSAR). This may be accomplished by:

- confirming that the list of SSCs within the scope of D-RAP is complete and correct
- confirming that the design products for each risk-significant SSC have been prepared correctly (i.e., were subject to adequate controls)
- describing the activities on which these conclusions are based, as well as the other reliability assurance activities providing confidence that at the time of initial fuel loading, the plant will be as described in the FSAR

The staff requested (RAI SRP17.4-SPLA-04) that Westinghouse propose an alternative D-RAP ITAAC that provides reasonable assurance that the plant is designed and will be constructed in a manner that is consistent with the key assumptions and risk insights for risk-significant SSCs within the scope of D-RAP. **The NRC staff identifies this as Open Item OI-SRP17.4-SPLA-04.**

17.6.3 Conclusion

The staff identified discrepancies in DCD Tier 1 Table 3.7-1 and Table 2.2.1-1 (untitled). These related to additions and changes to the list of risk-significant SSCs identified in DCD Tier 2, Table 17.4-1, "Risk Significant SSCs within the Scope of D-RAP." Specifically, for containment isolation valves controlled by the diverse actuation system (DAS), Table 3.7-1 refers to Table 2.2.1-1, where DAS control is identified. Table 2.2.1-1 should include the CVS letdown discharge isolation valve inside reactor containment (CVS-PL-V045) and CVS letdown discharge isolation valve outside reactor containment (CVS-PL-V047). In addition, the voltage of the Class 1E 24-hour batteries is still identified as 125 Vdc. **The NRC staff identifies this as Confirmatory Item CI-SRP17.4-SPLA-01.** Subject to satisfactory resolution of the identified confirmatory Item these additions and changes are consistent with the previously approved methodology and therefore they are acceptable to the staff

The staff reviewed the applicant's proposed change to D-RAP ITAAC, and cannot conclude that the ITAAC will satisfy its objectives. The applicant must either clarify how the objectives ITAAC will be satisfied or propose an alternative that will do so. **The NRC staff identifies this as Open Item OI-SRP 17.4-SPLA-04.**

The D-RAP ITAAC will provide assurance that the reliability and availability of risk-significant SSCs are consistent with the certified design (subject to deviations and plant specifics approved in the COL and reflected in the FSAR).

These changes meet the requirement of 10 CFR 52.63(a)(1)(vii) "Contributes to increased standardization of the certification information."