**FEDERAL REGISTER NOTICE**
**U.S. NUCLEAR REGULATORY COMMISSION**
**RELATING TO THE CERTIFICATION OF THE**
**AP1000 STANDARD PLANT DESIGN**
**DOCKET NO. 52-006**

Attachment 1

[7590-01-P]

NUCLEAR REGULATORY COMMISSION

10 CFR PART 52

RIN 3150-AH56

**AP1000 Design Certification**

**AGENCY:** Nuclear Regulatory Commission.

**ACTION:** Final rule.

**SUMMARY:** The Nuclear Regulatory Commission (NRC or Commission) is amending its regulations to certify the AP1000 standard plant design. This action is necessary so that applicants or licensees intending to construct and operate an AP1000 design may do so by referencing this regulation [AP1000 design certification rule (DCR)]. The applicant for certification of the AP1000 design was Westinghouse Electric Company LLC (Westinghouse).

**EFFECTIVE DATE:** The effective date of this rule is [insert 30 days after publication in the *Federal Register*]. The incorporation by reference of certain documents listed in this regulation is approved by the Director of the Office of the *Federal Register* as of [insert date].

**FOR FURTHER INFORMATION CONTACT:** Lauren Quinones-Navarro or Jerry N. Wilson, Office of Nuclear Reactor Regulation, U.S. Nuclear Regulatory Commission, Washington, DC 20555-0001; telephone (301) 415-2007 or (301) 415-3145; e-mail: lnq@nrc.gov or jnw@nrc.gov.

**SUPPLEMENTARY INFORMATION:**

**I. Background.**

Subpart B of 10 CFR part 52 sets forth the process for obtaining standard design certifications. On March 28, 2002 (67 FR 20845), Westinghouse tendered its application for certification of the AP1000 standard plant design with the NRC. Westinghouse submitted this application in accordance with subpart B and appendix O of 10 CFR part 52. The NRC formally accepted the application as a docketed application for design certification (Docket No. 52-006) on June 25, 2002 (67 FR 43690). The pre-application information submitted before the NRC formally accepted the application can be found under Project No. 711.

The NRC staff issued a final safety evaluation report (FSER) for the AP1000 design in September 2004 (NUREG-1793). The FSER provides the bases for issuance of a final design approval (FDA) under appendix O to part 52, which is a prerequisite to a design certification. The FDA for the AP1000 design was issued on September 13, 2004, and published in the *Federal Register* on September 17, 2004 (69 FR 56101).

Subsequently, Westinghouse submitted changes to the AP1000 design information in revision 15 to the Design Control Document (DCD). The NRC staff evaluated these changes in a supplement to the FSER (NUREG-1793, Supplement No. 1). A notice of availability for Supplement No. 1 will be published in the *Federal Register*. The FSER and Supplement No. 1 provide the bases for the Commission's approval of the AP1000 standard plant design. An FDA, which incorporates the changes to the DCD, will be issued to supersede the current FDA after issuance of this final design certification rule.

**II. Comment Analysis.**

The period for submitting comments on the proposed DCR, AP1000 DCD, or draft environmental assessment (EA) expired on July 5, 2005. The NRC received three letters from two private citizens and one letter from the Nuclear Energy Institute (NEI). The following discussion of the comments is separated into three categories: Environmental Assessment, Design Control Document, and Design Certification Rule.

**A. Environmental Assessment.**

*Comment summary*. Three severe accident mitigation design alternatives (SAMDAs) were inappropriately dismissed in the EA on the basis that they do not affect the likelihood of an accident. These SAMDAs involve filtered containment vents and self-actuating containment isolation valves.

*Response.* The noted SAMDAs were assessed in terms of their respective benefits and implementation costs, and dismissed on the basis that they would not be cost-beneficial. In

assessing benefits, SAMDAs were divided into two groups—those that impact core damage frequency (CDF), and those that impact containment performance but not CDF (including the SAMDAs in question). Although containment-related SAMDAs do not offer any benefits associated with reducing CDF (such as averted replacement power costs), the applicant conservatively assumed that all SAMDAs would completely eliminate all severe accident risk. More realistically, the CDF would not be impacted and the benefits would be much lower. Accordingly, these SAMDAs would not be cost-beneficial.

*Comment summary*. One SAMDA was inappropriately dismissed in the EA on the basis that it is not consistent with the AP1000 design objective of relying on passive systems. This SAMDA involves an active high-pressure safety injection system that would be capable of preventing a core melt for all but two types of events.

*Response*. Although the noted SAMDA was screened out on the basis that it is inconsistent with AP1000 design objectives, it would also have been eliminated on cost-benefit considerations. Specifically, even if this SAMDA were to eliminate all severe accident risk, the estimated costs of the SAMDA (at least $1 million, given the significant hardware and ongoing surveillance and maintenance costs) would exceed the estimated benefits by several orders of magnitude.

*Comment summary.* The EA contains no assessment of the impact of an accidental or deliberate external rupture of the AP1000's unreinforced containment structure.

*Response.* For the reasons the Commission stated in detail in *Private Fuel Storage* (CLI-02-25, 12/18/2002), the NRC has no obligation under the National Environmental Policy Act (NEPA) to consider intentional malevolent acts, such as those directed against the United States on September 11, 2001, in conjunction with a licensing action. In short, the

Commission recognizes that it cannot rule out the possibility of a terrorist threat to nuclear facilities, but finds that the possibility of a terrorist attack is speculative and simply too far removed from the natural or expected consequences of agency action to require a study under NEPA. As a practical matter, attempts to evaluate that threat even in qualitative terms are likely to be meaningless and consequently of no use in the agency's decision making. Moreover, although one of the purposes of NEPA is to inform the public of the environmental impacts of a regulatory action, the results of any attempted analysis of terrorism could not be made available to the public, for reasons associated with safeguards and physical security.

The Commission is devoting substantial time and agency resources to combating the potential for terrorism involving nuclear facilities and materials. In response to the September 11 attacks, the NRC staff is conducting a comprehensive review of its security and safeguards measures, and have instituted interim upgrades in security requirements for its licensees. The Commission is also working with numerous other government agencies to meet and minimize the threat of terrorism. Thus, although the Commission declines to consider terrorism in the context of NEPA, it is devoting significant attention to terrorism-related matters.

*Comment summary.* How can anyone do an "Environmental Assessment" or an FSER on a plant design that exists only on paper and has never been constructed completely to scale and operated anywhere in the world?

*Response.* The purpose of an FSER and EA is to assess a nuclear plant design before it is constructed. The FSER is based on an evaluation of design information and the safety analyses of postulated accidents for that particular plant design. The SAMDA portion of the EA considers alternatives to the plant design that was evaluated in the FSER. The NRC's FSER and EA for the AP1000 standard plant design were used as the basis for this rulemaking.

*Comment summary*. The applicant's estimates of risk do not account for uncertainties in core damage frequency or in offsite radiation exposures resulting from a core damage event.

*Response*. The NRC has acknowledged that uncertainties are large and that several areas are incompletely modeled. However, as stated in the EA, even if the CDF and large release frequency were a factor of 10 higher, none of the SAMDAs would be cost-beneficial.

*Comment summary*. The Department of Energy (DOE) is going to subsidize "first of a kind" engineering costs for the first plants constructed of each of the new NRC-approved designs. Therefore, the applicant is not going to have to bear all costs considered in the analysis.

*Response*. The cost evaluations do not include the costs of design engineering or testing and maintenance for each design alternative. Including all or a portion of these costs would increase the overall implementation costs and decrease the cost-effectiveness of each SAMDA. Thus, the applicant's evaluation is conservative.

*Comment summary*. There seems to be no inclusion in the cost-benefit analysis of the "benefit" to the applicant of a plant which has little or no severe accident risk. Westinghouse stands to gain significantly if the AP1000 is as safe as the AP600 is supposed to be.

*Response*. The low level of risk estimated for the AP1000 design may be a benefit to the applicant with regard to marketability and public acceptance of the design. However, this is not a recognized or readily quantifiable attribute in the NRC methodology for value-impact analysis (NUREG/BR-0184, "Regulatory Analysis Technical Evaluation Handbook") and there is no precedent for its inclusion in regulatory analyses. Accordingly, this factor has not been included in the SAMDA evaluation.

*Comment summary*. The cost-benefit methodology overstates the costs and understates the benefits by including replacement power costs as part of the SAMDA implementation cost rather than as a benefit.

*Response*. The comment reflects a misunderstanding of how replacement power costs were treated in the assessment. Replacement power costs (more correctly, "averted replacement power costs") were included as a benefit for the various SAMDAs, and were not assumed to contribute to the SAMDA implementation costs.

*Comment summary*. The comment questions how one can estimate populations that are totally hypothetical, and why the entire population within a 50-mile radius of the plant is used in the analysis. The comment implies that use of the entire population would have the effect of diluting (reducing) the hypothetical exposure from an accident.

*Response*. Offsite consequences for the AP1000 design were evaluated using reference site information developed by the Electric Power Research Institute (EPRI) to represent potential sites where an AP1000 plant might be built. The reference site data was developed to conservatively represent or bound the consequences at approximately 80 percent of the reactor sites in the United States (see Section 19.4.2 of the AP1000 FSER). Exposure and offsite property impacts were estimated over a 50-mile radius from the plant site as prescribed in NUREG/BR-0058, Revision 4, "Regulatory Analysis Guidelines of the U.S. Nuclear Regulatory Commission." The population dose estimates represent the cumulative dose received by the entire population within the 50-mile radius. Consideration of the entire population increases rather than dilutes the hypothetical exposure from an accident.

*Comment summary*. The NRC accepts the applicant's assessment when the estimated implementation costs are higher than the estimated benefits, yet rejects the applicant's cost

estimates for SAMDAs whose implementation costs are within the range of the estimated benefits. One of the SAMDAs handled in this manner was self-actuating containment isolation valves.

*Response*. The methodology for evaluating potential SAMDAs involves a multi-step screening process. SAMDAs whose implementation costs clearly exceed the conservatively-estimated benefits are screened from further consideration. Those SAMDAs whose implementation costs are within range of the estimated benefits are further assessed using more realistic assumptions regarding implementation costs and/or benefits. The SAMDA assessment for self-actuating containment isolation valves is an example of a SAMDA that survived the initial screening, but was subsequently judged not cost-beneficial under more realistic assumptions.

*Comment summary.* The SAMDA cost-benefit analysis is based on construction of a single unit, even though this design, once certified could be referenced for many plants. Thus, the costs of any re-engineering and re-analysis involved in the incorporation of any of the SAMDAs would effectively be spread over many plants.

*Response*. The applicant's cost estimates did not account for the costs of design engineering. Thus, most of the SAMDA implementation cost (e.g., the cost of installed hardware) would still be incurred at each unit regardless of whether additional units are constructed. In addition, even if all SAMDA implementation costs were assumed to be reduced by a factor of 10, to represent spreading all costs over 10 new units, none of the potential SAMDAs would become cost-beneficial when SAMDA benefits and implementation costs are estimated based on realistic assumptions.

*Comment summary*. The comment questions how cost considerations are allowed to influence the safety review and design certification process.

*Response*. It is important to recognize the difference between the safety evaluation (SE) and the EA. The review of the AP1000 design with regard to the overall level of safety and its compliance with NRC's regulations is described in the AP1000 FSER. Costs are not a consideration in the NRC's SE, i.e., the design is required to meet all regulations regardless of cost. In contrast, the scope and focus of the SAMDA review within the EA is on potential means by which plant risk can be further reduced. Costs are a legitimate consideration in this assessment, since the objective is to identify significant and practical improvements in plant design that do not impact excessively on the plant cost.

**B. Design Control Document (DCD).**

*Comment summary.* There is an over-reliance on passive systems in the AP1000.

*Response.* The NRC disagrees with this comment. The NRC required tests of the new passive safety systems to demonstrate that they will perform as predicted in the safety analysis (see Chapter 21 of the AP1000 FSER). The NRC also required higher availability for certain active backup systems to compensate for any remaining uncertainties in the performance of the passive safety systems (see Chapter 22 of the AP1000 FSER). As a result of these reviews, the NRC concluded that the use of passive safety systems in the AP1000 design is acceptable.

*Comment summary.* The AP1000 is an unnecessary and unsafe variation on AP600.

*Response.* The NRC does not determine which designs are necessary for future deployment. The NRC has determined that the AP1000 design can be built and operated safely (see AP1000 FSER).

*Comment summary.* The AP1000 DCD referenced in the proposed rule does not meet the requirement of 10 CFR part 52 that the plant design be complete except for site-specific elements and other specific exemptions.

*Response.* The NRC disagrees with this comment. The requirement for a complete scope of design [§ 52.47(b)(2)(i)(A)(4)] was met by the applicant (see discussion in section 1.2.1 of AP1000 FSER). The comment appears to be directed at the requirement for level of design information [§ 52.47(a)(2)], which was also met by the applicant (see discussion in section 1.5 of AP1000 FSER).

*Comment summary.* The appropriateness of the process used to derive the AP1000 design from the AP600 design has not been given sufficient attention in the NRC's review.

*Response.* The comment applies to the NRC's review of the applicant's quality assurance (QA) program. In its application for design certification of the AP1000 plant, Westinghouse stated that a continuous QA program spanning the AP600 design and the AP1000 design has been used. Since March 31, 1996, activities affecting the quality of items and services for the AP1000 project during design, procurement, fabrication, inspection, and/or testing have been performed in accordance with the quality plan described in "Westinghouse Energy Systems Business Unit - Quality Management System." The Quality Management System (QMS) establishes design control measures for preparing, reviewing, and approving design documentation for safety-related structures, systems, and components (SSCs). As documented in an NRC evaluation letter, dated February 23, 1996, from S. Black (NRC) to

N. J. Liparulo, the Westinghouse QMS was reviewed by the NRC and found to meet the requirements of 10 CFR part 50, appendix B. Subsequent revisions to the QMS have also been reviewed by the NRC and found to be acceptable. To provide additional assurance that Westinghouse implemented the measures described in the QMS, the NRC staff performed a QA implementation inspection at the Westinghouse engineering offices in Monroeville, Pennsylvania, which was documented in NRC Inspection Report No. 99900404/03-01, dated November 4, 2003 (ADAMS Accession No. ML033090510). Therefore, the NRC concludes that the applicant's QA program for the AP1000 design was acceptable.

*Comment summary.* The decision by the NRC not to require that Westinghouse build and test a prototype for the automatic depressurization system (ADS) 4$^{th}$ stage squib valve was made under pressure of the accelerated AP1000 schedule.

*Response.* The NRC disagrees that the AP1000 schedule affected the decision not to require Westinghouse to build and test a prototype for the ADS 4$^{th}$ stage squib valve. The need for a prototype test was evaluated by the NRC staff during the AP1000 design review and the ability to design and build the ADS valve for AP1000 was discussed with the Advisory Committee on Reactor Safeguards (ACRS) at its Future Plant Subcommittee meeting on July 17-18, 2003. In addition, in a letter to ACRS dated May 18, 2004, the NRC staff stated that the ADS-4 squib valves will be designed, constructed, and tested in accordance with Section III of the Boiler and Pressure Vessel Code promulgated by the American Society of Mechanical Engineers and are actuated by redundant and diverse instrumentation and control systems. The staff also performed a sensitivity study by increasing the failure probability and the common- cause failure probability of the ADS-4 squib valves by an order of magnitude. This sensitivity study indicated that the CDF increased by only a factor of three and was not large

enough to impact the probabilistic risk assessment (PRA) conclusions and insights about the AP1000 design.

*Comment summary.* The effect of heat of solar radiation on the performance of the AP1000 passive containment cooling system (PCS) has not been resolved.

*Response.* The comment states that geographical latitude ought to be a site parameter, unless it can be shown that the PCS is effective at all geographical latitudes, even when heat of solar radiation is taken into account. The NRC disagrees with these comments. The site parameters for the AP1000 design include minimum and maximum air temperatures (see DCD Table 2-1). The safety maximum temperature is 115 EF, which is based on historical site data and excludes peaks of less than 2-hour durations.

The operational limits for the AP1000 containment include a technical specification (TS) limit on the temperature of the air inside containment, TS 3.6.5, "Containment Air Temperature," of less than or equal to 120 EF. In addition, there is a TS limit on the temperature of the water in the PCS storage tank, TS 3.6.6, "Passive Containment Cooling System - Operating," of greater than or equal to -40 EF and less than or equal to 120 EF. If the water temperature is at or below 50 EF, or at or above 100 EF, the surveillance frequency to check the temperature is reduced from 7 days to 24 hours. The operational limits and the site parameters provide reasonable assurance that the AP1000 can be operated without undue risk to the public health and safety. Conservative evaluations of the potential effect of solar radiation on the operation and performance of the AP1000 PCS show that the AP1000 TS provide reasonable assurance that off normal conditions can be detected and appropriate actions taken to preclude operations outside the current design-base assumptions. Based on the estimated time needed to exceed the current operational temperature limits, 10 days of uninterrupted extreme environmental

conditions, it is reasonable to conclude that the AP1000 operational limits will not be exceeded even for sites with high solar radiation. In the unlikely event that the shield building might heat up, a containment response analysis showed the pressure increase to be small, 0.75 pounds per square inch (psi), and based on the current margin of 1.2 psi (DCD Table 6.2.1.1-1), the design pressure limit of 73.7 pounds per square inch absolute (psia) would not be exceeded. Therefore, the effect of heat of solar radiation on the performance of the PCS has been resolved.

*Comment summary.* The accelerated schedule for the AP1000 led to cutting regulatory corners and was further accelerated by granting the FDA before the FSER was made available to the public.

*Response.* This comment was supported by the two previous comments. The NRC disagrees with this comment. In a letter to Mr. W. E. Cummins (Westinghouse), dated July 12, 2002, the NRC provided an expected schedule for the AP1000 review, which was significantly shorter than previous design certification rulemakings. The shorter schedule was due to expected efficiencies that would be gained as a result of the similarities between the AP600 and AP1000 designs. Also, the AP1000 FSER was made available to the public on September 20, 2004, which was the same day that the FDA was made available to the public.

**C. Design Certification Rule.**

It is the Commission's goal to maintain as much consistency as possible in the rule language for all of the DCRs. Many of the following comments from NEI appear to be applicable to all of the DCRs and some are redundant with comments previously submitted by NEI on the 2003 proposed rule for updating part 52.

*Comment Summary.* NEI recommends that Section III.B of the Supplementary Information be revised to delete the phrase "not just incorporate by reference."

*Response.* The NRC disagrees with this request. The NRC does agree that the plant-specific DCD should be part of the final safety analysis report (FSAR) for a combined license (COL) application. The NRC believes that the generic DCD should also be part of the FSAR, not just incorporated by reference, in order to facilitate the NRC staff's review of any departures or exemptions. However, any changes made to existing DCRs in the ongoing part 52 rulemaking with respect to this issue would also be made to the AP1000 DCR.

*Comment Summary.* NEI recommends clarification of the review status of "operational requirements" in Section III.F of the Supplementary Information.

*Response.* The NRC agrees that the special backfit provisions of § 52.63 do not apply to operational requirements in the DCD. However, the NRC believes that the discussion in Section III.F of the Supplementary Information accurately states the review status of operational requirements and does not need to be revised.

*Comment Summary.* NEI recommends modification of the definition of generic TS in Section II.B of the AP1000 DCR.

*Response.* The NRC disagrees with this comment. Because the generic TS contain values in brackets, the NRC stated in the Supplementary Information that the values in brackets are neither part of the DCR nor are they binding. The NRC believes that amending the definition of generic TS is not necessary and also wants to maintain consistent rule language for all DCRs.

*Comment Summary.* NEI recommends replacement of the term "investment protection" in Section II.E of the AP1000 DCR and elsewhere in the DCD by the term "non-safety-related severe accident equipment." In addition, NEI recommends that the DCR and Supplementary Information be revised so that bracketed information in the investment protection short-term availability controls will be treated like bracketed information in generic TS.

*Response.* Use of the term "investment protection short-term availability controls" was requested by the applicant (Westinghouse Electric Company, LLC) and was also used in the AP600 DCR. The NRC disagrees with NEI's request to change this terminology. Furthermore, the origin of investment protection short-term availability controls comes from implementing the regulatory treatment of non-safety systems process, which typically results in requirements to achieve higher reliability for certain active, non-safety systems. These systems are not limited to severe accident design features. Therefore, even if the NRC agreed to a generic change to the term "investment protection," the proposed term "non-safety-related severe accident equipment" would not be an acceptable replacement.

The NRC agrees that the bracketed values in the investment protection short-term availability controls have the same status as the bracketed values in the generic TS. As a

result, NRC amended the discussion in Section III.H of the Supplementary Information to refer to the availability controls.

*Comment Summary.* NEI recommends that the phrase "or licensees" be deleted from the rule language in Section VIII.C.2 of the AP1000 DCR.

*Response.* The NRC agrees with this comment and Section VIII.C.2 of the DCR has been amended as suggested by NEI. The Commission will consider amending the other DCRs to adopt the language recommended by NEI as part of the ongoing part 52 rulemaking.

*Comment Summary.* NEI recommends amending the rule language in Section VIII.C.6 of the AP1000 DCR to delete the requirement that plant-specific TS be treated as license amendments.

*Response.* The NRC disagrees with this request. The requirement that changes to the plant-specific TS be treated as license amendments is correct. It is unlikely that the Commission will adopt NEI's proposed change for the other DCRs in the ongoing part 52 rulemaking. However, if the Commission does decide in the ongoing part 52 rulemaking to clarify this issue for the other DCRs, then it will also as part of that rulemaking clarify the AP1000 DCR accordingly.

*Comment Summary.* NEI recommends amending the rule language in Section IX.B.1 of the AP1000 DCR to restore the phrase "based solely thereon."

*Response.* The NRC agrees to amend Section IX.B.1 of the AP1000 DCR, in order to make all of the DCRs consistent. However, the NRC notes that inclusion of the phrase "based solely thereon," does not change the meaning of Section IX.B.1. The determination of

inspection, test, analysis, and acceptance criteria (ITAAC) completion will always be based on information that is material to the acceptance criteria.

*Comment Summary.* NEI recommends amending the rule language in Section X.A.1 of the AP1000 DCR to require the design certification applicant to include all generic changes to the generic TS and other operational requirements in the generic DCD.

*Response.* The NRC agrees with this comment and Section X.A.1 of the AP1000 DCR has been amended as suggested by NEI. The Commission will consider amending the other DCRs to adopt the language recommended by NEI as part of the ongoing part 52 rulemaking.

*Comment Summary.* NEI recommends that Sections IV.A.2 and IV.A.3 of the AP1000 DCR be amended to be consistent with respect to inclusion of information in the plant-specific DCD or explain the difference between the terms “include” and “physically include” in the Supplementary Information.

*Response.* The NRC agrees that use of the terms “include” and “physically include” in Section IV.A should be clarified. The Commission will consider amending all of the DCRs to clarify this issue as part of the ongoing part 52 rulemaking.

*Comment Summary.* NEI recommends amending the definition of Tier 2 in Section II.E.1 of the AP1000 DCR to exclude the design-specific PRA and the evaluation of SAMDAs.

*Response.* The NRC agrees with this comment and Section II.E.1 of the AP1000 DCR has been amended as suggested by NEI. We note that this same comment was submitted by NEI on the 2003 proposed rule for updating part 52. The Commission will consider amending

the other DCRs to adopt the language recommended by NEI as part of the ongoing part 52 rulemaking.

*Comment Summary.* NEI recommends amending the rule language in Section III.E of the AP1000 DCR to use the terminology for "site characteristics" consistently.

*Response.* The NRC agrees with this comment and Section III.E of the AP1000 DCR has been amended to be consistent with the other DCRs in the proposed part 52 rule. We note that this same comment was submitted by NEI on the 2003 proposed rule for updating part 52.

*Comment Summary.* NEI recommends clarifying the rule language in Section IV.A.2 of the AP1000 DCR regarding "same" information and "generic DCD."

*Response.* The NRC agrees with this comment and Section IV.A.2 of the AP1000 DCR has been amended to be consistent with the other DCRs in the proposed part 52 rule. We note that this same comment was submitted by NEI on the 2003 proposed rule for updating part 52.

*Comment Summary.* NEI recommends amending Section VIII.B.6.a of the AP1000 DCR to be consistent with Section VI.B.5 regarding plant-specific departures.

*Response.* The NRC disagrees with this request. It was determined during the first two design certification rulemakings that departures from Tier 2* information would not receive finality or be treated as a resolved issue within the meaning of Section VI of the DCR. We note that this same comment was submitted by NEI on the 2003 proposed rule for updating part 52. It is unlikely that the Commission will adopt NEI's proposed language for the other DCRs in the ongoing part 52 rulemaking. However, if the Commission does decide in the ongoing part 52 rulemaking to adopt NEI's proposed language for the other DCRs, then it will also as part of that rulemaking amend the AP1000 DCR accordingly.

*Comment Summary.* NEI recommends amending Section VIII.C.3 of the AP1000 DCR to require the NRC to meet the backfit requirements of § 50.109 in addition to the special circumstances in § 2.758(b) for plant-specific departures from operational requirements.

*Response.* The NRC disagrees with this request. In the first two design certification rulemakings, the Commission decided on different standards for changes made under Section VIII.C (see the discussion at 62 FR 25800). We note that this same comment was submitted by NEI on the 2003 proposed rule for updating part 52. It is unlikely that the Commission will adopt NEI's proposed language for the other DCRs in the ongoing part 52 rulemaking. However, if the Commission does decide in the ongoing part 52 rulemaking to adopt NEI's proposed language for the other DCRs, then it will also as part of that rulemaking amend the AP1000 DCR accordingly.

*Comment Summary.* NEI recommends amending Section VIII.C.4 of the AP1000 DCR to revise the standards for making changes to operational requirements.

*Response.* The NRC disagrees with this request. In the first two DCRs, the Commission decided on different standards for changes made under Section VIII.C (see the discussion at 62 FR 25800). In addition, the Commission determined that exemptions from operational requirements would not receive finality or be treated as a resolved issue within the meaning of Section VI of the DCR. We note that this same comment was submitted by NEI on the 2003 proposed rule for updating part 52. It is unlikely that the Commission will adopt NEI's proposed language for the other DCRs in the ongoing part 52 rulemaking. However, if the Commission does decide in the ongoing part 52 rulemaking to adopt NEI's proposed language for the other DCRs, then it will also as part of that rulemaking amend the AP1000 DCR accordingly.

*Comment Summary.* NEI recommends amending Section IX.B.1 of the AP1000 DCR to specify the type of action to be performed by the NRC staff regarding ITAAC.

*Response.* The NRC disagrees with this request and has decided to maintain the original rule language for this provision, because it does not believe that individual DCRs should address the scope of the NRC staff's activities with respect to ITAAC verification. This is a generic matter that, if it is to be addressed in a rulemaking, is more appropriate for inclusion in subpart C of part 52 dealing with combined licenses generally.

We note that this same comment was submitted by NEI on the 2003 proposed rule for updating part 52. It is unlikely that the Commission will adopt NEI's proposed language for the other DCRs in the ongoing part 52 rulemaking. However, if the Commission does decide in the ongoing part 52 rulemaking to adopt NEI's proposed language for the other DCRs, then it will also as part of that rulemaking amend the AP1000 DCR accordingly.

*Comment Summary.* NEI recommends amending Section IX.B.3 of the AP1000 DCR to clarify the rule language.

*Response.* The NRC disagrees with this editorial request and has decided to maintain the original rule language for this provision. We note that this same comment was submitted by NEI on the 2003 proposed rule for updating part 52. It is unlikely that the Commission will adopt NEI's proposed language for the other DCRs in the ongoing part 52 rulemaking. However, if the Commission does decide in the ongoing part 52 rulemaking to adopt NEI's proposed language for the other DCRs, then it will also as part of that rulemaking amend the AP1000 DCR accordingly.

*Comment Summary.* NEI recommends amending Sections X.B.1 and X.B.3 of the AP1000 DCR to clarify the rule language regarding DCDs.

*Response.* The NRC agrees with this comment and Section X.B of the AP1000 DCR has been amended to be consistent with the other DCRs in the proposed part 52 rule. We note that this same comment was submitted by NEI on the 2003 proposed rule for updating part 52 and the Commission intends to amend the existing DCRs to make them consistent with the AP1000.

**III. Section-by-Section Analysis.**

The following discussion sets forth the purpose and key aspects of each section and paragraph of the final AP1000 DCR. All section and paragraph references are to the provisions in appendix D to 10 CFR part 52. The final DCR for the AP1000 standard plant design is nearly identical to the AP600 DCR, which the NRC previously codified in 10 CFR part 52, appendix C (Design Certification Rule for the AP600 Design, 64 FR 72015, December 23, 1999). Many of the procedural issues and their resolutions for the AP600 DCR (e.g., the two-tier structure, Tier 2*, the scope of issue resolution) were developed after extensive discussions with public stakeholders, including Westinghouse. Also, Westinghouse requested that policy resolutions for the AP600 design review be applied to the AP1000. Accordingly, the NRC has modeled the AP1000 DCR on the existing DCRs, with certain departures. These departures are necessary to account for differences in the AP1000 design documentation, design features, and environmental assessment (including SAMDAs).

**A. Introduction.**

The purpose of Section I of Appendix D to 10 CFR part 52 ("this appendix") is to identify the standard plant design that is approved by this DCR and the applicant for certification of the standard design. Identification of the design certification applicant is necessary to implement this appendix, for two reasons. First, the implementation of 10 CFR 52.63(c) depends on whether an applicant for a COL contracts with the design certification applicant to provide the generic DCD and supporting design information. If the COL applicant does not use the design certification applicant to provide this information, then the COL applicant must meet the requirements in 10 CFR 52.63(c). Also, paragraph X.A.1 of this appendix requires the design certification applicant to maintain the generic DCD throughout the time period in which this appendix may be referenced.

**B. Definitions.**

During development of the first two DCRs, the Commission decided that there would be both generic (master) DCDs maintained by the NRC and the design certification applicant, as well as individual plant-specific DCDs maintained by each applicant and licensee that references this appendix. This distinction is necessary in order to specify the plant-specific requirements applicable to applicants and licensees referencing the appendix. The master DCDs would include generic changes to the version of the DCD approved in this design certification rulemaking. These changes would occur as the result of generic rulemaking by the Commission, in accordance with the change criteria in Section VIII of this appendix. In addition, the Commission requires that each applicant and licensee referencing this appendix submit and maintain a plant-specific DCD.

This plant-specific DCD would contain (not just incorporate by reference) the information in the generic DCD. The plant-specific DCD would be updated as necessary to reflect the generic changes to the DCD that the Commission may adopt through rulemaking, any plant-specific departures from the generic DCD that the Commission imposed on the licensee by order, and any plant-specific departures that the licensee chooses to make in accordance with the relevant processes in Section VIII of this appendix. Thus, the plant-specific DCD would function like an updated FSAR because it would provide the most complete and accurate information on a plant's licensing basis for that part of the plant within the scope of this appendix. Therefore, this appendix would define both a generic DCD and a plant-specific DCD.

Also, the Commission decided to treat the TS in Section 16.1 of the generic DCD as a special category of information and to designate them as generic TS in order to facilitate the special treatment of this information under this appendix. A COL applicant must submit plant-specific TS that consist of the generic TS, which may be modified under paragraph VIII.C of this appendix, and the remaining plant-specific information needed to complete the TS. The FSAR that is required by § 52.79(b) will consist of the plant-specific DCD, the site-specific portion of the FSAR, and the plant-specific TS.

The terms Tier 1, Tier 2, Tier 2*, and COL action items (license information) are defined in this appendix because these concepts were not envisioned when 10 CFR part 52 was developed. The design certification applicants and the NRC used these terms in implementing the two-tiered rule structure that was proposed by representatives of the nuclear industry after issuance of 10 CFR part 52. Therefore, appropriate definitions for these additional terms are included in this appendix. The nuclear industry representatives requested a two-tiered structure for the DCRs to achieve issue preclusion for a greater amount of information than was originally planned for the DCRs, while retaining flexibility for design implementation. The Commission approved the use of a two-tiered rule structure in its staff requirements memorandum (SRM),

dated February 14, 1991, on SECY-90-377, “Requirements for Design Certification Under 10 CFR Part 52,” dated November 8, 1990. This document and others are available in the Regulatory History of Design Certification (see Section IV, Availability of Documents).

The Tier 1 portion of the design-related information contained in the DCD is certified by this appendix and, therefore, is subject to the special backfit provisions in paragraph VIII.A of this appendix. An applicant who references this appendix is required to incorporate by reference and comply with Tier 1, under paragraphs III.B and IV.A.1 of this appendix. This information consists of an introduction to Tier 1, the system based and non-system based design descriptions and corresponding ITAAC, significant interface requirements, and significant site parameters for the design. The design descriptions, interface requirements, and site parameters in Tier 1 were derived from Tier 2, but may be more general than the Tier 2 information. The NRC staff's evaluation of the Tier 1 information is provided in Section 14.3 of the FSER. Changes to or departures from the Tier 1 information must comply with Section VIII.A of this appendix.

The Tier 1 design descriptions serve as commitments for the lifetime of a facility referencing the design certification. The ITAAC verifies that the as-built facility conforms with the approved design and applicable regulations. Under 10 CFR 52.103(g), the Commission must find that the acceptance criteria in the ITAAC are met before authorizing operation. After the Commission has made the finding required by 10 CFR 52.103(g), the ITAAC do not constitute regulatory requirements for licensees or for renewal of the COL. However, subsequent modifications to the facility must comply with the design descriptions in the plant-specific DCD unless changes are made in accordance with the change process in Section VIII of this appendix. The Tier 1 interface requirements are the most significant of the interface requirements for systems that are wholly or partially outside the scope of the standard design. Tier 1 interface requirements were submitted in response to 10 CFR 52.47(a)(1)(vii)

and must be met by the site-specific design features of a facility that references this appendix. An application that references this appendix must demonstrate that the site parameters (both Tier 1 and Tier 2) are met at the proposed site (refer to paragraph III.D).

Tier 2 is the portion of the design-related information contained in the DCD that is approved by this appendix but not certified. Tier 2 information is subject to the backfit provisions in paragraph VIII.B of this appendix. Tier 2 includes the information required by 10 CFR 52.47 (with the exception of generic TS, conceptual design information, and the evaluation of SAMDAs) and the supporting information on inspections, tests, and analyses that will be performed to demonstrate that the acceptance criteria in the ITAAC have been met. As with Tier 1, paragraphs III.B and IV.A.1 of this appendix require an applicant who references this appendix to incorporate Tier 2 by reference and to comply with Tier 2, except for the COL action items, including the investment protection short-term availability controls in Section 16.3 of the generic DCD. The definition of Tier 2 makes clear that Tier 2 information has been determined by the Commission, by virtue of its inclusion in this appendix and its designation as Tier 2 information, to be an approved sufficient method for meeting Tier 1 requirements. However, there may be other acceptable ways of complying with Tier 1. The appropriate criteria for departing from Tier 2 information are specified in paragraph VIII.B of this appendix. Departures from Tier 2 do not negate the requirement in paragraph III.B to reference Tier 2.

A definition of "combined license action items" (COL information), which is part of the Tier 2 information, has been added to clarify that COL applicants who reference this appendix are required to address COL action items in their license application. However, the COL action items are not the only acceptable set of information. An applicant may depart from or omit COL action items, provided that the departure or omission is identified and justified in the FSAR. After issuance of a construction permit or COL, these items are not requirements for the licensee unless they are restated in the FSAR. For additional discussion, see Section D.

The investment protection short-term availability controls, which are set forth in Section 16.3 of the generic DCD, were added to the information that is part of Tier 2 to make it clear that the availability controls are not operational requirements for the purposes of paragraph VIII.C of this appendix. Rather, the availability controls are associated with specific design features. The availability controls may be changed if the associated design feature is changed under paragraph VIII.B of this appendix. For additional discussion, see Section C.

Certain Tier 2 information has been designated in the generic DCD with brackets and italicized text as "Tier 2*" information and, as discussed in greater detail in the section-by-section explanation for Section H, a plant-specific departure from Tier 2* information requires prior NRC approval. However, the Tier 2* designation expires for some of this information when the facility first achieves full power after the finding required by 10 CFR 52.103(g). The process for changing Tier 2* information and the time at which its status as Tier 2* expires is set forth in paragraph VIII.B.6 of this appendix. Some Tier 2* requirements concerning special pre-operational tests are designated to be performed only for the first plant or first three plants referencing the AP1000 DCR. The Tier 2* designation for these selected tests will expire after the first plant or first three plants complete the specified tests. However, a COL action item requires that subsequent plants also perform the tests or justify that the results of the first-plant-only or first-three-plants-only tests are applicable to the subsequent plant.

In an earlier rulemaking (64 FR 53582; October 4, 1999), the Commission revised 10 CFR 50.59 to incorporate new thresholds for permitting changes to a plant as described in the FSAR without NRC approval. For consistency and clarity, the Commission proposes to use these new thresholds in the proposed AP1000 DCR. Inasmuch as § 50.59 is the primary change mechanism for operating nuclear plants, the Commission believes that future plants referencing the AP1000 DCR should utilize thresholds as close to § 50.59 as is practicable and appropriate. Because of some differences in how the change control requirements are

structured in the DCRs, certain definitions contained in § 50.59 are not applicable to 10 CFR part 52 and are not being included in this rule. One definition that the Commission is including is the definition from the new § 50.59 for a "departure from a method of evaluation," (paragraph II.G), which is appropriate to include in this rulemaking so that the eight criteria in paragraph VIII.B.5.b of the final rule will be implemented as intended.

**C. Scope and Contents.**

The purpose of Section III of this DCR is to describe and define the scope and contents of this design certification and to set forth how documentation discrepancies or inconsistencies are to be resolved. Paragraph A is the required statement of the Office of the *Federal Register* (OFR) for approval of the incorporation by reference of Tier 1, Tier 2, and the generic TS into this appendix. Paragraph B requires COL applicants and licensees to comply with the requirements of this appendix. The legal effect of incorporation by reference is that the incorporated material has the same legal status as if it were published in the *Code of Federal Regulations*. This material, like any other properly-issued regulation, has the force and effect of law. Tier 1 and Tier 2 information, as well as the generic TS, have been combined into a single document called the generic DCD, in order to effectively control this information and facilitate its incorporation by reference into the rule. The generic DCD was prepared to meet the requirements of the OFR for incorporation by reference (10 CFR part 51). One of the requirements of the OFR for incorporation by reference is that the design certification applicant must make the generic DCD available upon request after the final rule becomes effective. Therefore, paragraph III.A of this appendix identifies a Westinghouse representative to be contacted in order to obtain a copy of the generic DCD.

Paragraphs A and B also identify the investment protection short-term availability controls in Section 16.3 of the generic DCD as part of the Tier 2 information. During its review of the AP1000 design, the NRC determined that residual uncertainties associated with passive safety system performance increased the importance of non-safety-related active systems in providing defense-in-depth functions that back-up the passive systems. As a result, Westinghouse developed administrative controls to provide a high level of confidence that active systems having a significant safety role are available when challenged. Westinghouse named these additional controls "investment protection short-term availability controls." The Commission included this characterization in Section III to ensure that these availability controls are binding on applicants and licensees that reference this appendix and will be enforceable by the NRC. The NRC's evaluation of the availability controls is provided in Chapter 22 of the FSER.

The generic DCD (master copy) for this design certification will be electronically accessible in NRC's Agencywide Documents Access and Management System (ADAMS) and at the OFR. Copies of the generic DCD will also be available at the NRC's Public Document Room (PDR). Questions concerning the accuracy of information in an application that references this appendix will be resolved by checking the master copy of the generic DCD in ADAMS. If a generic change (rulemaking) is made to the DCD by the change process provided in Section VIII of this appendix, then at the completion of the rulemaking the NRC would request approval of the Director, OFR, for the changed incorporation by reference and change its copies of the generic DCD and notify the OFR and the design certification applicant to change their copies. The Commission is requiring that the design certification applicant maintain an up-to-date copy under paragraph X.A.1 of this appendix because it is likely that most applicants intending to reference the standard design will obtain the generic DCD from the design certification applicant. Plant-specific changes to and departures from the generic DCD

will be maintained by the applicant or licensee that references this appendix in a plant-specific DCD under paragraph X.A.2 of this appendix.

In addition to requiring compliance with this appendix, paragraph B clarifies that the conceptual design information and Westinghouse's evaluation of SAMDAs are not considered to be part of this appendix. The conceptual design information is for those portions of the plant that are outside the scope of the standard design and are contained in Tier 2 information. As provided by 10 CFR 52.47(a)(1)(ix), these conceptual designs are not part of this appendix and, therefore, are not applicable to an application that references this appendix. Therefore, the applicant is not required to conform with the conceptual design information that was provided by the design certification applicant. The conceptual design information, which consists of site-specific design features, was required to facilitate the design certification review. Conceptual design information is neither Tier 1 nor Tier 2. Section 1.8 of Tier 2 identifies the location of the conceptual design information. Westinghouse's evaluation of various design alternatives to prevent and mitigate severe accidents does not constitute design requirements. The Commission's assessment of this information is discussed in Section VII of this Statement of Consideration (SOC) on environmental impacts.

Paragraphs C and D set forth the manner in which potential conflicts are to be resolved. Paragraph C establishes the Tier 1 description in the DCD as controlling in the event of an inconsistency between the Tier 1 and Tier 2 information in the DCD. Paragraph D establishes the generic DCD as the controlling document in the event of an inconsistency between the DCD and the FSER for the certified standard design.

Paragraph E makes it clear that design activities that are wholly outside the scope of this design certification may be performed using site-specific design parameters, provided the design activities do not affect Tier 1 or Tier 2, or conflict with the interface requirements in the DCD. This provision applies to site-specific portions of the plant, such as the administration

building. Because this statement is not a definition, this provision has been located in Section III of this appendix.

**D. Additional Requirements and Restrictions.**

Section IV of this appendix sets forth additional requirements and restrictions imposed upon an applicant who references this appendix. Paragraph IV.A sets forth the information requirements for these applicants. This appendix distinguishes between information and/or documents which must actually be included in the application or the DCD, versus those which may be *incorporated by reference* (i.e., referenced in the application as if the information or documents were included in the application). Any incorporation by reference in the application should be clear and should specify the title, date, edition, or version of a document, the page number(s), and table(s) containing the relevant information to be incorporated.

Paragraph A.1 requires an applicant who references this appendix to incorporate by reference this appendix in its application. The legal effect of such an incorporation by reference is that this appendix is legally binding on the applicant or licensee. Paragraph A.2.a requires that a plant-specific DCD be included in the initial application. This ensures that the applicant commits to complying with the DCD. This paragraph also requires that the plant-specific DCD uses the same format as the generic DCD and reflects the applicant's proposed departures and exemptions from the generic DCD as of the time of submission of the application. The Commission expects that the plant-specific DCD will become the plant's FSAR, by including information, i.e., site-specific information, for the portions of the plant outside the scope of the referenced design, including related ITAAC, and other matters required to be included in an FSAR by 10 CFR 50.34 and 52.79. Integration of the plant-specific DCD and remaining

site-specific information into the plant's FSAR, will result in an application that is easier to use and should minimize "duplicate documentation" and the attendant possibility for confusion. Paragraph A.2.a also requires that the initial application include the reports on departures and exemptions as of the time of submission of the application.

Paragraph A.2.b requires that an application referencing this appendix include the reports required by paragraph X.B of this appendix for exemptions and departures proposed by the applicant as of the date of submission of its application. Paragraph A.2.c requires submission of plant-specific TS for the plant that consists of the generic TS from Section 16.1 of the DCD, with any changes made under paragraph VIII.C of this appendix, and the TS for the site-specific portions of the plant that are either partially or wholly outside the scope of this design certification. The applicant must also provide the plant-specific information designated in the generic TS, such as bracketed values.

Paragraph A.2.d requires the applicant referencing this appendix to provide information demonstrating that the proposed site falls within the site parameters for this appendix and that the plant-specific design complies with the interface requirements, as required by 10 CFR 52.79(b). If the proposed site has a characteristic that exceeds one or more of the site parameters in the DCD, then the proposed site is unacceptable for this design unless the applicant seeks an exemption under Section VIII of this appendix and provides adequate justification for locating the certified design on the proposed site. Paragraph A.2.e requires submission of information addressing COL action items, identified in the generic DCD as COL information in the application. The COL information identifies matters that need to be addressed by an applicant who references this appendix, as required by subpart C of 10 CFR part 52. An applicant may depart from or omit these items, provided that the departure or omission is identified and justified in its application (FSAR). Paragraph A.2.f requires that the application include the information specified by 10 CFR 52.47(a) that is not within the scope of

this rule, such as generic issues that must be addressed, in whole or in part, by an applicant that references this rule. Paragraph A.3 requires the applicant to physically include, not simply reference, the proprietary and safeguards information referenced in the DCD, or its equivalent, to ensure that the applicant has actual notice of these requirements.

Paragraph IV.B reserves to the Commission the right to determine in what manner this DCR may be referenced by an applicant for a construction permit or operating license under 10 CFR part 50. This determination may occur in the context of a subsequent rulemaking modifying 10 CFR part 52 or this design certification rule, or on a case-by-case basis in the context of a specific application for a 10 CFR part 50 construction permit or operating license. This provision is necessary because the previous DCRs were not implemented in the manner that was originally envisioned at the time that 10 CFR part 52 was promulgated. The Commission's concern is with the way ITAAC were developed and the lack of experience with design certifications in license proceedings. Therefore, it is appropriate that the Commission retain some discretion regarding the way this appendix could be referenced in a 10 CFR part 50 licensing proceeding.

**E. Applicable Regulations.**

The purpose of Section V of this appendix is to specify the regulations that were applicable and in effect at the time this design certification was approved. These regulations consist of the technically relevant regulations identified in paragraph A, except for the regulations in paragraph B that are not be applicable to this certified design.

Paragraph A identifies the regulations in 10 CFR parts 20, 50, 73, and 100 that are applicable to the AP1000 design. After the NRC staff issued its FSER for the AP1000 design

(NUREG-1793, September 2004), the Commission amended several existing regulations and adopted new regulations. The Commission reviewed these regulations to determine if they are applicable to this design and, if so, to determine if the design meets these regulations. The Commission finds that these regulations are not applicable to the AP1000 design, except for the update to 10 CFR 50.55a, as discussed below. The Commission's determination of the applicable regulations was made as of the date specified in paragraph V.A of this appendix, which is the date that this appendix was approved by the Commission and signed by the Secretary of the Commission.

10 CFR Part 50, Industry Codes and Standards; Amended Requirements (69 FR 58804; October 1, 2004).

This amendment to 10 CFR 50.55a incorporates by reference more recent editions and addenda of the American Society of Mechanical Engineers Boiler and Pressure Vessel Code (ASME Code) and the ASME Code for Operation and Maintenance of Nuclear Power Plants. The amended requirements in 10 CFR 50.55a apply to both design and operation of nuclear plants.

The requirements that apply to the AP1000 design [10 CFR 50.55a(a)(2)] are addressed in the exemption discussion below. The other amended requirements in 10 CFR 50.55a, e.g., inservice inspection and testing, are not applicable to either NRC issuance of design certification or applicants for design certification.

In paragraph V.B of this appendix, the Commission identified the regulations that do not apply to the AP1000 design. The Commission has determined that the AP1000 design should be exempt from portions of 10 CFR 50.34, 50.55a, 50.62, and Appendix A to part 50, as described in the FSER (NUREG-1793) and Supplement No. 1:

*(1) Paragraph (f)(2)(iv) of 10 CFR 50.34 - Plant Safety Parameter Display Console.*

Under 10 CFR 52.47(a)(ii), an applicant for design certification must demonstrate compliance with any technically relevant Three Mile Island (TMI) requirements in 10 CFR 50.34(f). The requirement in 10 CFR 50.34(f)(2)(iv) states that an application must provide a plant safety parameter display console that will display a minimum set of parameters defining the safety status of the plant, be capable of displaying a full range of important plant parameters and data trends on demand, and be capable of indicating when process limits are being approached or exceeded. Westinghouse addresses this requirement, in Section 18.8.2 of the DCD, with an integrated design rather than a stand-alone, add-on system, as is used at most current operating plants. Specifically, Westinghouse integrated the safety parameter display system (SPDS) requirements into the design requirements for the alarm and display systems. The NRC staff has determined that the function of a separate SPDS may be integrated into the overall control room design. Therefore, the Commission has determined that the special circumstances for allowing an exemption as described in 10 CFR 50.12(a)(2)(ii) exist because the requirement for an SPDS console need not be applied in this particular circumstance to achieve the underlying purpose because Westinghouse has provided an acceptable alternative that accomplishes the intent of the regulation. On this basis, the Commission concludes that an exemption from the requirements of 10 CFR 50.34(f)(2)(iv) is authorized by law, will not present an undue risk to public health and safety, and is consistent with the common defense and security.

*(2) Paragraph (a)(2) of 10 CFR 50.55a - ASME Boiler and Pressure Vessel Code.*

This regulation mandates that the AP1000 design meet the addenda and edition of the ASME Code specified in paragraph (b)(1) of 10 CFR 50.55a. The NRC recently amended the version of the ASME Code that is incorporated by reference in paragraph (b)(1), as discussed above.

For the AP1000 standard plant, Westinghouse designed the ASME Code Class 1, 2, and 3 components to the 1998 Edition of the ASME Code, Section III (including the 2000 Addenda with certain limitations), as discussed in Section 5.2.1.1 of the AP1000 DCD. However, the amended design requirements incorporate by reference the 2001 Edition up to and including the 2002 and 2003 Addenda to the ASME Code, Section III, Division 1. The NRC concluded in its FSER (NUREG-1793) that the use of the 1998 Edition (including the 2000 Addenda with certain limitations as discussed in Section 5.2.1.1 of the DCD) for the design of the ASME Code Class 1, 2, and 3 components in the AP1000 plant meets the requirements of 10 CFR 50.55a. The Commission has determined that the special circumstances described in 10 CFR 50.12(a)(2)(iii) exist in that the 1998 Edition provides an acceptable level of safety that ensures adequate protection to public health and safety, and that the benefits of redesigning the AP1000 standard plant to meet the 2001 Edition and 2002 and 2003 Addenda of the ASME Code, Section III, Division 1, are outweighed by the substantial costs and delays that redesign would entail at this late date. On this basis, the Commission concludes that an exemption from the requirements of 10 CFR 50.55a(a)(2) is authorized by law, will not present an undue risk to public health and safety, and is consistent with the common defense and security.

*(3) Paragraph (c)(1) of 10 CFR 50.62 - Auxiliary feedwater system.*

The AP1000 design relies on the passive residual heat removal system (PRHR) in lieu of an auxiliary or emergency feedwater system as its safety-related method of removing decay heat. Westinghouse requested an exemption from a portion of 10 CFR 50.62(c)(1), which requires auxiliary or emergency feedwater as an alternate system for decay heat removal during an anticipated transient without scram (ATWS) event. The NRC staff concluded that Westinghouse met the intent of the rule by relying on the PRHR system to remove the decay heat and, thereby, met the underlying purpose of the rule. Therefore, the Commission has

determined that the special circumstances for allowing an exemption described in 10 CFR 50.12(a)(2)(ii) exist because the requirement for an auxiliary or emergency feedwater system is not necessary to achieve the underlying purpose of 10 CFR 50.62(c)(1). This is because Westinghouse has adopted acceptable alternatives that accomplish the intent of this regulation, and the exemption is authorized by law, will not present an undue risk to public health and safety, and is consistent with the common defense and security.

*(4) Appendix A to 10 CFR part 50, GDC 17 - Offsite Power Sources.*

Westinghouse requested a partial exemption from the requirement in General Design Criteria (GDC) 17 for a second offsite power supply circuit. The AP1000 plant design supports an exemption to this requirement by providing safety-related "passive" systems. These passive safety-related systems only require electric power for valves and the related instrumentation. The onsite Class 1E batteries and associated dc and ac distribution systems can provide the power for these valves and instrumentation. In addition, if no offsite power is available, it is expected that the non-safety-related onsite diesel generators would be available for important plant functions. However, this non-safety-related ac power is not relied on to maintain core cooling or containment integrity. Therefore, the Commission has determined that the special circumstances for allowing an exemption as described in 10 CFR 50.12(a)(2)(ii) exist because the requirement need not be applied in this particular circumstance to achieve the underlying purpose of having two offsite power sources. This is because the AP1000 design includes an acceptable alternative approach to accomplish safety functions that do not rely on power from the offsite system and, therefore, accomplishes the intent of the regulation. On this basis, the Commission concludes that a partial exemption from the requirements of GDC 17 is authorized by law, will not present an undue risk to public health and safety, and is consistent with the common defense and security.

**F. Issue Resolution.**

The purpose of Section VI of this appendix is to identify the scope of issues that are resolved by the Commission in this rulemaking and; therefore, are "matters resolved" within the meaning and intent of 10 CFR 52.63(a)(4). The section is divided into five parts: (A) the Commission's safety findings in adopting this appendix, (B) the scope and nature of issues which are resolved by this rulemaking, (C) issues which are not resolved by this rulemaking, (D) the backfit restrictions applicable to the Commission with respect to this appendix, and (E) the availability of secondary references.

Paragraph A describes the nature of the Commission's findings in general terms and makes the finding required by 10 CFR 52.54 for the Commission's approval of this DCR. Furthermore, paragraph A explicitly states the Commission's determination that this design provides adequate protection of the public health and safety.

Paragraph B sets forth the scope of issues that may not be challenged as a matter of right in subsequent proceedings. The introductory phrase of paragraph B clarifies that issue resolution as described in the remainder of the paragraph extends to the delineated NRC proceedings referencing this appendix. The remainder of paragraph B describes the categories of information for which there is issue resolution. Specifically, paragraph B.1 provides that all nuclear safety issues arising from the Atomic Energy Act of 1954, as amended, that are associated with the information in the NRC staff's FSER (NUREG-1793) and Supplement No. 1, the Tier 1 and Tier 2 information (including the availability controls in Section 16.3 of the generic DCD), and the rulemaking record for this appendix are resolved within the meaning of § 52.63(a)(4). These issues include the information referenced in the DCD that are

requirements (i.e., "secondary references"), as well as all issues arising from proprietary and safeguards information which are intended to be requirements.

Paragraph B.2 provides for issue preclusion of proprietary and safeguards information. Paragraphs B.3, B.4, B.5, and B.6 clarify that approved changes to and departures from the DCD which are accomplished in compliance with the relevant procedures and criteria in Section VIII of this appendix continue to be matters resolved in connection with this rulemaking. Paragraphs B.4, B.5, and B.6, which characterize the scope of issue resolution in three situations, use the phrase ‘‘but only for that plant’’ (emphasis added). Paragraph B.4 describes how issues associated with a design certification rule are resolved when an exemption has been granted for a plant referencing the design certification rule. Paragraph B.5 describes how issues are resolved when a plant referencing the design certification rule obtains a license amendment for a departure from Tier 2 information.

Paragraph B.6 describes how issues are resolved when the applicant or licensee departs from the Tier 2 information on the basis of paragraph VIII.B.5, which will waive the requirement for NRC approval. In all three situations, after a matter (e.g., an exemption in the case of paragraph B.4) is addressed for a specific plant referencing a design certification rule, the adequacy of that matter *for that plant* will not ordinarily be subject to challenge in any subsequent proceeding or action for that plant (such as an enforcement action) listed in the introductory portion of paragraph IV.B. There will not, by contrast, be any issue resolution on that subject matter for any other plant.

Paragraph B.7 provides that, for those plants located on sites whose site parameters do not exceed those assumed in Westinghouse's evaluation of severe accident mitigation design alternatives (SAMDAs), all issues with respect to SAMDAs arising under the National Environmental Policy Act of 1969 associated with the information in the environmental assessment for this design and the information regarding SAMDAs in Appendix 1B of the

generic DCD are also resolved within the meaning and intent of § 52.63(a)(4). In the event an exemption from a site parameter is granted, the exemption applicant has the initial burden of demonstrating that the original SAMDA analysis still applies to the actual site parameters but; if the exemption is approved, requests for litigation at the COL stage must meet the requirements of § 2.309 and present sufficient information to create a genuine controversy in order to obtain a hearing on the site parameter exemption.

Paragraph C reserves the right of the Commission to impose operational requirements on applicants that reference this appendix. This provision reflects the fact that operational requirements, including generic TS in Section 16.1 of the DCD, were not completely or comprehensively reviewed at the design certification stage. Therefore, the special backfit provisions of § 52.63 do not apply to operational requirements. However, all design changes will be controlled by the appropriate provision in Section VIII of this appendix. Although the information in the DCD that is related to operational requirements is necessary to support the NRC's safety review of this design, the review of this information was not sufficient to conclude that the operational requirements are fully resolved and ready to be assigned finality under § 52.63. As a result, if the NRC wanted to change a temperature limit and that operational change required a consequential change to a design feature, then the temperature limit backfit would be controlled by Section VIII (paragraph A or B) of this appendix. However, changes to other operational issues, such as inservice testing and inservice inspection programs, post-fuel load verification activities, and shutdown risk that do not require a design change would not be restricted by § 52.63 (see VIII.C of this appendix).

Paragraph C allows the NRC to impose future operational requirements (distinct from design matters) on applicants who reference this design certification. Also, license conditions for portions of the plant within the scope of this design certification, e.g., start-up and power ascension testing, are not restricted by § 52.63. The requirement to perform these testing

programs is contained in Tier 1 information. However, ITAAC cannot be specified for these subjects because the matters to be addressed in these license conditions cannot be verified prior to fuel load and operation, when the ITAAC are satisfied. Therefore, another regulatory vehicle is necessary to ensure that licensees comply with the matters contained in the license conditions. License conditions for these areas cannot be developed now because this requires the type of detailed design information that will be developed during a combined license review. In the absence of detailed design information to evaluate the need for and develop specific post-fuel load verifications for these matters, the Commission is reserving the right to impose license conditions by rule for post-fuel load verification activities for portions of the plant within the scope of this design certification.

Paragraph D reiterates the restrictions (contained in Section VIII of this appendix) placed upon the Commission when ordering generic or plant-specific modifications, changes or additions to structures, systems, or components, design features, design criteria, and ITAAC (VI.D.3 would address ITAAC) within the scope of the certified design.

Paragraph E provides the procedure for an interested member of the public to obtain access to proprietary or safeguards information for the AP1000 design, in order to request and participate in proceedings identified in paragraph VI.B of this appendix, viz., proceedings involving licenses and applications which reference this appendix. Paragraph E, specifies that access must first be sought from the design certification applicant. If Westinghouse refuses to provide the information, the person seeking access shall request access from the Commission or the presiding officer, as applicable. Access to the proprietary or safeguards information may be ordered by the Commission, but must be subject to an appropriate non-disclosure agreement.

**G. Duration of this Appendix.**

The purpose of Section VII of this appendix is in part, to specify the period during which this design certification may be referenced by an applicant for a COL, under 10 CFR 52.55. This section also states that the design certification remains valid for an applicant or licensee that references the design certification until the application is withdrawn or the license expires. Therefore, if an application references this design certification during the 15-year period, then the design certification continues in effect until the application is withdrawn or the license issued on that application expires. Also, the design certification continues in effect for the referencing licensee if the license is renewed. The Commission intends for this appendix to remain valid for the life of the plant that references the design certification to achieve the benefits of standardization and licensing stability. This means that changes to, or plant-specific departures from, information in the plant-specific DCD must be made under the change processes in Section VIII of this appendix for the life of the plant.

**H. Processes for Changes and Departures.**

The purpose of Section VIII of this appendix is to set forth the processes for generic changes to or plant-specific departures (including exemptions) from the DCD. The Commission adopted this restrictive change process in order to achieve a more stable licensing process for applicants and licensees that reference this design certification rule. Section VIII is divided into three paragraphs, which correspond to Tier 1, Tier 2, and operational requirements. The language of Section VIII distinguishes between generic *changes to* the DCD versus plant-specific *departures from* the DCD. Generic *changes* must be accomplished by rulemaking

because the intended subject of the change is the design certification rule itself, as is contemplated by 10 CFR 52.63(a)(1). Consistent with 10 CFR 52.63(a)(2), any generic rulemaking changes are applicable to all plants, absent circumstances which render the change ["modification" in the language of § 52.63(a)(2)] "technically irrelevant." By contrast, plant-specific *departures* could be either a Commission-issued order to one or more applicants or licensees; or an applicant or licensee-initiated departure applicable only to that applicant's or licensee's plant(s), similar to a § 50.59 departure or an exemption. Because these plant-specific departures will result in a DCD that is unique for that plant, Section X of this appendix requires an applicant or licensee to maintain a plant-specific DCD. For purposes of brevity, this discussion refers to both generic changes and plant-specific departures as "change processes."

Section VIII of this appendix and Section XI of this SOC refer to an "exemption" from one or more requirements of this appendix and the criteria for granting an exemption. The Commission cautions that when the exemption involves an underlying substantive requirement (applicable regulation), then the applicant or licensee requesting the exemption must also show that an exemption from the underlying applicable requirement meets the criteria of 10 CFR 50.12.

**Tier 1 information**

The change processes for Tier 1 information are covered in paragraph VIII.A. Generic changes to Tier 1 are accomplished by rulemakings that amend the generic DCD and are governed by the standards in 10 CFR 52.63(a)(1). This provision provides that the Commission may not modify, change, rescind, or impose new requirements by rulemaking except when necessary either to bring the certification into compliance with the Commission's regulations

applicable and in effect at the time of approval of the design certification or to ensure adequate protection of the public health and safety or common defense and security. The rulemakings must provide for notice and opportunity for public comment on the proposed change, as required by 10 CFR 52.63(a)(1). Departures from Tier 1 may occur in two ways: (1) the Commission may *order* a licensee to depart from Tier 1, as provided in paragraph A.3; or (2) an applicant or licensee may request an *exemption* from Tier 1, as provided in paragraph A.4. If the Commission seeks to order a licensee to depart from Tier 1, paragraph A.3 requires that the Commission find both that the departure is necessary for adequate protection or for compliance, and that special circumstances are present. Paragraph A.4 provides that exemptions from Tier 1 requested by an applicant or licensee are governed by the requirements of 10 CFR 52.63(b)(1) and 52.97(b), which provide an opportunity for a hearing. In addition, the Commission will not grant requests for exemptions that may result in a significant decrease in the level of safety otherwise provided by the design.

**Tier 2 information**

The change processes for the three different categories of Tier 2 information, namely, Tier 2, Tier 2*, and Tier 2* with a time of expiration, are set forth in paragraph VIII.B. The change process for Tier 2 has the same elements as the Tier 1 change process, but some of the standards for plant-specific orders and exemptions are different. As stated in Section III, of this preamble, it is the Commission's intent that this appendix emulates appendix C to 10 CFR part 52. However, the Commission has revised the § 50.59-like change process in paragraph VIII.B.5 of this appendix to be commensurate with the new 10 CFR 50.59 (64 FR 53613, October 4, 1994).

The process for generic Tier 2 changes (including changes to Tier 2* and Tier 2* with a time of expiration) tracks the process for generic Tier 1 changes. As set forth in paragraph B.1, generic Tier 2 changes are accomplished by rulemaking amending the generic DCD and are governed by the standards in 10 CFR 52.63(a)(1). This provision provides that the Commission may not modify, change, rescind, or impose new requirements by rulemaking except when necessary, either to bring the certification into compliance with the Commission's regulations applicable and in effect at the time of approval of the design certification or to ensure adequate protection of the public health and safety or common defense and security. If a generic change is made to Tier 2* information, then the category and expiration, if necessary, of the new information would also be determined in the rulemaking and the appropriate change process for that new information would apply.

Departures from Tier 2 may occur in five ways: (1) the Commission may order a plant-specific departure, as set forth in paragraph B.3; (2) an applicant or licensee may request an exemption from a Tier 2 requirement as set forth in paragraph B.4; (3) a licensee may make a departure without prior NRC approval under paragraph B.5 [the "§ 50.59-like" process]; (4) the licensee may request NRC approval for proposed departures which do not meet the requirements in paragraph B.5 as provided in paragraph B.5.d; and (5) the licensee may request NRC approval for a departure from Tier 2* information under paragraph B.6.

Similar to Commission-ordered Tier 1 departures and generic Tier 2 changes, Commission-ordered Tier 2 departures cannot be imposed except when necessary either to bring the certification into compliance with the Commission's regulations applicable and in effect at the time of approval of the design certification or to ensure adequate protection of the public health and safety or common defense and security, as set forth in paragraph B.3. However, the special circumstances for the Commission-ordered Tier 2 departures do not have to outweigh any decrease in safety that may result from the reduction in standardization caused by the

plant-specific order, as required by 10 CFR 52.63(a)(3). The Commission determined that it was not necessary to impose an additional limitation similar to that imposed on Tier 1 departures by 10 CFR 52.63(a)(3) and (b)(1). This type of additional limitation for standardization would unnecessarily restrict the flexibility of applicants and licensees with respect to Tier 2 information.

An applicant or licensee may request an exemption from Tier 2 information as set forth in paragraph B.4. The applicant or licensee must demonstrate that the exemption complies with one of the special circumstances in 10 CFR 50.12(a). In addition, the Commission will not grant requests for exemptions that may result in a significant decrease in the level of safety otherwise provided by the design. However, the special circumstances for the exemption do not have to outweigh any decrease in safety that may result from the reduction in standardization caused by the exemption. If the exemption is requested by an applicant for a license, the exemption is subject to litigation in the same manner as other issues in the license hearing, consistent with 10 CFR 52.63(b)(1). If the exemption is requested by a licensee, then the exemption is subject to litigation in the same manner as a license amendment.

Paragraph B.5 allows an applicant or licensee to depart from Tier 2 information, without prior NRC approval, if the proposed departure does not involve a change to, or departure from, Tier 1 or Tier 2* information, TS, or does not require a license amendment under paragraphs B.5.b or B.5.c. The TS referred to in B.5.a of this paragraph are the TS in Section 16.1 of the generic DCD, including bases, for departures made prior to issuance of the COL. After issuance of the COL, the plant-specific TS are controlling under paragraph B.5. The bases for the plant-specific TS will be controlled by the bases control procedures for the plant-specific TS (analogous to the bases control provision in the Improved Standard Technical Specifications). The requirement for a license amendment in paragraph B.5.b will be similar to

the definition in the new 10 CFR 50.59 and apply to all information in Tier 2 except for the information that resolves the severe accident issues.

The Commission believes that the resolution of severe accident issues should be preserved and maintained in the same fashion as all other safety issues that were resolved during the design certification review (refer to SRM on SECY-90-377). However, because of the increased uncertainty in severe accident issue resolutions, the Commission has adopted separate criteria in paragraph B.5.c for determining if a departure from information that resolves severe accident issues would require a license amendment. For purposes of applying the special criteria in paragraph B.5.c, severe accident resolutions are limited to design features when the intended function of the design feature is relied upon to resolve postulated accidents when the reactor core has melted and exited the reactor vessel, and the containment is being challenged. These design features are identified in Section 1.9.5 and Appendix 19B of the DCD, with other issues, and are described in other sections of the DCD. Therefore, the location of design information in the DCD is not important to the application of this special procedure for severe accident issues. However, the special procedure in paragraph B.5.c does not apply to design features that resolve so-called “beyond design-basis accidents” or other low probability events. The important aspect of this special procedure is that it is limited to severe accident design features, as defined above. Some design features may have intended functions to meet "design basis” requirements and to resolve "severe accidents.” If these design features are reviewed under paragraph VIII.B.5, then the appropriate criteria from either paragraphs B.5.b or B.5.c are selected depending upon the function being changed.

An applicant or licensee that plans to depart from Tier 2 information, under paragraph VIII.B.5, is required to prepare an evaluation which provides the bases for the determination that the proposed change does not require a license amendment or involve a change to Tier 1 or Tier 2* information, or a change to the TS, as explained above. In order to

achieve the Commission's goals for design certification, the evaluation needs to consider all of the matters that were resolved in the DCD, such as generic issue resolutions that are relevant to the proposed departure. The benefits of the early resolution of safety issues would be lost if departures from the DCD were made that violated these resolutions without appropriate review.

The evaluation of the relevant matters needs to consider the proposed departure over the full range of power operation from startup to shutdown, as it relates to anticipated operational occurrences, transients, design-basis accidents, and severe accidents. The evaluation must also include a review of all relevant secondary references from the DCD because Tier 2 information, which is intended to be treated as a requirement, is contained in the secondary references. The evaluation should consider Tables 14.3-1 through 14.3-8 and 19.59-18 of the generic DCD to ensure that the proposed change does not impact Tier 1 information. These tables contain cross-references from the safety analyses and probabilistic risk assessment in Tier 2 to the important parameters that were included in Tier 1.

A party to an adjudicatory proceeding (e.g., for issuance of a COL) who believes that an applicant or licensee has not complied with paragraph VIII.B.5 when departing from Tier 2 information, is permitted to petition to admit such a contention into the proceeding under paragraph B.5.f. This provision was included because an incorrect departure from the requirements of this appendix essentially places the departure outside of the scope of the Commission's safety finding in the design certification rulemaking. Therefore, it follows that properly founded contentions alleging such incorrectly implemented departures cannot be considered "resolved" by this rulemaking. As set forth in paragraph B.5.f, the petition must comply with the requirements of 10 CFR 2.309 and show that the departure does not comply with paragraph B.5. Any other party may file a response to the petition. If on the basis of the petition and any responses, the presiding officer in the proceeding determines that the required showing has been made, the matter shall be certified to the Commission for its final

determination. In the absence of a proceeding, petitions alleging nonconformance with paragraph B.5 requirements applicable to Tier 2 departures will be treated as petitions for enforcement action under 10 CFR 2.206.

Paragraph B.6 provides a process for departing from Tier 2* information. The creation of and restrictions on changing Tier 2* information resulted from the development of the Tier 1 information for ABWR design certification (appendix A to part 52) and the ABB-CE System 80+ design certification (appendix B to part 52). During this development process, these applicants requested that the amount of information in Tier 1 be minimized to provide additional flexibility for an applicant or licensee who references these appendices. Also, many codes, standards, and design processes, which were not be specified in Tier 1 that are acceptable for meeting ITAAC, were specified in Tier 2. The result of these actions is that certain significant information only exists in Tier 2 and the Commission does not want this significant information to be changed without prior NRC approval. This Tier 2* information is identified in the generic DCD with italicized text and brackets (See Table 1-1 of AP1000 DCD Introduction).

Although the Tier 2* designation was originally intended to last for the lifetime of the facility, like Tier 1 information, the NRC determined that some of the Tier 2* information could expire when the plant first achieves full (100 percent) power, after the finding required by 10 CFR 52.103(g), while other Tier 2* information must remain in effect throughout the life of the facility. The factors determining whether Tier 2* information could expire after the first full power was achieved were whether the Tier 1 information would govern these areas after first full power and the NRC's determination that prior approval was required before implementation of the change due to the significance of the information. Therefore, certain Tier 2* information listed in paragraph B.6.c ceases to retain its Tier 2* designation after full-power operation is first achieved following the Commission finding under 10 CFR 52.103(g). Thereafter, that information is deemed to be Tier 2 information that is subject to the departure requirements in

paragraph B.5. By contrast, the Tier 2* information identified in paragraph B.6.b retains its Tier 2* designation throughout the duration of the license, including any period of license renewal.

Certain preoperational tests in paragraph B.6.c are designated to be performed only for the first plant or first three plants that reference this appendix. Westinghouse's basis for performing these "first-plant-only" and "first-three-plants-only" preoperational tests is provided in Section 14.2.5 of the DCD. The NRC found Westinghouse's basis for performing these tests and its justification for only performing the tests on the first plant or first three plants acceptable. The NRC's decision was based on the need to verify that plant-specific manufacturing and/or construction variations do not adversely impact the predicted performance of certain passive safety systems, while recognizing that these special tests will result in significant thermal transients being applied to critical plant components. The NRC believes that the range of manufacturing or construction variations that could adversely affect the relevant passive safety systems would be adequately disclosed after performing the designated tests on the first plant, or the first three plants, as applicable. The COL action item in Section 14.4.6 of the DCD states that subsequent plants shall either perform these preoperational tests or justify that the results of the first-plant-only or first-three-plant-only tests are applicable to the subsequent plant. The Tier 2* designation for these tests will expire after the first plant or first three plants complete these tests, as indicated in paragraph B.6.c.

If Tier 2* information is changed in a generic rulemaking, the designation of the new information (Tier 1, 2*, or 2) would also be determined in the rulemaking and the appropriate process for future changes would apply. If a plant-specific departure is made from Tier 2* information, then the new designation would apply only to that plant. If an applicant who references this design certification makes a departure from Tier 2* information, the new information is subject to litigation in the same manner as other plant-specific issues in the

licensing hearing. If a licensee makes a departure from Tier 2* information, it will be treated as a license amendment under 10 CFR 50.90 and the finality will be determined in accordance with paragraph VI.B.5 of this appendix. Any requests for departures from Tier 2* information that affects Tier 1 must also have to comply with the requirements in paragraph VIII.A of this appendix.

**Operational Requirements**

The change process for TS and other operational requirements in the DCD is set forth in paragraph VIII.C. This change process has elements similar to the Tier 1 and Tier 2 change process in paragraphs VIII.A and VIII.B, but with significantly different change standards. Because of the different finality status for TS and other operational requirements (refer to paragraph III.F of this SOC), the Commission designated a special category of information, consisting of the TS and other operational requirements, with its own change process in proposed paragraph VIII.C. The key to using the change processes proposed in Section VIII is to determine if the proposed change or departure requires a change to a design feature described in the generic DCD. If a design change is required, then the appropriate change process in paragraph VIII.A or VIII.B applies. However, if a proposed change to the TS or other operational requirements does not require a change to a design feature in the generic DCD, then paragraph VIII.C applies. The language in paragraph VIII.C also distinguishes between generic (Section 16.1 of DCD) and plant-specific TS to account for the different treatment and finality accorded TS before and after a license is issued.

The process in paragraph C.1 for making generic changes to the generic TS in Section 16.1 of the DCD or other operational requirements in the generic DCD is accomplished by rulemaking and governed by the backfit standards in 10 CFR 50.109. The determination of

whether the generic TS and other operational requirements were completely reviewed and approved in the design certification rulemaking is based upon the extent to which an NRC safety conclusion in the FSER is being modified or changed. If it cannot be determined that the TS or operational requirement was comprehensively reviewed and finalized in the design certification rulemaking, then there is no backfit restriction under 10 CFR 50.109 because no prior position was taken on this safety matter. Generic changes made under proposed paragraph VIII.C.1 are applicable to all applicants or licensees (refer to paragraph VIII.C.2), unless the change is irrelevant because of a plant-specific departure.

Some generic TS and investment protection short-term availability controls contain values in brackets [ ]. The brackets are placeholders indicating that the NRC's review is not complete, and represent a requirement that the applicant for a combined license referencing the AP1000 DCR must replace the values in brackets with final plant-specific values. The values in brackets are neither part of the design certification rule nor are they binding. Therefore, the replacement of bracketed values with final plant-specific values does not require an exemption from the generic TS or investment protection short-term availability controls.

Plant-specific departures may occur by either a Commission order under paragraph VIII.C.3 or an applicant's exemption request under paragraph VIII.C.4. The basis for determining if the TS or operational requirement was completely reviewed and approved for these processes is the same as for paragraph VIII.C.1 above. If the TS or operational requirement is comprehensively reviewed and finalized in the design certification rulemaking, then the Commission must demonstrate that special circumstances are present before ordering a plant-specific departure. If not, there is no restriction on plant-specific changes to the TS or operational requirements, prior to the issuance of a license, provided a design change is not required. Although the generic TS were reviewed by the NRC staff to facilitate the design certification review, the Commission intends to consider the lessons learned from subsequent

operating experience during its licensing review of the plant-specific TS. The process for petitioning to intervene on a TS or operational requirement is similar to other issues in a licensing hearing, except that the petitioner must also demonstrate why special circumstances are present (paragraph VIII.C.5).

Finally, the generic TS will have no further effect on the plant-specific TS after the issuance of a license that references this appendix. The bases for the generic TS will be controlled by the change process in paragraph VIII.C of this appendix. After a license is issued, the bases will be controlled by the bases change provision set forth in the administrative controls section of the plant-specific TS.

**I. Inspections, Tests, Analyses, and Acceptance Criteria (ITAAC).**

The purpose of Section IX of this appendix is to set forth how the ITAAC in Tier 1 of this design certification rule are to be treated in a license proceeding. Paragraph A restates the responsibilities of an applicant or licensee for performing and successfully completing ITAAC, and notifying the NRC of such completion. Paragraph A.1 clarifies that an applicant may proceed at its own risk with design and procurement activities subject to ITAAC, and that a licensee may proceed at its own risk with design, procurement, construction, and preoperational testing activities subject to an ITAAC, even though the NRC may not have found that any particular ITAAC has been successfully completed. Paragraph A.2 requires the licensee to notify the NRC that the required inspections, tests, and analyses in the ITAAC have been completed and that the acceptance criteria have been met.

Paragraphs B.1 and B.2 reiterate the NRC's responsibilities with respect to ITAAC as set forth in 10 CFR 52.99 and 52.103(g)[1]. Finally, paragraph B.3 d states that ITAAC do not, by virtue of their inclusion in the DCD, constitute regulatory requirements after the licensee has received authorization to load fuel or has been granted a renewal of its license. However, subsequent modifications to the terms of the COL must comply with the design descriptions in the DCD unless the applicable requirements in 10 CFR 52.97 and Section VIII of this appendix have been met. As discussed in paragraph III.D of this SOC, the Commission will defer a determination of the applicability of ITAAC and its effect in terms of issue resolution in 10 CFR part 50 licensing proceedings until a part 50 applicant decides to reference this appendix.

**J. Records and Reporting.**

The purpose of Section X of this appendix is to set forth the requirements that will apply to maintaining records of changes to and departures from the generic DCD, which are to be reflected in the plant-specific DCD. Section X also sets forth the requirements for submitting reports (including updates to the plant-specific DCD) to the NRC. This section of the appendix is similar to the requirements for records and reports in 10 CFR part 50, except for minor differences in information collection and reporting requirements. Paragraph X.A.1 of this appendix requires that a generic DCD and the proprietary and safeguards information referenced in the generic DCD be maintained by the applicant for this rule. The generic DCD was developed, in part, to meet the requirements for incorporation by reference, including availability requirements. Therefore, the proprietary and safeguards information could not be included in the generic DCD because they are not publicly available. However, the proprietary

[1] For discussion of the verification of ITAAC, see SECY-00-0092, "Combined License Review Process," dated April 20, 2000.

and safeguards information was reviewed by the NRC and, as stated in proposed paragraph VI.B.2 of this appendix, the Commission considers the information to be resolved within the meaning of 10 CFR 52.63(a)(4). Because this information is not in the generic DCD, the proprietary and safeguards information, or its equivalent, is required to be provided by an applicant for a license. Therefore, to ensure that this information will be available, a requirement for the design certification applicant to maintain the proprietary and safeguards information was added to proposed paragraph X.A.1 of this appendix. The acceptable version of the proprietary and safeguards information is identified (referenced) in the version of the DCD that is incorporated into this rule. The generic DCD and the acceptable version of the proprietary and safeguards information must be maintained for the period of time that this appendix may be referenced.

Paragraphs A.2 and A.3 place recordkeeping requirements on the applicant or licensee that references this design certification so that its plant-specific DCD accurately reflects both generic changes to the generic DCD and plant-specific departures made under Section VIII of this appendix. The term "plant-specific" was added to paragraph A.2 and other sections of this appendix to distinguish between the generic DCD that is incorporated by reference into this appendix, and the plant-specific DCD that the applicant is required to submit under paragraph IV.A of this appendix. The requirement to maintain changes to the generic DCD is explicitly stated to ensure that these changes are not only reflected in the generic DCD, which will be maintained by the applicant for design certification, but also in the plant-specific DCD. Therefore, records of generic changes to the DCD will be required to be maintained by both entities to ensure that both entities have up-to-date DCDs.

Paragraph X.A of this appendix does not place recordkeeping requirements on site-specific information that is outside the scope of this rule. As discussed in paragraph III.D of this SOC, the FSAR required by 10 CFR 52.79 will contain the plant-specific DCD and the

site-specific information for a facility that references this rule. The phrase "site-specific portion of the final safety analysis report" in paragraph X.B.3.c of this appendix refers to the information that is contained in the FSAR for a facility (required by 10 CFR 52.79) but is not part of the plant-specific DCD (required by paragraph IV.A of this appendix). Therefore, this rule does not require that duplicate documentation be maintained by an applicant or licensee that references this rule, because the plant-specific DCD is part of the FSAR for the facility.

Paragraph X.B.1 requires applicants or licensees that reference this rule to submit reports, which describe departures from the DCD and include a summary of the written evaluations. The requirement for the written evaluations are set forth in paragraph X.A.1. The frequency of the report submittals is set forth in paragraph X.B.3. The requirement for submitting a summary of the evaluations is similar to the requirement in 10 CFR 50.59(d)(2).

Paragraph X.B.2 requires applicants or licensees that reference this rule to submit updates to the DCD, which include both generic changes and plant-specific departures. The frequency for submitting updates is set forth in paragraph X.B.3. The requirements in paragraph X.B.3 for submitting the reports and updates will vary according to certain time periods during a facility's lifetime. If a potential applicant for a combined license who references this rule decides to depart from the generic DCD prior to submission of the application, then paragraph B.3.a will require that the updated DCD be submitted as part of the initial application for a license. Under paragraph B.3.b, the applicant may submit any subsequent updates to its plant-specific DCD along with its amendments to the application provided that the submittals are made at least once per year. Because amendments to an application are typically made more frequently than once a year, this should not be an excessive burden on the applicant.

Paragraph B.3.b also requires that the reports required by paragraph X.B.1 be submitted semi-annually. This increase in reporting frequency during the period of construction

and application review is consistent with Commission guidance. Also, more frequent reporting of design changes during the period of detailed design and construction is necessary to closely monitor the status and progress of the facility. In order to make the finding under 10 CFR 52.103(g), the NRC must monitor the design changes made under proposed Section VIII of this appendix. Frequent reporting of design changes would be particularly important when the number of design changes could be significant, such as during the procurement of components and equipment, detailed design of the plant before and during construction, and during preoperational testing. After the facility begins operation, the frequency of reporting will revert to the requirement in paragraph B.3.c, which is consistent with the requirements for plants licensed under 10 CFR 50.57.

**IV. Availability of Documents.**

The NRC is making the documents identified below available to interested persons through one or more of the following:

Public Document Room (PDR). The NRC's Public Document Room is located at 11555 Rockville Pike, Public File Area O-1 F21, Rockville, Maryland 20082. Copies of publicly available documents related to this rulemaking can be viewed electronically on public computers in the PDR. The PDR reproduction contractor will make copies of documents for a fee.

Rulemaking Web site (Web). The NRC's interactive rulemaking Web site is located at http://ruleforum.llnl.gov. Selected documents may be viewed and downloaded electronically via this Web site.

Public Electronic Reading Room (ADAMS). The NRC's Public Electronic Reading Room (PERR) is located at http://www.nrc.gov/reading-rm/adams.html. Through this site, the public can gain access to ADAMS, which provides text and image files of NRC's public documents.

| Document | PDR | Web | ADAMS |
|---|---|---|---|
| AP1000 Design Certification Proposed Rule SECY paper | x | x | ML043230006 |
| AP1000 Environmental Assessment | x | x | ML043230023 |
| AP1000 Design Control Document | x | ..... | ML050750293 |
| NUREG-1793, "AP1000 Final Safety Evaluation Report" | x | ..... | ML043570339 |
| SECY-99-268, "Final Rule- AP600 Design Certification" | x | ..... | ML003708259 |
| Regulatory History of Design Certification[2] | x | ..... | ML003761550 |

**V. Plain Language.**

The Presidential memorandum entitled "Plain Language in Government Writing" (63 FR 31883; June 10, 1998), directed that the Government's writing be in plain language. The NRC requests comments on the proposed rule specifically with respect to the clarity and effectiveness of the language used. Comments should be submitted using one of the methods detailed under the ADDRESSES heading of the preamble to this proposed rule.

**VI. Voluntary Consensus Standards.**

[2] The regulatory history of the NRC's design certification reviews is a package of 100 documents that is available in NRC's PERR and in the PDR. This history spans a 15-year period during which the NRC simultaneously developed the regulatory standards for reviewing these designs and the form and content of the rules that certified the designs.

The National Technology Transfer and Advancement Act of 1995 (Act), Public Law 104-113, requires that Federal agencies use technical standards that are developed or adopted by voluntary consensus standards bodies unless using such a standard is inconsistent with applicable law or is otherwise impractical. In this final rule, the NRC is approving the AP1000 standard plant design for use in nuclear power plant licensing under 10 CFR parts 52 or 50. Design certifications are not generic rulemakings establishing a generally applicable standard with which all parts 50 and 52 nuclear power plant licensees must comply. Design certifications are Commission approvals of specific nuclear power plant designs by rulemaking. Furthermore, design certifications are initiated by an applicant for rulemaking, rather than by the NRC. For these reasons, the NRC concludes that the act does not apply to this final rule.

**VII. Finding of No Significant Environmental Impact: Availability.**

The Commission has determined under the National Environmental Policy Act of 1969, as amended (NEPA), and the Commission's regulations in 10 CFR part 51, subpart A, that this design certification rule is not a major Federal action significantly affecting the quality of the human environment and, therefore, an environmental impact statement (EIS) is not required. The basis for this determination, as documented in the environmental assessment, is that this amendment to 10 CFR part 52 does not authorize the siting, construction, or operation of a facility using the AP1000 design; it only codifies the AP1000 design in a rule. The NRC will evaluate the environmental impacts and issue an EIS as appropriate under NEPA as part of the application(s) for the construction and operation of a facility.

In addition, as part of the environmental assessment for the AP1000 design, the NRC reviewed Westinghouse's evaluation of various design alternatives to prevent and mitigate

severe accidents in appendix 1B of the AP1000 DCD Tier 2. Based upon review of Westinghouse's evaluation, the Commission finds that: (1) Westinghouse identified a reasonably complete set of potential design alternatives to prevent and mitigate severe accidents for the AP1000 design; (2) none of the potential design alternatives are justified on the basis of cost-benefit considerations; and (3) it is unlikely that other design changes would be identified and justified in the future on the basis of cost-benefit considerations, because the estimated core damage frequencies for the AP1000 are very low on an absolute scale. These issues are considered resolved for the AP1000 design.

The environmental assessment (EA), upon which the Commission's finding of no significant impact is based, and the AP1000 DCD are available for examination and copying at the NRC Public Document Room, One White Flint North, 11555 Rockville Pike, Rockville, Maryland. The NRC sent a copy of the EA and proposed rule to every State Liaison Officer and no comments were received. Single copies of the EA are also available from Lauren M. Quinones-Navarro, Mailstop O-4D9A, Office of Nuclear Reactor Regulation, U.S. Nuclear Regulatory Commission, Washington, D.C. 20555.

**VIII. Paperwork Reduction Act Statement**

This final rule contains new or amended information collection requirements that are subject to the Paperwork Reduction Act of 1995 (44 U.S.C. 3501 et seq.). These requirements were approved by the Office of Management and Budget, approval number 3150-0151.

The burden to the public for these information collections is estimated to average 8 hours per response, including the time for reviewing instructions, searching existing data sources, gathering and maintaining the data needed, and completing and reviewing the

information collection. Send comments on any aspect of these information collections, including suggestions for reducing the burden, to the Records and FOIA/Privacy Services Branch (T5 F52), U.S. Nuclear Regulatory Commission, Washington, D.C. 20555-0001, or by Internet electronic mail to INFOCOLLECTS@NRC.GOV; and to the Desk Officer, Office of Information and Regulatory Affairs, NEOB-10202, (3150-0151), Office of Management and Budget, Washington, D.C. 20503.

**Public Protection Notification**

The NRC may not conduct or sponsor, and a person is not required to respond to, a request for information or an information collection requirement unless the requesting document displays a currently valid OMB control number.

## IX. Regulatory Analysis.

The NRC has not prepared a regulatory analysis for this final rule. The NRC prepares regulatory analyses for rulemakings that establish generic regulatory requirements applicable to all licensees. Design certifications are not generic rulemakings in the sense that design certifications do not establish standards or requirements with which all licensees must comply. Rather, design certifications are Commission approvals of specific nuclear power plant designs by rulemaking, which then may be voluntarily referenced by applicants for COLs. Furthermore, design certification rulemakings are initiated by an applicant for a design certification, rather than the NRC. Preparation of a regulatory analysis in this circumstance would not be useful because the design to be certified is proposed by the applicant rather than the NRC. For these

reasons, the Commission concludes that preparation of a regulatory analysis is neither required nor appropriate.

**X. Regulatory Flexibility Certification.**

Under the Regulatory Flexibility Act of 1980, 5 U.S.C. 605(b), the Commission certifies that this final rule will not have a significant economic impact upon a substantial number of small entities. The final rule provides for certification of a nuclear power plant design. Neither the design certification applicant, nor prospective nuclear power plant licensees who reference this design certification rule, fall within the scope of the definition of "small entities" set forth in the Regulatory Flexibility Act, or the Small Business Size Standards set out in regulations issued by the Small Business Administration in 13 CFR part 121. Thus, this rule does not fall within the purview of the Act.

**XI. Backfit Analysis.**

The Commission has determined that this final rule does not constitute a backfit as defined in the backfit rule (10 CFR 50.109), because this design certification does not impose new or changed requirements on existing 10 CFR part 50 licensees, nor does it impose new or change requirements on existing DCRs in appendices A-C of part 52. Therefore, a backfit analysis was not prepared for this rule.

## XII. Congressional Review Act.

In accordance with the Congressional Review Act of 1996, the NRC has determined that this action is not a major rule and has verified this determination with the Office of Information and Regulatory Affairs of OMB.

### List of Subjects in 10 CFR Part 52

Administrative practice and procedure, Antitrust, Backfitting, Combined license, Early site permit, Emergency planning, Fees, Incorporation by reference, Inspection, Limited work authorization, Nuclear power plants and reactors, Probabilistic risk assessment, Prototype, Reactor siting criteria, Redress of site, Reporting and recordkeeping requirements, Standard design, Standard design certification.

For the reasons set out in the preamble and under the authority of the Atomic Energy Act of 1954, as amended; the Energy Reorganization Act of 1974, as amended; and 5 U.S.C. 553; the NRC is proposing to adopt the following amendment to 10 CFR part 52.

### PART 52 - EARLY SITE PERMITS; STANDARD DESIGN CERTIFICATIONS; AND COMBINED LICENSES FOR NUCLEAR POWER PLANTS

1. The authority citation for 10 CFR part 52 continues to read as follows:

**AUTHORITY**: Secs. 103, 104, 161, 182, 183, 186, 189, 68 Stat. 936, 948, 953, 954, 955, 956, as amended, sec. 234, 83 Stat. 444, as amended (42 U.S.C. 2133, 2201, 2232, 2233, 2236, 2239, 2282); secs. 201, 202, 206, 88 Stat. 1242, 1244, 1246, as amended (42 U.S.C. 5841, 5842, 5846); sec. 1704, 112 Stat. 2750 (44 U.S.C. 3504 note).

2. In § 52.8, paragraph (b) is revised to read as follows:

**§ 52.8 Information collection requirements: OMB approval**.

* * * * *

(b) The approved information collection requirements contained in this part appear in §§ 52.15, 52.17, 52.29, 52.35, 52.45, 52.47, 52.51, 52.57, 52.63, 52.75, 52.77, 52.78, 52.79, 52.89, 52.91, 52.99, and appendices A, B, C, and D.

3. A new appendix D to 10 CFR part 52 is added to read as follows:

Appendix D To Part 52 - Design Certification Rule for the AP1000 Design

*I. Introduction*

Appendix D constitutes the standard design certification for the AP1000[3] design, in accordance with 10 CFR part 52, subpart B. The applicant for certification of the AP1000 design is Westinghouse Electric Company LLC.

*II. Definitions*

A. *Generic design control document* (generic DCD) means the document containing the Tier 1 and Tier 2 information and generic technical specifications that is incorporated by reference into this appendix.

B. *Generic technical specifications* means the information required by 10 CFR 50.36 and 50.36a for the portion of the plant that is within the scope of this appendix.

C. *Plant-specific DCD* means the document maintained by an applicant or licensee who references this appendix consisting of the information in the generic DCD as modified and supplemented by the plant-specific departures and exemptions made under Section VIII of this appendix.

[3]AP1000 is a trademark of Westinghouse Electric Company LLC.

D. *Tier 1* means the portion of the design-related information contained in the generic DCD that is approved and certified by this appendix (Tier 1 information). The design descriptions, interface requirements, and site parameters are derived from Tier 2 information. Tier 1 information includes:

1. Definitions and general provisions;

2. Design descriptions;

3. Inspections, tests, analyses, and acceptance criteria (ITAAC);

4. Significant site parameters; and

5. Significant interface requirements.

E. *Tier 2* means the portion of the design-related information contained in the generic DCD that is approved but not certified by this appendix (Tier 2 information). Compliance with Tier 2 is required, but generic changes to and plant-specific departures from Tier 2 are governed by Section VIII of this appendix. Compliance with Tier 2 provides a sufficient, but not the only acceptable, method for complying with Tier 1. Compliance methods differing from Tier 2 must satisfy the change process in Section VIII of this appendix. Regardless of these differences, an applicant or licensee must meet the requirement in paragraph III.B to reference Tier 2 when referencing Tier 1. Tier 2 information includes:

1. Information required by 10 CFR 52.47, with the exception of generic TS, the design-specific PRA, the evaluation of SAMDAs, and conceptual design information;

2. Information required for a final safety analysis report under 10 CFR 50.34;

3. Supporting information on the inspections, tests, and analyses that will be performed to demonstrate that the acceptance criteria in the ITAAC have been met; and

4. COL action items (COL information), which identify certain matters that shall be addressed in the site-specific portion of the FSAR by an applicant who references this appendix. These items constitute information requirements but are not the only acceptable set

of information in the FSAR. An applicant may depart from or omit these items, provided that the departure or omission is identified and justified in the FSAR. After issuance of a construction permit or COL, these items are not requirements for the licensee unless such items are restated in the FSAR.

5. The investment protection short-term availability controls in Section 16.3 of the DCD.

F. *Tier 2** means the portion of the Tier 2 information, designated as such in the generic DCD, which is subject to the change process in paragraph VIII.B.6 of this appendix. This designation expires for some Tier 2* information under paragraph VIII.B.6.

G. *Departure from a method of evaluation described in the plant-specific DCD used in establishing the design bases or in the safety analyses* means:

1. Changing any of the elements of the method described in the plant-specific DCD unless the results of the analysis are conservative or essentially the same; or

2. Changing from a method described in the plant-specific DCD to another method unless that method has been approved by the NRC for the intended application.

H. All other terms in this appendix have the meaning set out in 10 CFR 50.2, 10 CFR 52.3, or Section 11 of the Atomic Energy Act of 1954, as amended, as applicable.

*III. Scope and Contents*

A. Tier 1, Tier 2 (including the investment protection short-term availability controls in Section 16.3), and the generic TS in the AP1000 DCD (Revision 15) are approved for incorporation by reference by the Director of the Office of the *Federal Register* on **[date of approval]** under 5 U.S.C. 552(a) and 1 CFR part 51. Copies of the generic DCD may be obtained from Ronald P. Vijuk, Manager, Passive Plant Engineering, Westinghouse Electric Company, P.O. Box 355, Pittsburgh, Pennsylvania 15230-0355. A copy of the generic DCD is also available for examination and copying at the NRC Public Document Room, One White Flint

North, 11555 Rockville Pike, Rockville, Maryland. Copies are available for examination at the NRC Library, Two White Flint North, 11545 Rockville Pike, Rockville, Maryland, telephone (301) 415-5610, e-mail LIBRARY@NRC.GOV or at the National Archives and Records Administration (NARA). For information on the availability of this material at NARA, call (202) 741-6030 or go to http://www.archives.gov/federal_register/code_of_federal_regulations/ibr_locations.html.

B. An applicant or licensee referencing this appendix, in accordance with Section IV of this appendix, shall incorporate by reference and comply with the requirements of this appendix, including Tier 1, Tier 2 (including the investment protection short-term availability controls in Section 16.3 of the DCD), and the generic TS except as otherwise provided in this appendix. Conceptual design information in the generic DCD and the evaluation of SAMDAs in appendix 1B of the generic DCD are not part of this appendix.

C. If there is a conflict between Tier 1 and Tier 2 of the DCD, then Tier 1 controls.

D. If there is a conflict between the generic DCD and either the application for design certification of the AP1000 design or NUREG-1793, “Final Safety Evaluation Report Related to Certification of the AP1000 Standard Design,” (FSER), then the generic DCD controls.

E. Design activities for structures, systems, and components that are wholly outside the scope of this appendix may be performed using site characteristics, provided the design activities do not affect the DCD or conflict with the interface requirements.

*IV. Additional Requirements and Restrictions*

A. An applicant for a license that wishes to reference this appendix shall, in addition to complying with the requirements of 10 CFR 52.77, 52.78, and 52.79, comply with the following requirements:

1. Incorporate by reference, as part of its application, this appendix.

2. Include, as part of its application:

a. A plant-specific DCD containing the same type of information and using the same organization and numbering as the generic DCD for the AP1000 design, as modified and supplemented by the applicant's exemptions and departures;

b. The reports on departures from and updates to the plant-specific DCD required by paragraph X.B of this appendix;

c. Plant-specific TS, consisting of the generic and site-specific TS that are required by 10 CFR 50.36 and 50.36a;

d. Information demonstrating compliance with the site parameters and interface requirements;

e. Information that addresses the COL action items; and

f. Information required by 10 CFR 52.47(a) that is not within the scope of this appendix.

3. Physically include, in the plant-specific DCD, the proprietary and safeguards information referenced in the AP1000 DCD.

B. The Commission reserves the right to determine in what manner this appendix may be referenced by an applicant for a construction permit or operating license under Part 50.

*V. Applicable Regulations*

A. Except as indicated in paragraph B of this section, the regulations that apply to the AP1000 design are in 10 CFR parts 20, 50, 73, and 100, codified as of **[date final rule signed]**, that are applicable and technically relevant, as described in the FSER (NUREG-1793) and Supplement No. 1.

B. The AP1000 design is exempt from portions of the following regulations:

1. Paragraph (f)(2)(iv) of 10 CFR 50.34 - Plant Safety Parameter Display Console;

2. Paragraph (a)(2) of 10 CFR 50.55a - ASME Boiler and Pressure Vessel Code;

3. Paragraph (c)(1) of 10 CFR 50.62 - Auxiliary (or emergency) feedwater system; and

4. Appendix A to 10 CFR Part 50, GDC 17 - Offsite Power Sources.

*VI. Issue Resolution*

A. The Commission has determined that the structures, systems, components, and design features of the AP1000 design comply with the provisions of the Atomic Energy Act of 1954, as amended, and the applicable regulations identified in Section V of this appendix; and therefore, provide adequate protection to the health and safety of the public. A conclusion that a matter is resolved includes the finding that additional or alternative structures, systems, components, design features, design criteria, testing, analyses, acceptance criteria, or justifications are not necessary for the AP1000 design.

B. The Commission considers the following matters resolved within the meaning of 10 CFR 52.63(a)(4) in subsequent proceedings for issuance of a COL, amendment of a COL, or renewal of a COL, proceedings held under to 10 CFR 52.103, and enforcement proceedings involving plants referencing this appendix:

1. All nuclear safety issues, except for the generic TS and other operational requirements, associated with the information in the FSER, Tier 1, Tier 2 (including referenced

information, which the context indicates is intended as requirements, and the investment protection short-term availability controls in Section 16.3 of the DCD), and the rulemaking record for certification of the AP1000 design;

2. All nuclear safety and safeguards issues associated with the information in proprietary and safeguards documents, referenced and in context, are intended as requirements in the generic DCD for the AP1000 design;

3. All generic changes to the DCD under and in compliance with the change processes in Sections VIII.A.1 and VIII.B.1 of this appendix;

4. All exemptions from the DCD under and in compliance with the change processes in Sections VIII.A.4 and VIII.B.4 of this appendix, but only for that plant;

5. All departures from the DCD that are approved by license amendment, but only for that plant;

6. Except as provided in paragraph VIII.B.5.f of this appendix, all departures from Tier 2 under and in compliance with the change processes in paragraph VIII.B.5 of this appendix that do not require prior NRC approval, but only for that plant;

7. All environmental issues concerning SAMDAs associated with the information in the NRC's EA for the AP1000 design and appendix 1B of the generic DCD, for plants referencing this appendix whose site parameters are within those specified in the SAMDA evaluation.

C. The Commission does not consider operational requirements for an applicant or licensee who references this appendix to be matters resolved within the meaning of 10 CFR 52.63(a)(4). The Commission reserves the right to require operational requirements for an applicant or licensee who references this appendix by rule, regulation, order, or license condition.

D. Except under the change processes in Section VIII of this appendix, the Commission may not require an applicant or licensee who references this appendix to:

1. Modify structures, systems, components, or design features as described in the generic DCD;

2. Provide additional or alternative structures, systems, components, or design features not discussed in the generic DCD; or

3. Provide additional or alternative design criteria, testing, analyses, acceptance criteria, or justification for structures, systems, components, or design features discussed in the generic DCD.

E. 1. Persons who wish to review proprietary and safeguards information or other secondary references in the AP1000 DCD, in order to request or participate in the hearing required by 10 CFR 52.85 or the hearing provided under 10 CFR 52.103, or to request or participate in any other hearing relating to this appendix in which interested persons have adjudicatory hearing rights, shall first request access to such information from Westinghouse. The request must state with particularity:

a. The nature of the proprietary or other information sought;

b. The reason why the information currently available to the public in the NRC's public document room is insufficient;

c. The relevance of the requested information to the hearing issue(s) which the person proposes to raise; and

d. A showing that the requesting person has the capability to understand and utilize the requested information.

2. If a person claims that the information is necessary to prepare a request for hearing, the request must be filed no later than 15 days after publication in the *Federal Register* of the notice required either by 10 CFR 52.85 or 10 CFR 52.103. If Westinghouse declines to provide the information sought, Westinghouse shall send a written response within ten (10) days of receiving the request to the requesting person setting forth with particularity the reasons for its

refusal. The person may then request the Commission (or presiding officer, if a proceeding has been established) to order disclosure. The person shall include copies of the original request (and any subsequent clarifying information provided by the requesting party to the applicant) and the applicant's response. The Commission and presiding officer shall base their decisions solely on the person's original request (including any clarifying information provided by the requesting person to Westinghouse), and Westinghouse's response. The Commission and presiding officer may order Westinghouse to provide access to some or all of the requested information, subject to an appropriate non-disclosure agreement.

*VII. Duration of this Appendix*

This appendix may be referenced for a period of 15 years from **[date 30 days after publication of the final rule in the *Federal Register*]**, except as provided for in 10 CFR 52.55(b) and 52.57(b). This appendix remains valid for an applicant or licensee who references this appendix until the application is withdrawn or the license expires, including any period of extended operation under a renewed license.

*VIII. Processes for Changes and Departures*

A. Tier 1 information.

1. Generic changes to Tier 1 information are governed by the requirements in 10 CFR 52.63(a)(1).

2. Generic changes to Tier 1 information are applicable to all applicants or licensees who reference this appendix, except those for which the change has been rendered technically irrelevant by action taken under paragraphs A.3 or A.4 of this section.

3. Departures from Tier 1 information that are required by the Commission through plant-specific orders are governed by the requirements in 10 CFR 52.63(a)(3).

4. Exemptions from Tier 1 information are governed by the requirements in 10 CFR 52.63(b)(1) and § 52.97(b). The Commission will deny a request for an exemption from Tier 1, if it finds that the design change will result in a significant decrease in the level of safety otherwise provided by the design.

B. Tier 2 information.

1. Generic changes to Tier 2 information are governed by the requirements in 10 CFR 52.63(a)(1).

2. Generic changes to Tier 2 information are applicable to all applicants or licensees who reference this appendix, except those for which the change has been rendered technically irrelevant by action taken under paragraphs B.3, B.4, B.5, or B.6 of this section.

3. The Commission may not require new requirements on Tier 2 information by plant-specific order while this appendix is in effect under §§ 52.55 or 52.61, unless:

a. A modification is necessary to secure compliance with the Commission's regulations applicable and in effect at the time this appendix was approved, as set forth in Section V of this appendix, or to ensure adequate protection of the public health and safety or the common defense and security; and

b. Special circumstances as defined in 10 CFR 50.12(a) are present.

4. An applicant or licensee who references this appendix may request an exemption from Tier 2 information. The Commission may grant such a request only if it determines that the exemption will comply with the requirements of 10 CFR 50.12(a). The Commission will deny a request for an exemption from Tier 2, if it finds that the design change will result in a significant decrease in the level of safety otherwise provided by the design. The grant of an exemption to an applicant must be subject to litigation in the same manner as other issues material to the license hearing. The grant of an exemption to a licensee must be subject to an opportunity for a hearing in the same manner as license amendments.

5.a. An applicant or licensee who references this appendix may depart from Tier 2 information, without prior NRC approval, unless the proposed departure involves a change to or departure from Tier 1 information, Tier 2* information, or the TS, or requires a license amendment under paragraphs B.5.b or B.5.c of this section. When evaluating the proposed departure, an applicant or licensee shall consider all matters described in the plant-specific DCD.

b. A proposed departure from Tier 2, other than one affecting resolution of a severe accident issue identified in the plant-specific DCD, requires a license amendment if it would:

(1) Result in more than a minimal increase in the frequency of occurrence of an accident previously evaluated in the plant-specific DCD;

(2) Result in more than a minimal increase in the likelihood of occurrence of a malfunction of a structure, system, or component (SSC) important to safety and previously evaluated in the plant-specific DCD;

(3) Result in more than a minimal increase in the consequences of an accident previously evaluated in the plant-specific DCD;

(4) Result in more than a minimal increase in the consequences of a malfunction of an SSC important to safety previously evaluated in the plant-specific DCD;

(5) Create a possibility for an accident of a different type than any evaluated previously in the plant-specific DCD;

(6) Create a possibility for a malfunction of an SSC important to safety with a different result than any evaluated previously in the plant-specific DCD;

(7) Result in a design basis limit for a fission product barrier as described in the plant-specific DCD being exceeded or altered; or

(8) Result in a departure from a method of evaluation described in the plant-specific DCD used in establishing the design bases or in the safety analyses.

c. A proposed departure from Tier 2 affecting resolution of a severe accident issue identified in the plant-specific DCD, requires a license amendment if:

(1) There is a substantial increase in the probability of a severe accident such that a particular severe accident previously reviewed and determined to be not credible could become credible; or

(2) There is a substantial increase in the consequences to the public of a particular severe accident previously reviewed.

d. If a departure requires a license amendment under paragraph B.5.b or B.5.c of this section, it is governed by 10 CFR 50.90.

e. A departure from Tier 2 information that is made under paragraph B.5 of this section does not require an exemption from this appendix.

f. A party to an adjudicatory proceeding for either the issuance, amendment, or renewal of a license or for operation under 10 CFR 52.103(a), who believes that an applicant or licensee who references this appendix has not complied with paragraph VIII.B.5 of this appendix when departing from Tier 2 information, may petition to admit into the proceeding such a contention. In addition to compliance with the general requirements of 10 CFR 2.309, the petition must demonstrate that the departure does not comply with paragraph VIII.B.5 of this appendix. Further, the petition must demonstrate that the change bears on an asserted noncompliance with an ITAAC acceptance criterion in the case of a 10 CFR 52.103 preoperational hearing, or that the change bears directly on the amendment request in the case of a hearing on a license amendment. Any other party may file a response. If, on the basis of the petition and any response, the presiding officer determines that a sufficient showing has been made, the presiding officer shall certify the matter directly to the Commission for determination of the admissibility of the contention. The Commission may admit such a contention if it determines

the petition raises a genuine issue of material fact regarding compliance with paragraph VIII.B.5 of this appendix.

6.a. An applicant who references this appendix may not depart from Tier 2* information, which is designated with italicized text or brackets and an asterisk in the generic DCD, without NRC approval. The departure will not be considered a resolved issue, within the meaning of Section VI of this appendix and 10 CFR 52.63(a)(4).

b. A licensee who references this appendix may not depart from the following Tier 2* matters without prior NRC approval. A request for a departure will be treated as a request for a license amendment under 10 CFR 50.90.

(1) Maximum fuel rod average burn-up.

(2) Fuel principal design requirements.

(3) Fuel criteria evaluation process.

(4) Fire areas.

(5) Human factors engineering.

(6) Small-break loss-of-coolant (LOCA) accident Analysis Methodology.

c. A licensee who references this appendix may not, before the plant first achieves full power following the finding required by 10 CFR 52.103(g), depart from the following Tier 2* matters except under paragraph B.6.b of this section. After the plant first achieves full power, the following Tier 2* matters revert to Tier 2 status and are subject to the departure provisions in paragraph B.5 of this section.

(1) Nuclear Island structural dimensions.

(2) American Society of Mechanical Engineers Boiler & Pressure Vessel Code (ASME Code), Section III, and Code Case–284.

(3) Design Summary of Critical Sections.

(4) American Concrete Institute (ACI) 318, ACI 349, American National Standards Institute/American Institute of Steel Construction (ANSI/AISC)–690, and American Iron and Steel Institute (AISI), “Specification for the Design of Cold Formed Steel Structural Members, Part 1 and 2,” 1996 Edition and 2000 Supplement.

(5) Definition of critical locations and thicknesses.

(6) Seismic qualification methods and standards.

(7) Nuclear design of fuel and reactivity control system, except burn-up limit.

(8) Motor-operated and power-operated valves.

(9) Instrumentation and control system design processes, methods, and standards.

(10) Passive residual heat removal (PRHR) natural circulation test (first plant only).

(11) Automatic depressurization system (ADS) and core make-up tank (CMT) verification tests (first three plants only).

(12) Polar crane parked Orientation.

(13) Piping design acceptance criteria.

(14) Containment vessel design parameters.

d. Departures from Tier 2* information that are made under paragraph B.6 of this section do not require an exemption from this appendix.

C. Operational requirements.

1. Generic changes to generic TS and other operational requirements that were completely reviewed and approved in the design certification rulemaking and do not require a change to a design feature in the generic DCD are governed by the requirements in 10 CFR 50.109. Generic changes that require a change to a design feature in the generic DCD are governed by the requirements in paragraphs A or B of this section.

2. Generic changes to generic TS and other operational requirements are applicable to all applicants who reference this appendix, except those for which the change has been rendered technically irrelevant by action taken under paragraphs C.3 or C.4 of this section.

3. The Commission may require plant-specific departures on generic TS and other operational requirements that were completely reviewed and approved, provided a change to a design feature in the generic DCD is not required and special circumstances as defined in 10 CFR 2.335 are present. The Commission may modify or supplement generic TS and other operational requirements that were not completely reviewed and approved or require additional TS and other operational requirements on a plant-specific basis, provided a change to a design feature in the generic DCD is not required.

4. An applicant who references this appendix may request an exemption from the generic TS or other operational requirements. The Commission may grant such a request only if it determines that the exemption will comply with the requirements of 10 CFR 50.12(a). The grant of an exemption must be subject to litigation in the same manner as other issues material to the license hearing.

5. A party to an adjudicatory proceeding for either the issuance, amendment, or renewal of a license or for operation under 10 CFR 52.103(a), who believes that an operational requirement approved in the DCD or a TS derived from the generic TS must be changed may petition to admit such a contention into the proceeding. The petition must comply with the general requirements of 10 CFR 2.309 and must demonstrate why special circumstances as defined in 10 CFR 2.335 are present, or demonstrate compliance with the Commission's regulations in effect at the time this appendix was approved, as set forth in Section V of this appendix. Any other party may file a response to the petition. If, on the basis of the petition and any response, the presiding officer determines that a sufficient showing has been made, the presiding officer shall certify the matter directly to the Commission for determination of the

admissibility of the contention. All other issues with respect to the plant-specific TS or other operational requirements are subject to a hearing as part of the license proceeding.

6. After issuance of a license, the generic TS have no further effect on the plant-specific TS. Changes to the plant-specific TS will be treated as license amendments under 10 CFR 50.90.

*IX. Inspections, Tests, Analyses, and Acceptance Criteria (ITAAC)*

A.1 An applicant or licensee who references this appendix shall perform and demonstrate conformance with the ITAAC before fuel load. With respect to activities subject to an ITAAC, an applicant for a license may proceed at its own risk with design and procurement activities. A licensee may also proceed at its own risk with design, procurement, construction, and preoperational activities, even though the NRC may not have found that any particular ITAAC has been satisfied.

2. The licensee who references this appendix shall notify the NRC that the required inspections, tests, and analyses in the ITAAC have been successfully completed and that the corresponding acceptance criteria have been met.

3. If an activity is subject to an ITAAC and the applicant or licensee who references this appendix has not demonstrated that the ITAAC has been satisfied, the applicant or licensee may either take corrective actions to successfully complete that ITAAC, request an exemption from the ITAAC under Section VIII of this appendix and 10 CFR 52.97(b), or petition for rulemaking to amend this appendix by changing the requirements of the ITAAC, under 10 CFR 2.802 and 52.97(b). Such rulemaking changes to the ITAAC must meet the requirements of paragraph VIII.A.1 of this appendix.

B.1 The NRC shall ensure that the required inspections, tests, and analyses in the ITAAC are performed. The NRC shall verify that the inspections, tests, and analyses referenced by the licensee have been successfully completed and, based solely thereon, find

that the prescribed acceptance criteria have been met. At appropriate intervals during construction, the NRC shall publish notices of the successful completion of ITAAC in the *Federal Register*.

2. Under 10 CFR 52.99 and 52.103(g), the Commission shall find that the acceptance criteria in the ITAAC for the license are met before fuel load.

3. After the Commission has made the finding required by 10 CFR 52.103(g), the ITAAC do not, by virtue of their inclusion within the DCD, constitute regulatory requirements either for licensees or for renewal of the license; except for specific ITAAC, which are the subject of a Section 103(a) hearing, their expiration will occur upon final Commission action in such a proceeding. However, subsequent modifications must comply with the Tier 1 and Tier 2 design descriptions in the plant-specific DCD unless the licensee has complied with the applicable requirements of 10 CFR 52.97 and Section VIII of this appendix.

*X. Records and Reporting*

A. Records

1. The applicant for this appendix shall maintain a copy of the generic DCD that includes all generic changes to Tier 1, Tier 2, and the generic TS and other operational requirements. The applicant shall maintain the proprietary and safeguards information referenced in the generic DCD for the period that this appendix may be referenced, as specified in Section VII of this appendix.

2. An applicant or licensee who references this appendix shall maintain the plant-specific DCD to accurately reflect both generic changes to the generic DCD and plant-specific departures made under Section VIII of this appendix throughout the period of application and for the term of the license (including any period of renewal).

3. An applicant or licensee who references this appendix shall prepare and maintain written evaluations which provide the bases for the determinations required by Section VIII of

this appendix. These evaluations must be retained throughout the period of application and for the term of the license (including any period of renewal).

B. Reporting

1. An applicant or licensee who references this appendix shall submit a report to the NRC containing a brief description of any plant-specific departures from the DCD, including a summary of the evaluation of each. This report must be filed in accordance with the filing requirements applicable to reports in 10 CFR 50.4.

2. An applicant or licensee who references this appendix shall submit updates to its DCD, which reflect the generic changes to and plant-specific departures from the generic DCD made under Section VIII of this appendix. These updates shall be filed under the filing requirements applicable to final safety analysis report updates in 10 CFR 50.4 and 50.71(e).

3. The reports and updates required by paragraphs X.B.1 and X.B.2 must be submitted as follows:

a. On the date that an application for a license referencing this appendix is submitted, the application must include the report and any updates to the generic DCD.

b. During the interval from the date of application for a license to the date the Commission makes its findings under 10 CFR 52.103(g), the report must be submitted semi-annually. Updates to the plant-specific DCD must be submitted annually and may be submitted along with amendments to the application.

c. After the Commission has made its finding under 10 CFR 52.103(g), the reports and updates to the plant-specific DCD must be submitted, along with updates to the site-specific portion of the final safety analysis report for the facility, at the intervals required by 10 CFR 50.59(d)(2) and 50.71(e)(4), respectively, or at shorter intervals as specified in the license.

Dated at Rockville, Maryland, this day of

For the Nuclear Regulatory Commission.

Annette L. Vietti-Cook,
Secretary of the Commission.