

RULEMAKING ISSUE
(Notation Vote)

January 3, 2011

SECY-11-0002

FOR: The Commissioners

FROM: R. W. Borchardt
Executive Director for Operations

SUBJECT: PROPOSED RULE: AP1000 DESIGN CERTIFICATION AMENDMENT
(RIN 3150-AI81)

PURPOSE:

The purpose of this paper is to request Commission approval to publish for public comment a proposed rule that would certify an amendment to the AP1000 standard design. The amendment would replace combined license (COL) information items and design acceptance criteria (DAC) with specific design information, address compliance with the aircraft impact assessment (AIA) rule, Title 10 of the *Code of Federal Regulations* (10 CFR), Section 50.150, "Aircraft Impact Assessment," and incorporate design improvements resulting from detailed design efforts.

SUMMARY:

Westinghouse Electric Company LLC (Westinghouse) requested changes to the AP1000 certified design, which the U.S. Nuclear Regulatory Commission (NRC or Commission) approved in the AP1000 design certification rule (DCR), 10 CFR Part 52, "Licenses, Certifications, and Approvals for Nuclear Power Plants," Appendix D, "Design Certification Rule for the AP1000 Design." Westinghouse seeks to replace COL information items and DAC with specific design information, address compliance with 10 CFR 50.150, and incorporate design improvements resulting from detailed design efforts.

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The NRC staff reviewed the requested changes and documented its safety review in the advanced final safety evaluation report (AFSER), related to certification of the AP1000 standard design Revision 18, on December 28, 2010 (Agencywide Documents Access and Management System (ADAMS) Accession No. ML103260072). The staff believes that the amendment will continue to meet all applicable requirements in 10 CFR 52.54, "Issuance of Standard Design Certification." The final version of the safety evaluation report (SER) will only be subsequently modified to incorporate editorial (correction of typographic, grammatical, and cross-referencing errors) and conforming changes reflecting the Commission's staff requirements memorandum on this paper. It will be issued and available to the public by the time the proposed rule is published in the *Federal Register*. Therefore, the staff seeks Commission approval to publish in the *Federal Register* a proposed rule amending the AP1000 DCR.

BACKGROUND:

The AP1000 standard design was initially certified in Appendix D, to 10 CFR Part 52, on January 27, 2006 (71 FR 4464). The AP1000 standard design is described in Revision 15 to the design control document (DCD), which is incorporated by reference in Appendix D.

Westinghouse submitted Revision 16 to the DCD in its application to amend the AP1000 design certification on May 26, 2007 (ADAMS Accession No. ML071580939 (public version)). This application was supplemented by letters dated October 26, November 2, and December 12, 2007, and January 11 and January 14, 2008. On January 18, 2008, the NRC notified Westinghouse that it accepted the May 26, 2007, application, as supplemented, for docketing (Docket No. 52-006) (73 FR 4926; January 28, 2008) (ADAMS Accession No. ML073600743).

On September 22, 2008, Westinghouse submitted Revision 17 to the AP1000 DCD. Revision 17 contains changes to the DCD that have been previously accepted by the NRC in the course of its review of Revision 16 of the DCD. In addition, Revision 17 proposes changes to design acceptance criteria in the areas of piping design (Chapter 3), instrumentation and control systems (Chapter 7), and human factors engineering (Chapter 18).

On December 1, 2010, Westinghouse submitted Revision 18 of the DCD. Revision 18 includes all the DCD changes resulting from staff review of Revision 17, as well as additional design changes submitted during 2010, which have also been reviewed by NRC and documented in the AFSER.

The NRC staff completed its review of the AP1000 standard design amendment request and issued the publicly available final safety evaluation report related to certification of the AP1000 standard design Revision 18, on December 28, 2010, under ADAMS Accession No. ML103260072.

The AP1000 standard design certification amendment application has been referenced in the following COL applications:

<u>COL Name</u>	<u>Docketed Date</u>	<u>Docketing Federal Register Citation</u>
Vogtle 3 and 4	May 30, 2008	73 FR 33118
Bellefonte 3 and 4	January 18, 2008	73 FR 4923
Levy County 1 and 2	October 6, 2008	73 FR 60726
Shearon Harris 2 and 3	April 17, 2008	73 FR 21995
Turkey Point 6 and 7	September 4, 2009	74 FR 51621
Virgil C. Summer 2 and 3	August 1, 2008	73 FR 45793
William States Lee III, 1 and 2	February 25, 2008	73 FR 11156

DISCUSSION:

Scope and NRC Review of Westinghouse AP1000 Amendment Application

Westinghouse's request to amend the AP1000 certified design contains a large number of changes to the DCD. Many of the proposed changes relate to the satisfactory completion of COL information items and the resolution of DAC and other design changes resulting from detailed design efforts. The staff SER provides the safety basis for acceptability of changes. The changes range from minor editorial revisions to substantive modifications of the design.

The amendment was also reviewed by the Advisory Committee on Reactor Safeguards (ACRS) in 12 subcommittee meetings and 2 full committee meetings. In addition to its review of the application, the ACRS also reviewed the adequacy of long-term core cooling in response to a Commission SRM dated May 8, 2008.

Editorial Changes

Westinghouse requested changes to the AP1000 DCD to correct spelling, punctuation, grammar, designations, and references. None of these changes is intended to make any substantive change to the certified design, and NUREG-1793, "Final Safety Evaluation Report Related to Certification of the AP1000 Standard Design," Supplement 2, does not address these changes.

Changes to Address Consistency and Uniformity

Westinghouse requested changes to the AP1000 DCD to achieve consistency and uniformity in the description of the certified design throughout the DCD. For example, Westinghouse made a change to the type of reactor coolant pump (RCP) motor and wherever this RCP motor is described in the DCD a new description of the changed motor is used. The staff reviewed this proposed change and all other similar changes (to be used consistently throughout the DCD) to ensure that the proposed changes are technically acceptable and do not adversely affect the previously approved design description. The staff's bases for approval of these changes are set forth in the SER for the AP1000 amendment.

Substantive Technical Changes to the AP1000 Design (other than those needed for compliance with the AIA rule)

Among the many technical changes that are proposed for inclusion in Revision 18 of the DCD, the NRC selected 16 changes for specific discussion in the *Federal Register* notice (FRN) for the proposed rule ([Enclosure 1](#)), based on their safety significance. Fifteen of these changes are described in Table 1. The remaining change is for compliance with the AIA rule, such as the revised shield building design. The NRC staff evaluated the proposed changes and concluded that they are acceptable. The NRC's bases for approval of these changes are set forth in the SER for the AP1000 amendment.

A number of design changes were proposed after submittal of Revision 17 that were not related to staff questions on the changes previously offered. The staff had been preparing chapters of the SER (first with open items and subsequently as an AFSER without open items) and had issued several chapters before these changes were submitted. In order to simplify the review of these later changes, a separate chapter (Chapter 23) dedicated to this review is included in the AFSER. This chapter indicates which areas of the DCD are affected by each design change and the correspondence from Westinghouse that submitted the design changes and the basis for acceptability.

Revision 18 of the DCD contains both these newer design changes and those presented in Revision 17 (as modified through the staff review process). As a result of these reviews, a number of DCD revisions were identified as being necessary to support the staff's safety evaluation review. These revisions are marked within the SER as confirmatory items (CIs), meaning that Westinghouse agreed to include them in Revision 18 and NRC agreed that the changes are acceptable. The confirmatory nature is for staff verification that the changes are appropriately incorporated into Revision 18. For the final rule, the staff will confirm implementation of the CI commitments and remove the CI nomenclature from the SER. The final SER will reflect the committed action.

Shield Building Design Change and Non-Concurrence

In Revision 16, Westinghouse proposed to revise the design of the cylindrical wall of the shield building from a reinforced concrete structure to a steel plate concrete composite structure. Other proposed design changes to the building include lowering its height, revising the air vent configuration, and strengthening the roof. These design changes were developed to increase the robustness of the building for malevolent aircraft impact events.

The staff reviewed the revised design with respect to its ability to perform all required safety functions under design basis loading conditions. The staff's primary focus was on the capability of the building for seismic events, and the effect of the revised air vents on passive containment cooling. The staff did not accept the original design of the building as proposed, as discussed in an NRC letter dated October 15, 2009 (ADAMS Accession No. ML092320205). In response, Westinghouse made a number of significant modifications to the design.

The revised shield building design and supporting analysis and testing information are in a report dated September 30, 2010, "Design Report for the AP1000 Enhanced Shield Building" (ADAMS Accession No. ML102790595).

The staff's safety evaluation for the revised shield building design was issued on November 8, 2010 (ADAMS Accession No. ML102870605) in a proprietary document. A public version with necessary redactions is included in the AFSER (ADAMS Accession No. ML103260072). The complete details of the staff's review are in the AFSER. Summarized below are the staff findings with respect to ductility and safety of the steel composite walls.

The staff finds that the AP1000 shield building design has two different spacings for the tie-bars to ensure that the steel concrete composite (SC) modules will function as a unit. For the regions of the SC wall with higher out-of-plane shear loads, and where yielding of the SC wall would be expected to initiate under a combination of tensile forces and out-of-plane bending for seismic loads in excess of the design-basis loads, the tie-bars in the SC modules are more closely spaced to provide out-of-plane shear ductility.

The staff also finds that the purpose of shear tests is to establish the minimum shear reinforcement (tie-bars) to the SC module so that it can function as a unit to resist both out-of-plane and in-plane shear forces, provide sufficient ductility (energy absorption/dissipation capability) for seismic-induced energy, and provide sufficient stiffness for the shield building to meet the allowable building drift limit. The staff finds that the tests were an acceptable basis to establish this minimum.

The staff concluded that the applicant has: (1) performed testing to obtain data on the response and behavior for key failure modes of the SC wall modules; (2) developed confirmatory analysis models; (3) shown that the models predict the observed experimental behavior and response with acceptable accuracy up to the design-basis seismic load level (safe-shutdown earthquake (SSE)); and (4) used the confirmatory analysis to predict stresses and strains in critical areas of the shield building for the SSE load level.

Based on the above findings and the applicant's SSE load level predictions of low stress and strain values in the SC steel plates, tie-bars, and studs, the staff finds the applicant's confirmatory analysis approach to be acceptable.

On these bases, the staff concluded that the SC wall will provide adequate strength, stiffness, and ductility under design-basis (or SSE) seismic loads. The staff finds the design for strength, stiffness, and ductility to be acceptable.

A non-concurrence was filed on the staff's review and findings of the shield building design. The non-concurrence relates to ductility in regions of the shield building under out-of-plane shear loading. In accordance with agency policy, management has reviewed the non-concurrence and concluded that the AFSER did not require revision to address issues raised in the non-concurrence, and agreed with the staff bases for determining that the AP1000 shield building met regulatory requirements. A proprietary version of the documentation associated with the shield building non-concurrence and the management review is available under ADAMS Accession No. ML103020207. A redacted version of the documentation of the staff non-concurrence is available, "Redacted Version of Dissenting View on AP1000 Shield Building Safety Evaluation Report With Respect to the Acceptance of Brittle Structural Module to be Used for the Cylindrical Shield Building Wall" (ADAMS Accession No. ML103370648). The agency response to the dissenting view refers to the analysis and conclusions summarized above, in particular, the regions of the SC wall with higher out-of-plane shear loads, where yielding of the SC wall would be expected to initiate under seismic loads in excess of the

design-basis loads where the applicant detailed the SC modules with more closely spaced tie-bars to provide out-of-plane shear ductility. The agency response to the dissenting view continues to support the conclusions originally included in the AFSER.

During the ACRS full committee meeting held on December 2–4, 2010, the staff presented its shield building design safety evaluation and the non-concurrence was discussed. The ACRS agreed with the staff's safety evaluation position on the shield building design and concluded that the proposed changes in the AP1000 amendment maintain the robustness of the certified design and that there is reasonable assurance that the revised design can be built and operated without undue risk to the health and safety of the public.

Instrumentation and Controls Non-Concurrences

Subsequent to the completion of the staff interactions with the ACRS in November and December 2010, two non-concurrences were filed on the staff review associated with certain aspects of digital instrumentation and controls. These non-concurrences are discussed in greater detail below.

In Revision 18, Westinghouse proposed to remove an Inspection, Testing, Analysis, and Acceptance Criterion (ITAAC) for the Protection and Safety Monitoring System (PMS), which is the primary protection system for the AP1000. Westinghouse added a PMS ITAAC related to the Component Interface Module (CIM) hardware/software development life cycle. The CIM is part of the PMS; however, the design requirements phase was not completed for the CIM at the time of the amendment review. Therefore, the design requirements phase of the new CIM ITAAC is considered to be a DAC.

In addition to modifications to the PMS, Westinghouse proposed removal of an ITAAC associated with the Diverse Actuation System (DAS). The DAS provides the anticipated transient without scram mitigation functions for the AP1000, as well as the back-up engineered safety feature actuation functions to address a software common-cause failure of the PMS.

Two non-concurrences were filed on the staff's AFSER for Chapter 7 of the AP1000 design (ADAMS Package Accession No. ML103420563). The first non-concurrence, "Insufficient Diversity and Independence in the Implementation Process for AP1000 Instrumentation and Controls Systems," involved concerns identified with implementation of quality assurance and diversity for the developer of the CIM and DAS, which is a Westinghouse sub-supplier. The proprietary documentation associated with this non-concurrence and the management review is available under ADAMS Accession No. ML103510336, and a public version of the non-concurrence package is available under ADAMS Accession No. ML103620506. Since the staff's concerns are related to the implementation of the design, a vendor inspection will be conducted to follow-up on the quality assurance and design implementation concerns in the early part of 2011. Subsequently, this non-concurrence was withdrawn based on the staff's plans to conduct the vendor inspection.

The second non-concurrence involves adequate reliability and demonstration of performance for the DAS, which uses two-out-of-two voting logic. A single failure or on-line maintenance could prevent the DAS from performing its functions. The DAS functions were determined by using a focused probabilistic risk assessment study as opposed to the deterministic, best-estimate analysis recommended in staff guidance in Standard Review Plan BTP 7-19, "Guidance for

Evaluation of Diversity and Defense-in-Depth in Digital Computer-Based Instrumentation and Control Systems,” and the SRM dated July 21, 1993, on SECY-93-087, “Policy, Technical, and Licensing Issues Pertaining to Evolutionary and Advanced Light-Water Reactor (ALWR) Designs.” Both design aspects were previously approved in the certified design. In accordance with agency policy, management has reviewed the non-concurrence and concluded that the AFSER did not require revision to address issues raised in the non-concurrence and agreed with the staff bases for determining that the AP1000 DAS met regulatory requirements. The non-concurrence does not identify a basis for, or evidence of, safety concerns associated with the methods used in analyzing either the DAS or the functions and actuations credited in the safety analysis for the I&C system. Further, a best-estimate analysis might have provided some additional support for the conclusions in the safety evaluation; however, the existing technical documents submitted by the applicant and reviewed by the staff meet the applicable regulatory requirements and demonstrate the safety of the digital I&C system. A proprietary version of the documentation associated with this non-concurrence and the management review is available under ADAMS Accession No. ML103620334. A redacted, public version is available under ADAMS Accession No. ML103630486.

Compliance with the Aircraft Impact Assessment (AIA) Rule

As permitted under the AIA rule, 10 CFR 50.150, Westinghouse requested changes to the AP1000 DCD to address the requirements of the AIA rule. In addition, the rulemaking includes proposed changes to the AP1000 rule language in Section X of 10 CFR Part 52, Appendix D. These proposed changes to Section X reflect the AIA change and departure process, and the AIA rule’s recordkeeping and reporting requirements, as noted in the Statement of Considerations for the AIA rule (74 FR 28112; June 12, 2009, page 28121, second and third columns).

In the AFSER, the staff finds that Westinghouse has performed an AIA that is reasonably formulated to identify design features and functional capabilities to show, with reduced use of operator action, that the acceptance criteria in 10 CFR 50.150(a)(1) are met.

The staff conducted an inspection of Westinghouse’s AIA performed in support of its proposed amendment to the AP1000 certified design on September 27–October 1, 2010. As a result, on October 28, 2010, the staff issued a Severity Level IV Notice of Violation (NOV) to Westinghouse for failing to use realistic analyses for certain aspects of its AIA and for not fully identifying and incorporating into the design those design features and functional capabilities credited. With the exception of the issues identified in the NOV, the staff concluded that the Westinghouse AIA for the AP1000 certified design complies with the applicable requirements of 10 CFR 50.150.

Westinghouse submitted its response to the NOV on November 12, 2010, “Reply to Notice of Violation Cited in NRC Inspection Report No.: 05200006/2010-203 dated October 28, 2010” (ADAMS Accession No. ML103210409). On November 23, 2010, the staff replied to Westinghouse that the staff found Westinghouse’s letter acceptable to address the findings described in the NOV, “Westinghouse Electric Company Response to U.S. Nuclear Regulatory Commission (NRC) Inspection Report [05200006/2010-203] and Notice of Violation” (ADAMS Accession No. ML103260447). The NRC staff has no outstanding issues from the inspection of the Westinghouse AIA.

On November 19, 2010, Westinghouse briefed the ACRS on the details of its assessment and on December 16, 2010, the staff briefed the ACRS on its review and inspection. The ACRS plans to issue a separate letter on the AIA following their January 2011 full committee meeting.

Compliance with Backfit Rule and Finality Provisions of 10 CFR 52.63(a)(1)

The staff determined that the changes proposed by Westinghouse, with the exception of the changes necessary to comply with the AIA rule, meet the criteria in 10 CFR 52.63(a)(1) for allowing changes to a DCR. The new provisions of 10 CFR 50.150 contain the requirements of the AIA rule. Table 1 sets forth the 10 CFR 52.63(a)(1) criteria applicable to significant changes. These criteria apply to standard DCRs in effect under 10 CFR 52.55, "Duration of Certification," or 10 CFR 52.61, "Duration of Renewal." The finality provisions of 10 CFR 52.63 limit the Commission's ability to modify, rescind, or impose new requirements on the certification information to cases in which the Commission determines that a change is necessary. The [enclosed](#) FRN further describes the significant changes proposed to the AP1000 design and the bases for the NRC's determination that each change meets one of the finality criteria in 10 CFR 52.63(a)(1).

Table 1. Significant Changes to the AP1000 Design

Description of Change	SER Discussion Section	Finality Criterion Satisfied
Removal of Human Factors Engineering DAC from DCD	18.7.6, 18.5.9, 18.2.8, and 18.11	10 CFR 52.63(a)(1)(iv) (detailed design information-DAC)
Changes to Instrumentation and Control DAC and Inspections, Tests, Analyses, and Acceptance Criteria	7.2.2.3.14, 7.2.5, 7.7, 7.8.2, 7.9.2, and 7.9.3	10 CFR 52.63(a)(1)(iv)
Minimization of Contamination	12.2	10 CFR 52.63(a)(1)(vii) (contributes to increased standardization)
Extension of Seismic Spectra to Soil Sites and Changes to Stability and Uniformity of Subsurface Materials and Foundations	3.7, 2.5.2, and 2.5.4	10 CFR 52.63(a)(1)(vii)
Long-Term Cooling	6.2.1.8	10 CFR 52.63(a)(1)(vii)
Control Room Emergency Habitability System	6.4	10 CFR 52.63(a)(1)(vii)
Changes to the Component Cooling Water System	Chapter 23.V	10 CFR 52.63(a)(1)(vii)
Changes to Instrumentation and Control Systems	7.1, 7.3, 7.9	10 CFR 52.63(a)(1)(vii)
Changes to the Passive Core Cooling System – Gas Intrusion	Chapter 23.L	10 CFR 52.63(a)(1)(vii)
Integrated Head Package – Use of the QuickLoc Mechanism	5.2.3 and 12.4.2.3	10 CFR 52.63(a)(1)(vii)
Reactor Coolant Pump Design	5.4.1	10 CFR 52.63(a)(1)(vii)
Reactor Pressure Vessel Support System	Chapter 23.R	10 CFR 52.63(a)(1)(vii)
Spent Fuel Pool Decay Heat Analysis and Associated Design Changes	9.2.2	10 CFR 52.63(a)(1)(vii)
Spent Fuel Rack Design and Criticality Analysis	9.1.2	10 CFR 52.63(a)(1)(vii)
Vacuum Relief System	Chapter 23.W	10 CFR 52.63(a)(1)(vii)

With respect to the changes necessary to comply with the AIA rule, 10 CFR 50.150(a)(3)(v)(B) of the AIA rule requirements allows each of the four current DCRs to be amended to address compliance with the AIA rule, but requires that the DCR comply with the AIA rule no later than issuance of the renewed DCR. Inasmuch as these requirements are inconsistent with the issue finality provisions of 10 CFR 52.63(a)(1) and paragraphs VIII.A and VIII.B of the four current DCRs, the NRC “administratively exempted” the AIA rule, as applied to each of the four current DCRs, from the issue finality provisions in 10 CFR Part 52 (74 FR 28112; June 12, 2009, page 28144, first column). Accordingly, the Commission may approve the changes to the AP1000

needed to comply with the AIA rule without further consideration of the backfit rule, 10 CFR 50.109, or the issue finality provisions in 10 CFR 52.63.

Access to Safeguards Information (SGI) and Sensitive, Unclassified Non-Safeguards Information (SUNSI) (Including Proprietary Information (PI))

As discussed in SECY-10-0142 dated October 27, 2010, under ADAMS Accession No. ML102030495, for the proposed amendment to the Advanced Boiling-Water Reactor (ABWR) DCR to address compliance with the AIA rule, the staff is proposing to revise paragraph E of Section VI, "Issue Resolution," of Appendix D to 10 CFR Part 52, which describes the procedure that an interested member of the public must follow to obtain access to PI and SGI for the AP1000 design to request and participate in proceedings that involve licenses and applications that reference the AP1000 design. The staff is proposing to replace the current information in paragraph E with a statement that the NRC will specify, at an appropriate time, the procedure that interested persons must follow to review SGI or SUNSI (including PI), for the purpose of participating in the hearing required by 10 CFR 52.85, "Administrative review of applications; hearings," the hearing provided by 10 CFR 52.103, "Operation under a combined license," or any other proceeding related to Appendix D to 10 CFR Part 52 in which interested persons have a right to request an adjudicatory hearing. For a COL application referencing the AP1000 amendment, the procedures governing access to SUNSI (including PI) and SGI for the AP1000 amendment will be controlled by the Commission's access order published as part of the Notice of Order, Hearing, and Opportunity to Petition for Leave to Intervene for those COLs.

Rulemaking Procedure

The standard design certification amendment is being conducted in accordance with the applicable requirements in Subpart B, "Standard Design Certifications," of 10 CFR Part 52; 10 CFR Part 2, "Rules of Practice for Domestic Licensing Proceedings and Issuance of Orders"; and 10 CFR Part 51, "Environmental Protection Regulations for Domestic Licensing and Related Regulatory Functions." The rulemaking package includes the FRN of proposed rulemaking and the NRC's draft environmental assessment for the amendment to the AP1000 design. In addition, the FRN provides a 75-calendar day period for comment on those documents as well as the AP1000 DCD, which would be incorporated by reference into the DCR. The DCD is available on the NRC's public Web site at <http://www.nrc.gov/reactors/new-reactors/design-cert/amended-ap1000.html>. The proposed rule would also describe the process by which a member of the public could request and access PI, SUNSI, or SGI to provide meaningful comment on the proposed rule. This process and the rationale for this approach are consistent with the staff's proposal to the Commission in its draft proposed rule for amendment to the ABWR in SECY-10-0142.

RESOURCES:

The Office of New Reactors (NRO) has budgeted 0.7 full-time equivalent (FTE) to manage this rulemaking in the fiscal year (FY) 2011 President's budget. The Office of the General Counsel (OGC), Office of Administration, and Office of Information Services (OIS) have budgeted 0.1 FTE each in FY 2011 for this rulemaking.

NRO has requested 0.1 FTE in the FY 2012 budget request. Resources for other offices in FY 2012 and beyond, if necessary, will be requested through the planning, budget, and performance management process.

RECOMMENDATIONS:

That the Commission:

- (1) Approve the proposed amendment to 10 CFR Part 52 for publication in the *Federal Register*.
- (2) In order to satisfy requirements of the Regulatory Flexibility Act of 1980, as amended (5 U.S.C. § 605(b)), certify that this rule, if promulgated, will not have a negative economic impact on a substantial number of small entities.
- (3) Determine that:
 - (a) The proposed rule does not constitute “backfitting” as defined in the backfit rule (10 CFR 50.109, “Backfitting”);
 - (b) Compliance with the issue finality provisions of 10 CFR 52.63 with respect to changes necessary to comply with the AIA rule were addressed in the AIA rulemaking, when the Commission “administratively exempted” the AIA rule from the issue finality provisions in 10 CFR Part 52; and
 - (c) The Westinghouse-initiated changes to the AP1000 design meet the issue finality provisions of 10 CFR 52.63.
- (4) Note the following:
 - (a) The NRC will publish the proposed rule ([Enclosure 1](#)) in the *Federal Register* for a 75-calendar day comment period.
 - (b) The staff has performed an environmental assessment that resulted in a finding of no significant impact and evaluated severe accident mitigation design alternatives for the proposed amendment ([Enclosure 2](#)).
 - (c) This proposed rule would amend information collection requirements that are subject to the Paperwork Reduction Act of 1995 (44 U.S.C. § 3501 et seq.). These information collection requirements must be submitted to the Office of Management and Budget (OMB) for approval on, or immediately after, the date of publication of the proposed rule in the *Federal Register*. OMB’s approval may impact the schedule for this rulemaking if it is not received before the Commission’s decision on the final rule.
 - (d) The staff will inform the Chief Counsel for Advocacy of the Small Business Administration of the certification on the economic impact on small entities and the reasons for it, as required by the Regulatory Flexibility Act of 1980 (Section XIII of [Enclosure 1](#)).

- (e) The appropriate Congressional committees will be informed.
- (f) The Office of Public Affairs will issue a press release.
- (g) The staff will use a communication plan that includes frequently asked questions on the DCR process and the use of a DCR in referenced COL applications, as well as questions prepared specifically for this amendment to the AP1000 standard design.

COORDINATION:

OGC has reviewed this paper and has no legal objections, subject to OGC's review of the expected ACRS letter on aircraft impact and the staff response to that letter. The Office of the Chief Financial Officer does not need to review this paper because resources do not exceed 1 FTE in any fiscal year. OIS has reviewed this paper for information technology and information management implications and concurs with it.

The staff presented the Advanced SER for the Westinghouse amendment of the AP1000 design certification to the ACRS on December 2, 2010. In a letter to the Chairman dated December 13, 2010 (ADAMS Accession No. ML103410351), the ACRS stated that the Westinghouse application to amend the AP1000 DCR and the staff's SER are acceptable. Additionally, in a letter to the Chairman dated December 20, 2010 (ADAMS Accession No. ML103410348), the ACRS stated that the regulatory requirements for long-term cooling for design-basis accidents have been adequately met and the issue is closed for the AP1000 design. The staff will provide an information copy of the [enclosed](#) FRN to the ACRS after publication.

/RA by Martin J. Virgilio for/

R. W. Borchardt
Executive Director
for Operations

Enclosures:

1. [Federal Register Notice](#)
2. [Environmental Assessment](#)

NUCLEAR REGULATORY COMMISSION

10 CFR Part 52

RIN 3150-AI81

NRC-2010-0131

AP1000 Design Certification Amendment

AGENCY: U.S. Nuclear Regulatory Commission.

ACTION: Proposed rule.

SUMMARY: The U.S. Nuclear Regulatory Commission (NRC or Commission) proposes to amend its regulations to certify an amendment to the AP1000 standard plant design. The purpose of the amendment is to replace the combined license (COL) information items and design acceptance criteria (DAC) with specific design information, address the effects of the impact of a large commercial aircraft, incorporate design improvements, and increase standardization of the design. Upon NRC rulemaking approval of its amendment to the AP1000 design, an applicant seeking an NRC license to construct and operate a nuclear power reactor using the AP1000 design need not demonstrate in its application the safety of the certified design. The applicant for this amendment to AP1000 certified design is Westinghouse Electric Company, LLC (Westinghouse). The public is invited to submit comments on this proposed design certification rule (DCR), the revised generic design control document (DCD) that would be incorporated by reference into the DCR, and the environmental assessment (EA) for this amendment to the AP1000 design.

DATES: Submit comments on the DCR, the revised DCD and/or the EA for this amendment by **[insert date 75 days after publication in the *Federal Register*]**. Submit comments specific to the information collections aspects of this rule by **[insert date 30 days after publication in the *Federal Register*]**. Comments received after the above dates will be considered if it is practical

to do so, but assurance of consideration of comments received after these dates cannot be given.

ADDRESSES: Please include Docket ID NRC-2010-0131 in the subject line of your comments. For instructions on submitting comments and accessing documents related to this action, see Section I, "Submitting Comments and Accessing Information" in the SUPPLEMENTARY INFORMATION section of this document. You may submit comments by any one of the following methods.

Federal Rulemaking Web site: Go to <http://www.regulations.gov> and search for documents filed under Docket ID NRC-2010-0131. Address questions about NRC dockets to Carol Gallagher, telephone 301-492-3668; e-mail Carol.Gallagher@nrc.gov.

Mail comments to: Secretary, U.S. Nuclear Regulatory Commission, Washington DC 20555-0001, ATTN: Rulemakings and Adjudications Staff.

E-mail comments to: Rulemaking.Comments@nrc.gov. If you do not receive a reply e-mail confirming that we have received your comments, contact us directly at 301-415-1677.

Hand Deliver comments to: 11555 Rockville Pike, Rockville, Maryland 20852 between 7:30 a.m. and 4:15 p.m. during Federal workdays (telephone 301-415-1677).

Fax comments to: Secretary, U.S. Nuclear Regulatory Commission at 301-415-1101.

FOR FURTHER INFORMATION CONTACT: Serita Sanders, Office of New Reactors, U.S. Nuclear Regulatory Commission, Washington DC 20555-0001; telephone 301-415-2956; e-mail: serita.sanders@nrc.gov.

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I. Submitting Comments and Accessing Information

Comments submitted in writing or in electronic form will be posted on the NRC Web site and on the Federal rulemaking Web site <http://www.regulations.gov>. Because your comments

will not be edited to remove any identifying or contact information, the NRC cautions you against including any information in your submission that you do not want to be publicly disclosed. The NRC requests that any party soliciting or aggregating comments received from other persons for submission to the NRC inform those persons that the NRC will not edit their comments to remove any identifying or contact information, and, therefore, they should not include any information in their comments that they do not want publicly disclosed.

Documents which are not publicly available because they contain proprietary information (PI), sensitive unclassified non-safeguards information (SUNSI), or safeguards information (SGI) may be requested by interested persons who wish to comment on the proposed DCR. Such persons shall follow the procedures described in Section VII of the Supplementary Information SUPPLEMENTARY INFORMATION section of this document.

You can access publicly available documents related to this document using the following methods:

NRC's Public Document Room (PDR): The public may examine and have copied for fee publicly available documents at the NRC's PDR, Room O-1F21, One White Flint North, 11555 Rockville Pike, Rockville, Maryland 20852.

NRC's Agencywide Documents Access and Management System (ADAMS): Publicly available documents created or received at the NRC are available electronically at the NRC's Electronic Reading Room at <http://www.nrc.gov/reading-rm/adams.html>. From this page, the public can gain entry into ADAMS, which provides text and image files of NRC's public documents. If you do not have access to ADAMS or if there are problems in accessing the documents located in ADAMS, contact the NRC's PDR reference staff at 1-800-397-4209, 301-415-4737, or by e-mail to PDR.Resource@nrc.gov.

Federal Rulemaking Web site: Public comments and supporting materials related to this proposed rule can be found at <http://www.regulations.gov> by searching on Docket ID NRC-2010-0131.

Documents that are not publicly available because they are considered to be either SUNSI (including SUNSI constituting PI) or SGI may be available to interested persons who may wish to comment on the proposed design certification amendment. Interested persons shall follow the procedures described in the Supplementary Information section of this notice, Section VII, "Procedures for Access to Sensitive Unclassified Non-Safeguards Information and Safeguards Information for Preparation of Comments on the Proposed Amendment to the AP1000 Design Certification."

II. Background

Title 10 of the *Code of Federal Regulations* (10 CFR), Part 52, "Licenses, Certifications, and Approvals for Nuclear Power Plants," Subpart B, presents the process for obtaining standard design certifications. Section 52.63, "Finality of standard design certifications," provides criteria for determining when the Commission may amend the certification information for a previously certified standard design in response to a request for amendment from any person.

During its initial certification of the AP1000 design, the NRC issued a final safety evaluation report (FSER) for the AP1000 as NUREG-1793, "Final Safety Evaluation Report Related to Certification of the AP1000 Standard Design," in September 2004. From March 2006 through May 2007, NuStart Energy Development, LLC (NuStart)¹ and Westinghouse provided the NRC with a number of technical reports (TRs) for pre-application review in an effort to: 1) close specific, generically applicable COL information items (information to be supplied by COL

¹ The NuStart member companies are: Constellation Generation Group, LLC, Duke Energy Corporation, EDF-International North America, Inc., Entergy Nuclear, Inc, Exelon Generation Company, LLC, Florida Power and Light Company, Progress Energy, and Southern Company Services, Inc.

applicants/holders) in the AP1000 certified standard design; 2) identify standard design changes resulting from the AP1000 detailed design efforts; and 3) provide specific standard design information in areas or for topics where the AP1000 DCD was focused on the design process and acceptance criteria. TRs typically addressed a topical area (e.g., redesign of a component, structure or process) and included the technical details of a proposed change, design standards, analyses and justifications as needed, proposed changes to the DCD, and Westinghouse's assessment of the applicable regulatory criteria (e.g. the assessment of the criteria in 10 CFR Part 52, Appendix D, Section VIII, "Processes for Changes and Departures"). The NRC identified issues associated with the TRs and engaged Westinghouse in requests for additional information and meetings during the pre-application phase to resolve them.

On May 26, 2007, Westinghouse submitted Revision 16 (ADAMS Accession No. ML071580939) of its application via transmittal letter (ADAMS Accession No. ML071580757) to amend the AP1000 design certification. This application was supplemented by letters dated October 26, November 2, and December 12, 2007, and January 11 and January 14, 2008. The application noted, in part:

1) Generic amendments to the design certification including additional design information to resolve DAC and design-related COL information items, as well as design information to make corrections and changes, would result in further standardization and improved licensing efficiency for the multiple COL applications referencing the AP1000 DCR that were planned for submittal in late 2007 and early 2008.

2) Westinghouse, in conjunction with NuStart, has been preparing TRs since late 2005. These TRs were developed with input, review, comment, and other technical oversight provided by NuStart members including the prospective AP1000 COL applicants.

Submittal of these TRs to the NRC was initiated in March 2006. The TRs contain

discussion of the technical changes and supplemental information that is used to support the detailed information contained in the DCD.

In Attachment 2 to the May 26, 2007, application, Westinghouse identified the criteria of 10 CFR 52.63(a)(1) that apply to the changes described in each TR and associated COL information items, if applicable.

On January 18, 2008, the NRC notified Westinghouse that it accepted the May 26, 2007, application, as supplemented, for docketing (Docket No. 52-006) and published a notice of acceptance (ADAMS Accession No. ML073600743) in the *Federal Register* (73 FR 4926, January 28, 2008). On September 22, 2008, Westinghouse submitted Revision 17 to the AP1000 DCD. Revision 17 contains changes to the DCD that have been previously accepted by the NRC in the course of its review of Revision 16 of the DCD. In addition, Revision 17 proposes changes to DAC in the areas of piping design (Chapter 3), instrumentation and control (I&C) systems (Chapter 7) and human factors engineering (HFE) (Chapter 18). Revision 17 also includes a number of design changes not previously discussed with the NRC.

The NRC issued guidance on the finalization of design changes in Interim Staff Guidance (ISG) DC/COL-ISG-011, "Finalizing Licensing-basis Information," (ADAMS Accession No. ML092890623), which describes various categories of design changes that should not be deferred and those that should be included in the DCR.

By letter dated January 20, 2010, Westinghouse submitted a list of design change packages that would be included in Revision 18 of the AP1000 DCD (ADAMS Accession No. ML100250888). A number of subsequent submittals were made by Westinghouse to narrow the focus to those design changes to the categories of changes that should not be deferred, as recommended by DC/COL-ISG-011.

Revision 18 to the AP1000 DCD (ADAMS Accession No. ML103480572) was submitted on December 1, 2010, and contains both proposed changes previously described in the design

change packages and changes already accepted by the NRC in the review process of Revision 17 to the AP1000 DCD. In the course of the review of both design change packages, the NRC determined that DCD changes were needed. In response to NRC questions, Westinghouse proposed such changes. Once the NRC was satisfied with these DCD markups, they were documented in the safety evaluation report (SER) as CIs. The CIs were first identified during the NRC's review of Revision 17 of the AP1000 DCD. With the review of Revision 18, the NRC will confirm that Westinghouse has made those changes to the DCD accepted by the NRC that were not addressed in Revision 17 to the AP1000 DCD. The use of CIs is restricted to cases where the NRC has reviewed and approved specific design control document proposals. For the final rule, the NRC will complete the review of the CIs and prepare a FSER reflecting that action. The CIs are closed based upon an acceptable comparison between the revised DCD text and the text required by the CI. No technical review of Revision 18 by the NRC is necessary, because only CIs and design changes pursuant to DC/COL-ISG-011 previously accepted by the NRC are contained in Revision 18 to the DCD.

In order to simplify the NRC's review of the design change documentation, and to simplify subsequent review by the NRC's Advisory Committee on Reactor Safeguards (ACRS), the design changes pursuant to DC/COL-ISG-011 are reviewed in a separate chapter (Chapter 23) of the FSER. This chapter indicates which areas of the DCD are affected by each design change and the letters from Westinghouse that submitted them. In some cases, NRC's review of the design changes reviewed in Chapter 23 may be incorporated into the chapters of the FSER where this material would normally be addressed because of the relationship between individual design changes and the review of prior DCD changes from Revisions 16 and 17 of the DCD.

The Westinghouse Revision 18 letter includes an enclosure providing a cross-reference to the DCD changes and the applicable 10 CFR 52.63(a)(1) criteria. Revision 17 provides a

similar cross-reference in the September 22, 2008, Westinghouse letter for those changes associated with the revised DCD. Revision 16 on the other hand, uses TRs to identify the DCD changes and lists the corresponding applicable 10 CFR 52.63(a)(1) criteria via Westinghouse memorandum, dated May 26, 2007 (Table 1).

As of the date of this document, the application for amendment of the AP1000 design certification has been referenced in the following COL applications:

Vogle, Units 3 and 4, Docket No. 05200025/6, 73 FR 33118

Bellefonte Nuclear Station, Units 3 and 4, Docket Nos. 05200014/5, 73 FR 4923

Levy County, Units 1 and 2, Docket Nos. 05200029/30, 73 FR 60726

Shearon Harris Units 2 and 3, Docket Nos. 05200022/3, 73 FR 21995

Turkey Point, Units 6 and 7, Docket Nos. 05200040/1, 74 FR 51621

Virgil C. Summer, Units 2 and 3, Docket Nos. 05200027/8, 73 FR 45793

William States Lee III, Units 1 and 2, Docket Nos. 05200018/9, 73 FR 11156

III. Discussion

A. Technical Evaluation of Westinghouse Amendment to the AP1000 Design

Westinghouse's request to amend the AP1000 design contained several classes of changes. Each class is discussed below:

Editorial Changes

Westinghouse requested changes to the AP1000 DCD to correct spelling, punctuation, grammar, designations, and references. None of these changes is intended to make any substantive changes to the certified design, and NUREG-1793, "Final Safety Evaluation Report Related to Certification of the AP1000 Standard Design," Supplement 2 (SER) does not address these changes.

Changes to Address Consistency and Uniformity

Westinghouse requested changes to the AP1000 DCD to achieve consistency and uniformity in the description of the certified design throughout the DCD. For example, a change to the type of reactor coolant pump (RCP) motor is evaluated in Chapter 5 of the SER on the application for the AP1000 amendment; Westinghouse requested that wherever this RCP motor is described in the DCD, the new description of the changed motor be used. The NRC reviewed the proposed change (to be used consistently throughout the DCD) to ensure that the proposed changes needed for uniformity and consistency are technically acceptable and do not adversely affect the previously approved design description. The NRC's bases for approval of these changes are set forth in the SER for the AP1000 amendment.

Substantive Technical Changes to the AP1000 Design (other than those needed for compliance with the AIA rule)

Among the many technical changes that are proposed by Westinghouse for inclusion in Revision 18 of the AP1000 DCD, the NRC selected 15 substantive changes for specific discussion in this proposed rule notice, based on their safety significance:

- Removal of Human Factors Engineering Design Acceptance Criteria (DAC) from the DCD
- Change to Instrumentation and Control (I&C) DAC and Inspection, Test, Analysis, and Acceptance Criteria (ITAAC)
- Minimization of Contamination
- Change to I&C DAC and ITAAC
- Long-Term Cooling
- Control Room Emergency Habitability System
- Changes to the Component Cooling Water System (CCWS)
- Changes to I&C Systems

- Changes to the Passive Core Cooling System (PCCS) – Gas Intrusion
- Integrated Head Package (IHP) – Use of the QuickLoc Mechanism
- Reactor Coolant Pump Design
- Reactor Pressure Vessel (RPV) Support System
- Spent Fuel Pool (SFP) Decay Heat Analysis and Associated Design Changes
- Spent Fuel Rack Design and Criticality Analysis
- Vacuum Relief System

The NRC evaluated each of the proposed changes and concluded that they are acceptable. The NRC's bases for approval of these changes are set forth in the SER for the AP1000 amendment. Further information about how each of these changes is provided in Section XIV, "Backfitting," of this notice.

Changes to Address Compliance with the AIA Rule

Westinghouse requested changes to the AP1000 design in order to comply with the requirements of the AIA rule, 10 CFR 50.150. The NRC confirmed that Westinghouse has adequately described key AIA design features and functional capabilities in accordance with the AIA rule and conducted an assessment reasonably formulated to identify design features and functional capabilities to show, with reduced use of operator action, that the facility can withstand the effects of an aircraft impact. In addition, the NRC determined that there will be no adverse impacts from complying with the requirements for consideration of aircraft impacts on conclusions reached by the NRC in its review of the original U.S. AP1000 design certification. The NRC's bases for approval of these changes are set forth in the SER for the AP1000 amendment. As a result of these changes, the AP1000 design will achieve the Commission's objectives of enhanced public health and safety and enhanced common defense and security

through improvement of the facility's inherent robustness to the impact of a large commercial aircraft at the design stage.

B. Changes to Appendix D

1. Scope and Contents (Section III).

The purpose of Section III is to describe and define the scope and contents of this design certification and to present 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 technical specifications (TSs) into this appendix. The NRC is proposing to update the revision number of the DCD that would be incorporated by reference to the revision Westinghouse provided to the NRC in its application for amendment to this DCR.

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. The AP1000 DCD was prepared to meet the technical information contents of application requirements for design certifications under 10 CFR 52.47(a) and the requirements of the OFR for incorporation by reference under 1 CFR Part 51. One requirement of the OFR for incorporation by reference is that the applicant for the design certification (or amendment to the design certification) makes the generic DCD available upon request after the final rule becomes effective. Therefore, paragraph A would identify a Westinghouse representative to be contacted to obtain a copy of the AP1000 DCD. The NRC is proposing to update the Westinghouse representative's contact information in this DCR.

The AP1000 DCD is electronically accessible under ADAMS Accession No. ML103480572, at the OFR, and at www.regulations.gov by searching under Docket ID NRC-2010-0131. Copies of the generic DCD would also be available at the NRC's 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 the design certification amendment applicant makes a generic change (through NRC rulemaking) to the DCD under 10 CFR 52.63 and the change process provided in Section VIII, then at the completion of the rulemaking the NRC would request approval of the Director, OFR, for the revised master DCD. The NRC would require that the design certification amendment applicant maintain an up-to-date copy of the master DCD under paragraph A.1 in Section X and that it include any generic changes made.

The NRC is also proposing a change to paragraph D. Paragraph D establishes the generic DCD as the controlling document in the event of an inconsistency between the DCD and the design certification application or the FSER for the certified standard design. The proposed revision would renumber paragraph D as paragraph D.1, clarify this requirement as applying to the initial design certification, and add a similar paragraph D.2 to indicate that this is also the case for an inconsistency between the generic DCD and the amendment application and the NRC's associated FSER for the amendment.

2. Additional Requirements and Restrictions (Section IV).

Section IV presents additional requirements and restrictions imposed upon an applicant who references Appendix D to 10 CFR Part 52. Paragraph A presents the information requirements for these applicants. Paragraph A.3 currently requires the applicant to include, not simply reference, the PI and SGI referenced in the AP1000 DCD, or its equivalent, to ensure that the applicant has actual notice of these requirements. The NRC is proposing to revise paragraph A.3 to indicate that a COL applicant must include, in the plant-specific DCD, the SUNSI (including PI) and SGI referenced in the AP1000 DCD. This revision would address a wider class of information (SUNSI) to be included in the plant-specific DCD, rather than limiting the required information to PI. The requirement to include SGI in the plant-specific DCD would

not change.

The NRC is also proposing to add a new paragraph A.4 to indicate requirements that must be met in cases where the COL applicant is not using the entity that was the original applicant for the design certification (or amendment) to supply the design for the applicant's use. Proposed paragraph A.4 would require that a COL applicant referencing Appendix D to 10 CFR Part 52 include, as part of its application, a demonstration that an entity other than Westinghouse is qualified to supply the AP1000 certified design unless Westinghouse supplies the design for the applicant's use. In cases where a COL applicant is not using Westinghouse to supply the AP1000 certified design, this information is necessary to support any NRC finding under 10 CFR 52.73(a) that the entity is qualified to supply the certified design.

3. Applicable Regulations (Section V).

The purpose of Section V is to specify the regulations applicable and in effect when the design certification is approved (i.e., as of the date specified in paragraph A, which will be the date that the proposed revisions to Appendix D are approved by the Commission and the final rule is signed by the Secretary of the Commission). The NRC is proposing to redesignate paragraph A as paragraph A.1 to indicate that this paragraph applies to that portion of the design that was certified under the initial design certification. The NRC is further proposing to add new paragraph A.2, similar to that of paragraph A.1, to indicate the regulations that would apply to that portion of the design within the scope of this amendment, as would be approved by the Commission and signed by the Secretary of the Commission.

4. Issue Resolution (Section VI).

The purpose of Section VI is to identify the scope of issues that were resolved by the Commission in the original certification rulemaking, and, therefore, are "matters resolved" within the meaning and intent of 10 CFR 52.63(a)(5). Paragraph B presents the scope of issues that may not be challenged as a matter of right in subsequent proceedings and describes the

categories of information for which there is issue resolution. Paragraph B.1 provides that all nuclear safety issues arising from the Atomic Energy Act of 1954 (the Act), as amended, that are associated with the information in the NRC's final safety evaluation report related to certification of the AP1000 standard design (ADAMS Accession No. ML103260072) and the Tier 1 and Tier 2 information and the rulemaking record for Appendix D to 10 CFR Part 52, are resolved within the meaning of 10 CFR 52.63(a)(5). 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 SGI, which are intended to be requirements. Paragraph B.2 provides for issue preclusion of proprietary and SGI.

The NRC is proposing to revise paragraph B.1 to extend issue resolution to the information contained in the NRC's FSER (Supplement No. 2) and the rulemaking record for this amendment. In addition, the NRC is proposing to revise paragraph B.2 to extend issue resolution to the broader category of SUNSI, including PI, referenced in the generic DCD.

The NRC is also proposing to revise paragraph B.7, which identifies as resolved all environmental issues concerning severe accident mitigation design alternatives (SAMDA) arising under the National Environmental Policy Act of 1969 (NEPA) associated with the information in the NRC's final EA for the AP1000 design and Appendix 1B of the generic DCD (Revision 15) for plants referencing Appendix D to 10 CFR Part 52 whose site parameters are within those specified in the SAMDA evaluation. The NRC is proposing to revise this paragraph to also identify as resolved all environmental issues concerning SAMDA associated with the information in the NRC's final EA for this amendment and Appendix 1B of Revision 18 of the generic DCD for plants referencing Appendix D to 10 CFR Part 52 whose site parameters are within those specified in the SAMDA evaluation.

Finally, the NRC is proposing to revise paragraph E which provides the procedure for an interested member of the public to obtain access to SUNSI (including PI) and SGI for the

AP1000 design to request and participate in proceedings, as identified in paragraph B, involving licenses and applications which reference Appendix D to 10 CFR Part 52. The NRC is proposing to replace the current information in this paragraph with a statement that the NRC will specify at an appropriate time the procedure for interested persons to review SGI or SUNSI (including PI), for the purpose of participating in the hearing required by 10 CFR 52.85, the hearing provided under 10 CFR 52.103, or in any other proceeding relating to Appendix D to 10 CFR Part 52 in which interested persons have a right to request an adjudicatory hearing. The NRC expects to follow its current practice of establishing the procedures by order when the notice of hearing is published in the *Federal Register*. (See, e.g., Florida Power and Light Co, Combined License Application for the Turkey Point Units 6 and 7, Notice of Hearing, Opportunity To Petition for Leave To Intervene and Associated Order Imposing Procedures for Access to Sensitive Unclassified Non-Safeguards Information and Safeguards Information for Contention Preparation (75 FR 34777; June 18, 2010); Notice of Receipt of Application for License; Notice of Consideration of Issuance of License; Notice of Hearing and Commission Order and Order Imposing Procedures for Access to Sensitive Unclassified Non-Safeguards Information and Safeguards Information for Contention Preparation; In the Matter of AREVA Enrichment Services, LLC (Eagle Rock Enrichment Facility) (74 FR 38052; July 30, 2009).)

In the four currently approved design certifications (10 CFR Part 52, Appendices A through D), paragraph E presents specific directions on how to obtain access to PI and SGI on the design certification in connection with a license application proceeding referencing that DCR. The NRC is proposing this change because these provisions were developed before the terrorist events of September 11, 2001. After September 11, 2001, Congress changed the statutory requirements governing access to SGI, and the NRC revised its rules, procedures, and practices governing control and access to SUNSI and SGI. The NRC now believes that generic direction on obtaining access to SUNSI and SGI is no longer appropriate for newly approved

DCRs. Accordingly, the specific requirements governing access to SUNSI and SGI contained in paragraph E of the four currently approved DCRs should not be included in the DCR for the AP1000. Instead, the NRC should specify the procedures to be used for obtaining access at an appropriate time in the COL proceeding referencing the AP1000 DCR. The NRC intends to include the new rule language in any future amendments or renewals of the currently existing DCRs, as well as in new (initial) DCRs. However, the NRC is not planning to initiate rulemaking to change paragraph E of the existing DCRs, to minimize unnecessary resource expenditures by both the original DCR applicant and the NRC.

5. Processes for Changes and Departures (Section VIII).

The purpose of Section VIII is to present the processes for generic changes to, or plant-specific departures (including exemptions) from, the DCD. The Commission adopted this restrictive change process to achieve a more stable licensing process for applicants and licensees that reference this DCR. 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 presented in paragraph B.

Departures from Tier 2 that a licensee may make without prior NRC approval are addressed under paragraph B.5 (similar to the process in 10 CFR 50.59). The NRC is proposing changes to Section VIII to address the change control process specific to departures from the information required by 10 CFR 52.47(a)(28) to address the NRC's AIA requirements in 10 CFR 50.150. Specifically, the NRC is proposing to revise paragraph B.5.b to indicate that the criteria in this paragraph for determining if a proposed departure from Tier 2 requires a license amendment do not apply to a proposed departure affecting information required by 10 CFR 52.47(a)(28) to address 10 CFR 50.150. In addition, the NRC is proposing to redesignate paragraphs B.5.d, B.5.e, and B.5.f as paragraphs B.5.e, B.5.f, and B.5.g, respectively, and to add a new paragraph B.5.d. Proposed paragraph B.5.d would require an

applicant or licensee who proposed to depart from the information required by 10 CFR 52.47(a)(28) to be included in the final safety analysis report (FSAR) for the standard design certification to consider the effect of the changed feature or capability on the original assessment required by 10 CFR 50.150(a). The FSAR information required by the AIA rule which is subject to this change control requirement includes the descriptions of the design features and functional capabilities incorporated into the final design of the nuclear power facility and the description of how the identified design features and functional capabilities meet the assessment requirements in 10 CFR 50.150(a)(1). The objective of the change controls is to determine whether the design of the facility, as changed or modified, is shown to withstand the effects of the aircraft impact with reduced use of operator actions. In other words, the applicant or licensee must continue to show, with the modified design, that the acceptance criteria in 10 CFR 50.150(a)(1) are met with reduced use of operator actions. The AIA rule does not require an applicant or a licensee implementing a design change to redo the complete AIA to evaluate the effects of the change. The NRC believes it may be possible to demonstrate that a design change is bounded by the original design or that the change provides an equivalent level of protection, without redoing the original assessment.

Consistent with the NRC's intent when it issued the AIA rule, under the proposed revision to this section, plant-specific departures from the AIA information in the FSAR would not require a license amendment, but may be made by the licensee upon compliance with the substantive requirements of the AIA rule (i.e., the AIA rule acceptance criteria). The applicant or licensee would also be required to document, in the plant-specific departure, how the modified design features and functional capabilities continue to meet the assessment requirements in 10 CFR 50.150(a)(1), in accordance with Section X of Appendix D to 10 CFR Part 52. Applicants and licensees making changes to design features or capabilities included in the certified design may also need to develop alternate means to cope with the loss of large areas

of the plant from explosions or fires to comply with the requirements in 10 CFR 50.54(hh). The proposed addition of these provisions to Appendix D to 10 CFR Part 52 is consistent with the NRC's intent when it issued the AIA rule in 2009, as noted in the statements of consideration for that rule (74 FR 28112; June 12, 2009, at page 28122, third column).

Paragraph B.6 of Appendix D to 10 CFR Part 52 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 the ABWR design certification (Appendix A to 10 CFR Part 52) and the ABB-CE [ASEA Brown Boveri – Combustion Engineering] System 80+ design certification (Appendix B to 10 CFR 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 that would not be specified in Tier 1, but were acceptable for meeting ITAAC were specified in Tier 2. The result of these actions was that certain significant information only exists in Tier 2 and the Commission did not want this significant information to be changed without prior NRC approval. This Tier 2* information was identified in the generic DCD with italicized text and brackets (See Table 1-1 of the AP1000 DCD Introduction for a list of the Tier 2* items). 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 power (100 percent), 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 would cease 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 would be deemed to be Tier 2 information that would be subject to the departure requirements in paragraph B.5. By contrast, the Tier 2* information identified in paragraph B.6.b would retain its Tier 2* designation throughout the duration of the license, including any period of license renewal.

The NRC is proposing to revise certain items designated as Tier 2*. The item on HFE would be moved from paragraph B.5.b to paragraph B.5.c, with the effect that the Tier 2* designation on that information would expire after full-power operation is achieved rather than never expiring. In addition, a new item would be added to paragraph B.5.b for RCP type. The NRC determined that certain specific characteristics of the RCP were significant to the safety review and that prior approval of changes affecting those characteristics would be required. This Tier 2* designation does not expire.

Finally, the NRC also concluded that the Tier 2* designation was not necessary for the specific Code edition and addenda for the American Society of Mechanical Engineers Boiler and Pressure Vessel Code (ASME Code), as listed in item VIII.B.6.c.(2). At the time of the initial certification, the NRC determined that this information should be Tier 2*. Subsequently, 10 CFR Part 50 was modified to include provisions in 10 CFR 50.55a(b)(1)(iii) to provide restrictions in the use of certain editions/addenda to the ASME Code, Section III, that the NRC found unacceptable. In addition, 10 CFR 50.55a(c)(3), (d)(2) and (e)(2), for reactor coolant pressure boundary, Quality Group B Components, and Quality Group C Components, respectively, provide regulatory controls on the use of later edition/addenda to the ASME Code, Section III, through the conditions NRC established on use of paragraph NCA-1140 (of the Code). As a result, these rule requirements adequately control the ability of a licensee to use a later edition of the ASME Code and addenda such that Tier 2* designation is not necessary. Thus, the Tier 2* item in paragraph B.6.c.(2) for ASME Code was modified to be limited to ASME Code

pipings design restrictions as identified in Section 5.2.1.1 of the AP1000 DCD and to include certain Code cases, including Code Case N-284-1, as discussed in Section 3.8.2.2 and other Code cases as designated in Table 5.2-3 of the DCD (Code Case N-284-1 is the only case currently specified in Appendix D to 10 CFR Part 52). The NRC retained the Tier 2* designation for applying ASME Code, Section III, Subsection NE to containment design, by moving this provision to the end of item VIII.B.6.c.(14). Section 3.8.2.2 of the DCD identifies the specific edition and addenda for containment design (2001 Edition of ASME Code, Section III, including 2002 Addenda), with the Tier 2* markings.

6. Records and Reporting (Section X).

The purpose of Section X is to present the requirements that apply to maintaining records of changes to and departures from the generic DCD, which would be reflected in the plant-specific DCD. Section X also presents the requirements for submitting reports (including updates to the plant-specific DCD) to the NRC. Paragraph A.1 requires that a generic DCD and the PI and SGI referenced in the generic DCD be maintained by the applicant for this rule. The NRC is proposing to revise paragraph A.1 to replace the term "proprietary information," or PI, with the broader term "sensitive unclassified non-safeguards information," or SUNSI. Information categorized as SUNSI is information that is generally not publicly available and encompasses a wide variety of categories. These categories include information about a licensee's or applicant's physical protection or material control and accounting program for special nuclear material not otherwise designated as SGI or classified as National Security Information or Restricted Data (security-related information), which is required by 10 CFR 2.390 to be protected in the same manner as commercial or financial information (i.e., they are exempt from public disclosure). This change is necessary because, the NRC is proposing to approve PI and security-related information. This change would also ensure that Westinghouse (as well as any future applicants for amendments to the AP1000 DCR who intend to supply the certified

design) are required to maintain a copy of the applicable generic DCD, and maintain the applicable SUNSI (including PI) and SGI – developed by that applicant – that were approved as part of the relevant design certification rulemakings.

The NRC notes that the generic DCD concept was developed, in part, to meet OFR requirements for incorporation by reference, including public availability of documents incorporated by reference. However, the PI and SGI were not included in the public version of the DCD. Only the public version of the generic DCD would be identified and incorporated by reference into this rule. Nonetheless, the SUNSI for this amendment was reviewed by the NRC and, as stated in paragraph B.2, the NRC would consider the information to be resolved within the meaning of 10 CFR 52.63(a)(5). Because this information is in the non-public version of the DCD, this SUNSI (including PI) and SGI, or its equivalent, is required to be provided by an applicant for a license referencing this DCR.

In addition, the NRC is proposing to add a new paragraph A.4.a that would require the applicant for the AP1000 design to maintain a copy of the AIA performed to comply with the requirements of 10 CFR 50.150(a) for the term of the certification (including any period of renewal). The NRC is also proposing a new paragraph A.4.b that would require an applicant or licensee who references this appendix to maintain a copy of the AIA performed to comply with the requirements of 10 CFR 50.150(a) throughout the pendency of the application and for the term of the license (including any period of renewal). The addition of paragraphs A.4.a and A.4.b is consistent with the NRC's intent when it issued the AIA rule in 2009 (74 FR 28112; June 12, 2009, at page 28121, second column).

IV. Section-by-Section Analysis

The following discussion sets forth each proposed amendment to the AP1000 DCR. All section and paragraph references are to the provisions in the proposed amendment to Appendix D to 10 CFR Part 52, unless otherwise noted.

A. Introduction (Section I).

The NRC is proposing to amend Section I, Introduction, to change the DCD revision number from 15 to 18.

B. Scope and Contents (Section III).

The NRC is proposing to amend Section III, Scope and Contents, to revise paragraph A to update the revision number of the DCD, from Revision 15 to Revision 18, approved for incorporation by reference; update the contact information of the Westinghouse representative to be contacted should a member of the public request a copy of the generic DCD; and update other locations (e.g., the NRC's PDR) where a member of the public could request a copy of or otherwise view the generic DCD.

The NRC is proposing to revise paragraphs C and D to set forth the way potential conflicts are to be resolved. Paragraph C would establish 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 would establish the generic DCD as the controlling document in the event of an inconsistency between the DCD and either the application or the FSER for the certified standard design. This clarification would further distinguish between the conflict scenarios presented in paragraphs D.1 (for the initial certification of the design) and D.2 (for Amendment 1 to the design).

C. Additional Requirements and Restrictions (Section IV).

The NRC is proposing to amend Section IV, Additional Requirements and Restrictions, to set forth additional requirements and restrictions imposed upon an applicant who references Appendix D to 10 CFR Part 52. Paragraph A would set forth the information requirements for these applicants. The NRC is proposing to revise paragraph A.3 to replace the term "proprietary information" with the broader term "sensitive unclassified non-safeguards information."

The NRC is also proposing to add a new paragraph A.4 to indicate requirements that must be met in cases where the COL applicant is not using the entity that was the original applicant for the design certification (or amendment) to supply the design for the applicant's use. Proposed paragraph A.4 would require a COL applicant referencing Appendix D to 10 CFR Part 52 to include, as part of its application, a demonstration that an entity other than Westinghouse is qualified to supply the AP1000 certified design, unless Westinghouse supplies the design for the applicant's use. In cases where a COL applicant is not using Westinghouse to supply the AP1000 certified design, the required information would be used to support any NRC finding under 10 CFR 52.73(a) that an entity other than the one originally sponsoring the design certification or design certification amendment is qualified to supply the certified design.

D. Applicable Regulations (Section V).

The NRC proposes to revise paragraph A to distinguish between the regulations that are applicable and in effect at the time the initial design certification was approved (paragraph A.1) and the regulations that would be applicable and in effect at the time that Amendment 1 is approved (paragraph A.2).

E. Issue Resolution (Section VI).

The NRC proposes to amend Section VI, Issue Resolution, by revising paragraph B.1 to provide that all nuclear safety issues arising from the Act that are associated with the information in the NRC's FSER (NUREG-1793), the Tier 1 and Tier 2 information (including the availability controls in Section 16.3 of the generic DCD), and the rulemaking record for Appendix D to 10 CFR Part 52 are resolved within the meaning of 10 CFR 52.63(a)(5). These issues include the information referenced in the DCD that are requirements (i.e., secondary references), as well as all issues arising from SUNSI (including PI) and SGI, which are intended to be requirements. This paragraph would be revised to extend issue resolution beyond that of

the previously certified design to also include the information in Supplement No. 2 of the FSER and the rulemaking record associated with Amendment 1 to the AP1000 design.

The NRC is proposing to revise paragraph B.2 to replace the term “proprietary information” with the broader term “sensitive unclassified non-safeguards information.”

Paragraph B.7 would be revised to extend environmental issue resolution beyond that of the previously certified design to also include the information in Amendment 1 to the AP1000 design and Appendix 1B of Revision 18 of the generic DCD.

New paragraph VI.E would provide that the NRC will specify at an appropriate time the procedures for interested persons to obtain access to PI, SUNSI, and SGI for the AP1000 DCR. Access to such information would be for the sole purpose of requesting or participating in certain specified hearings, such as 1) the hearing required by 10 CFR 52.85 where the underlying application references Appendix D to 10 CFR Part 52; 2) any hearing provided under 10 CFR 52.103 where the underlying COL references Appendix D to 10 CFR Part 52; and 3) any other hearing relating to Appendix D to 10 CFR Part 52 in which interested persons have the right to request an adjudicatory hearing.

F. Processes for Changes and Departures (Section VIII).

The NRC is proposing changes to Section VIII to address the change control process specific to departures from the information required by 10 CFR 52.47(a)(28) to address the NRC’s AIA requirements in 10 CFR 50.150. Specifically, the NRC is proposing to revise the introductory text of paragraph B.5.b to indicate that the criteria in this paragraph for determining if a proposed departure from Tier 2 requires a license amendment do not apply to a proposed departure affecting information required by 10 CFR 52.47(a)(28) to address aircraft impacts.

In addition, the NRC is proposing to redesignate paragraphs B.5.d, B.5.e, and B.5.f as paragraphs B.5.e, B.5.f, and B.5.g, respectively, and to add a new paragraph B.5.d. Proposed paragraph B.5.d would require an applicant referencing the AP1000 DCR, who proposed to

depart from the information required by 10 CFR 52.47(a)(28) to be included in the FSAR for the standard design certification, to consider the effect of the changed feature or capability on the original 10 CFR 50.150(a) assessment.

The NRC is proposing to revise certain items designated as Tier 2*. The item on HFE would be moved from paragraph B.6.b to paragraph B.6.c, with the effect that the Tier 2* designation on that information would expire after full-power operation is achieved rather than never. In addition, a new item would be added to paragraph B.6.b for RCP type. The NRC determined that certain specific characteristics of the RCP were significant to the safety review and that prior approval of changes affecting those characteristics would be required. This Tier 2* designation does not expire.

The NRC also concluded that the Tier 2* designation was not necessary for the specific Code edition and addenda for the ASME code as listed in paragraph B.6.c(2). Thus, the item in paragraph B.6.c(2) for ASME Code would be modified to be more limited in scope. The NRC would retain the Tier 2* designation for the Code edition applicable to containment in paragraph B.6.c(14) and added paragraph B.6.c(16) on ASME Code cases, which are specified in Table 5.2-3 of the generic DCD.

G. Records and Reporting (Section X).

The NRC is proposing to amend Section X, Records and Reporting, to revise paragraph A.1 to replace the term “proprietary information” with the broader term “sensitive unclassified non-safeguards information.” Paragraph A.1 would also be revised to require the design certification amendment applicant to maintain the SUNSI, which it developed and used to support its design certification amendment application. This would ensure that the referencing applicant has direct access to this information from the design certification amendment applicant, if it has contracted with the applicant to provide the SUNSI to support its license

application. The AP1000 generic DCD and the NRC-approved version of the SUNSI would be required to be maintained for the period that Appendix D to 10 CFR Part 52 may be referenced.

The NRC is also proposing to add a new paragraph A.4.a, which would require Westinghouse to maintain a copy of the AIA performed to comply with the requirements of 10 CFR 50.150(a) for the term of the certification (including any period of renewal). This proposed provision, which is consistent with 10 CFR 50.150(c)(3), would facilitate any NRC inspections of the assessment that the NRC decides to conduct.

Similarly, the NRC is proposing new paragraph A.4.b, which would require an applicant or licensee who references Appendix D to 10 CFR Part 52 to maintain a copy of the AIA performed to comply with the requirements of 10 CFR 50.150(a) throughout the pendency of the application and for the term of the license (including any period of renewal). This provision is consistent with 10 CFR 50.150(c)(4). For all applicants and licensees, the supporting documentation retained onsite should describe the methodology used in performing the assessment, including the identification of potential design features and functional capabilities to show that the acceptance criteria in 10 CFR 50.150(a)(1) would be met.

V. Agreement State Compatibility

Under the “Policy Statement on Adequacy and Compatibility of Agreement States Programs,” approved by the Commission on June 20, 1997, and published in the *Federal Register* (62 FR 46517; September 3, 1997), this rule is classified as compatibility “NRC.” Compatibility is not required for Category “NRC” regulations. The NRC program elements in this category are those that relate directly to areas of regulation reserved to the NRC by the Act or the provisions of this section. Although an Agreement State may not adopt program elements reserved to the NRC, it may wish to inform its licensees of certain requirements by a mechanism that is consistent with the particular State’s administrative procedure laws.

Category “NRC” regulations do not confer regulatory authority on the State.

VI. Availability of Documents

The NRC is making the documents identified below available to interested persons through one or more of the following methods, as indicated. To access documents related to this action, see Section I, “Submitting Comments and Accessing Information” of this document.

Document	PDR	Web	ADAMS
SECY-11-0002, “Proposed Rule – AP1000 Design Certification Amendment”	x	x	ML103000397
AP1000 Design Control Document (DCD) Revision 18, Transmittal Letter	x	x	ML103480059
Westinghouse AP1000 DCD Revision 18 (public version)	x	ML103480572
Advanced Final Safety Evaluation Report for Revision 18 to the AP1000 Standard Design Certification (publicly available)	x	ML103260072
AP1000 Environmental Assessment	x	x	ML103000415
Interim Staff Guidance DC/COL-ISG-011, “Finalizing Licensing-basis Information”	x	x	ML092890623
Design Changes Submitted by Westinghouse, Revision 18	x	x	ML100250873
AP1000 Technical Reports (Appendix)	x	-----	ML103350501

TR-26, "AP1000 Verification of Water Sources for Long-Term Recirculation Cooling Following a LOCA," Revision 8	x	x	ML102170123
TR-54, "Spent Fuel Storage Racks Structure and Seismic Analysis," Revision 4	x	x	ML101580475
TR-65, "Spent Fuel Storage Racks Criticality Analysis," Revision 2	x	x	ML100082093
TR-103, "Fluid System Changes," Revision 2	x	x	ML072830060
"Evaluation of the Effect of the AP1000 Enhanced Shield Building on the Containment Response and Safety Analysis," Revision 1	x	x	ML102220579
AP1000 DCD Transmittal Letter, Revision 17	x	x	ML083220482
AP1000 DCD, Revision 17	x	x	ML083230868
AP1000 DCD Transmittal Letter, Revision 16	x	x	ML071580757
AP1000 DCD, Revision 16	x	x	ML071580939
NRC Notice of Acceptance, Revision 16	x	x	ML073600743
December 13, 2010 ACRS Letter to Chairman (Report on FSER to AP1000 DCD)	x	x	ML103410351
December 20, 2010 ACRS Letter to Chairman (Long-Term Core Cooling)	x	x	ML103410348

Regulatory History of Design Certification ²	x	ML003761550
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VII. Procedures for Access to Sensitive Unclassified Non-Safeguards Information (Including Proprietary Information) and Safeguards Information for Preparation of Comments on the Proposed Amendment to the AP1000 Design Certification

This section contains instructions regarding how interested persons who wish to comment on the proposed design certification may request access to documents containing SUNSI (including PI³), and SGI, to prepare their comments. Requirements for access to SGI are primarily set forth in 10 CFR Parts 2 and 73. This notice of proposed rulemaking provides information specific to this rulemaking; however, nothing in this document is intended to conflict with the SGI regulations.

Interested persons who desire access to SUNSI information on the AP1000 design constituting PI should first request access to that information from the design certification applicant. A request for access should be submitted to the NRC if the applicant does not either grant or deny access by the 10-day deadline described below.

Submitting a request to the NRC

Within 10 days after publication of this document, an individual or entity (hereinafter, the “requester”) may request access to such information. Requests for access to SUNSI or SGI submitted more than 10 days after publication of this document will not be considered absent a

² The regulatory history of the NRC’s design certification reviews is a package of documents that is available in NRC’s PDR and ADAMS. This history spans the 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.

³ For purposes of this discussion, “proprietary information” constitutes trade secrets or commercial or financial information that are privileged or confidential, as those terms are used under the Freedom of Information Act (5 U.S.C. 552) and the NRC’s implementing regulation at 10 CFR Part 9.

showing of good cause for the late filing explaining why the request could not have been filed earlier.

The requester shall submit a letter requesting permission to access SUNSI and/or SGI to the Office of the Secretary, U.S. Nuclear Regulatory Commission, Attention: Rulemakings and Adjudications Staff, Washington DC 20555-0001. The expedited delivery or courier mail address is: Office of the Secretary, U.S. Nuclear Regulatory Commission, Attention: Rulemakings and Adjudications Staff, 11555 Rockville Pike, Rockville, Maryland 20852. The e-mail address for the Office of the Secretary is rulemaking.comments@nrc.gov. The requester must send a copy of the request to the design certification applicant at the same time as the original transmission to the NRC using the same method of transmission. Copies of the request to the applicant must be sent to Stanley E. Ritterbusch, Manager, AP1000 Design Certification, Westinghouse Electric Company, 1000 Westinghouse Drive, Cranberry Township, PA 16066, or by e-mail to ritterse@westinghouse.com. For purposes of complying with this requirement, a “request” includes all the information required to be submitted to the NRC as presented in this section.

The request must include the following information:

1. The name of this design certification amendment (AP1000 Design Certification Amendment), the rulemaking identification number RIN 3150-AI81, the rulemaking Docket ID NRC-2010-0131, and a citation to this document at the top of the first page of the request;

2. The name, address, e-mail, or fax number of the requester. If the requester is an entity, the name of the individual(s) to whom access is to be provided, then the address and e-mail or fax number for each individual, and a statement of the authority granted by the entity to each individual to review the information and to prepare comments on behalf of the entity must be provided. If the requester is relying upon another individual to evaluate the requested

SUNSI and/or SGI and prepare comments, then the name, affiliation, address, and e-mail or fax number for that individual must be provided.

3.(a) If the request is for SUNSI, then the requester's need for the information to prepare meaningful comments on the proposed design certification must be demonstrated. Each of the following areas must be addressed with specificity.

(i) The specific issue or subject matter on which the requester wishes to comment;

(ii) An explanation why information which is publicly available, including the publicly available versions of the application and DCD, and information on the NRC's docket for the design certification application is insufficient to provide the basis for developing meaningful comment on the proposed design certification with respect to the issue or subject matter described previously in paragraph 3.(a)(i); and

(iii) Information demonstrating that the individual to whom access is to be provided has the technical competence (demonstrable knowledge, skill, experience, education, training, or certification) to understand and use (or evaluate) the requested information for a meaningful comment on the proposed design certification with respect to the issue or subject matter described in paragraph 3.(a)(i) above.

(b) If the request is for SUNSI constituting PI, then a chronology and discussion of the requester's attempts to obtain the information from the design certification applicant, and the final communication from the requester to the applicant and the applicant's response with respect to the request for access to PI must be submitted.

4.(a) If the request is for SGI, then the requester's "need to know" the SGI must be demonstrated as required by 10 CFR 73.2 and 10 CFR 73.22(b)(1). Consistent with the definition of "need to know" as stated in 10 CFR 73.2 and 10 CFR 73.22(b)(1), each of the following areas must be addressed with specificity:

(i) The specific issue or subject matter on which the requester wishes to comment;

(ii) An explanation why information which is publicly available, including the publicly available versions of the application and DCD, and information on the NRC's docket for the design certification application is insufficient to provide the basis for developing meaningful comment on the proposed design certification with respect to the issue or subject matter described in paragraph 4.(a)(i) above, and that the SGI requested is indispensable in order to develop meaningful comments;⁴

(iii) Information demonstrating that the individual to whom access is to be provided has the technical competence (demonstrable knowledge, skill, experience, education, training, or certification) to understand and use (or evaluate) the requested SGI, for meaningful comment on the proposed design certification with respect to the issue or subject matter described in paragraph 4.(a)(i) above.

(b) A completed Form SF-85, "Questionnaire for Non-Sensitive Positions," must be submitted for each individual who would have access to SGI. The completed Form SF-85 will be used by the Office of Administration to conduct the background check required for access to SGI, as required by 10 CFR Part 2, Subpart G, and 10 CFR 73.22(b)(2), to determine the requester's trustworthiness and reliability. For security reasons, Form SF-85 can only be submitted electronically through the electronic Questionnaire for Investigations Processing (e-QIP) Web site, a secure Web site that is owned and operated by the Office of Personnel Management (OPM). To obtain online access to the form, the requester should contact the NRC's Office of Administration at 301-492-3524.⁵

⁴ Broad SGI requests under these procedures are unlikely to meet the standard for need to know. Furthermore, NRC staff redaction of information from requested documents before their release may be appropriate to comport with this requirement. The procedures in this notice of proposed rulemaking do not authorize unrestricted disclosure or less scrutiny of a requester's need to know than ordinarily would be applied in connection with either adjudicatory or non-adjudicatory access to SGI.

⁵ The requester will be asked to provide his or her full name, Social Security number, date and place of birth, telephone number, and e-mail address. After providing this information, the requester

(c) A completed Form FD-258 (fingerprint card), signed in original ink, and submitted under 10 CFR 73.57(d). Copies of Form FD-258 may be obtained by writing the Office of Information Services, U.S. Nuclear Regulatory Commission, Washington, DC 20555-0001; by calling 301-415-5877 or 301-492-7311; or by e-mail to Forms.Resource@nrc.gov. The fingerprint card will be used to satisfy the requirements of 10 CFR Part 2, 10 CFR 73.22(b)(1), and Section 149 of the Act, which mandates that all persons with access to SGI must be fingerprinted for a Federal Bureau of Investigation identification and criminal history records check;

(d) A check or money order in the amount of \$200.00⁶ payable to the NRC for each individual for whom the request for access has been submitted; and

(e) If the requester or any individual who will have access to SGI believes they belong to one or more of the categories of individuals relieved from the criminal history records check and background check requirements, as stated in 10 CFR 73.59, the requester should also provide a statement specifically stating which relief the requester is invoking, and explaining the requester's basis (including supporting documentation) for believing that the relief is applicable. While processing the request, the NRC's Office of Administration, Personnel Security Branch, will make a final determination whether the stated relief applies. Alternatively, the requester may contact the Office of Administration for an evaluation of their status prior to submitting the request. Persons who are not subject to the background check are not required to complete the Form SF-85 or Form FD-258; however, all other requirements for access to SGI, including the need to know, are still applicable.

usually should be able to obtain access to the online form within 1 business day.

⁶ This fee is subject to change pursuant to the OPM's adjustable billing rates.

Copies of documents and materials required by paragraphs 4(b), (c), (d), and (e), as applicable, of this section of this notice of proposed rulemaking must be sent to the following address:

Office of Administration
U.S. Nuclear Regulatory Commission
Personnel Security Branch
Mail Stop: TWB-05 B32M
Washington, DC 20555-0012

These documents and materials should not be included with the request letter to the Office of the Secretary, but the request letter should state that the forms and fees have been submitted as required above.

5. To avoid delays in processing requests for access to SGI, all forms should be reviewed for completeness and accuracy (including legibility) before submitting them to the NRC. The NRC will return incomplete or illegible packages to the sender without processing.

6. Based on an evaluation of the information submitted under paragraphs 3(a) and (b), or 4(a), (b), (c), and (e) of this section, as applicable, the NRC will determine within 10 days of receipt of the written access request whether the requester has established a legitimate need for the SUNSI access or “need to know” the SGI requested.

7. For SUNSI access requests, if the NRC determines that the requester has established a legitimate need for access to SUNSI, the NRC will notify the requester in writing that access to SUNSI has been granted, *provided however*, that if the SUNSI consists of PI (i.e., trade secrets or confidential or financial information), the NRC must first notify the applicant of the NRC’s determination to grant access to the requester not less than 10 days before informing the requester of the NRC’s decision. If the applicant wishes to challenge the NRC’s determination, it must follow the procedures in paragraph 12 of this section. The NRC will not provide the requester access to disputed PI until the procedures in paragraph 12 of this section are completed.

The written notification to the requester will contain instructions on how the requester may obtain copies of the requested documents, and any other conditions that may apply to access to those documents. These conditions will include, but are not necessarily limited to, the signing of a protective order presenting terms and conditions to prevent the unauthorized or inadvertent disclosure of SUNSI by each individual who will be granted access to SUNSI. Claims that the provisions of such a protective order have not been complied with may be filed

by calling NRC's toll-free safety hotline at 800-695-7403. Please note that calls to this number are not recorded between the hours of 7:00 a.m. to 5:00 p.m. Eastern Time. However, calls received outside these hours are answered by the NRC's Incident Response Operations Center on a recorded line. Claims may also be filed via e-mail sent to [NRO Allegations@nrc.gov](mailto:NRO_Allegations@nrc.gov), or may be sent in writing to the U.S. Nuclear Regulatory Commission, ATTN: N. Rivera-Feliciano, Mail Stop: T-7D24, Washington, DC 20555-0001.

8. For requests for access to SGI, if the NRC determines that the requester has established a need to know the SGI, the NRC's Office of Administration will then determine, based upon completion of the background check, whether the proposed recipient is trustworthy and reliable, as required for access to SGI by 10 CFR 73.22(b). If the NRC's Office of Administration determines that the individual or individuals are trustworthy and reliable, the NRC will promptly notify the requester in writing. The notification will provide the names of approved individuals as well as the conditions under which the SGI will be provided. Those conditions will include, but are not necessarily limited to, the signing of a protective order by each individual who will be granted access to SGI. Claims that the provisions of such a protective order have not been complied with may be filed by calling NRC's toll-free safety hotline at (800) 695-7403. Please note that calls to this number are not recorded between the hours of 7:00 a.m. to 5:00 p.m. Eastern Time. However, calls received outside these hours are answered by the NRC's Incident Response Operations Center on a recorded line. Claims may also be filed via e-mail sent to [NRO Allegations@nrc.gov](mailto:NRO_Allegations@nrc.gov), or may be sent in writing to the U.S. Nuclear Regulatory Commission, ATTN: N. Rivera-Feliciano, Mail Stop: T-7D24, Washington, DC 20555-0001. Because SGI requires special handling, initial filings with the NRC should be free from such specific information. If necessary, the NRC will arrange an appropriate setting for transmitting SGI to the NRC.

9. Release and Storage of SGI. Prior to providing SGI to the requester, the NRC will conduct (as necessary) an inspection to confirm that the recipient's information protection system is sufficient to satisfy the requirements of 10 CFR 73.22. Alternatively, recipients may choose to view SGI at an approved SGI storage location rather than establish their own SGI protection program to meet SGI protection requirements.

10. Filing of Comments on the Proposed Design Certification. Any comments in this rulemaking proceeding that are based upon the disclosed SUNSI or SGI must be filed by the requester no later than 25 days after receipt of (or access to) that information, or the close of the public comment period, whichever is later. The commenter must comply with the NRC requirements regarding the submission of SUNSI and SGI to the NRC when submitting comments to the NRC (including marking and transmission requirements).

11. Review of Denials of Access.

(a) If the request for access to SUNSI or SGI is denied by the NRC, the staff shall promptly notify the requester in writing, briefly stating the reason or reasons for the denial.

(b) Before the NRC's Office of Administration makes an adverse determination regarding the trustworthiness and reliability of the proposed recipient(s) of SGI, the NRC's Office of Administration, under 10 CFR 2.705(c)(3)(iii), must provide the proposed recipient(s) any records that were considered in the trustworthiness and reliability determination, including those required to be provided under 10 CFR 73.57(e)(1), so that the proposed recipient is provided an opportunity to correct or explain information.

(c) Appeals from a denial of access must be made to the NRC's Executive Director for Operations (EDO) under 10 CFR 9.29. The decision of the EDO constitutes final agency action, as provided in 10 CFR 9.29(d).

12. Predisclosure Procedures for SUNSI Constituting Trade Secrets or Confidential Commercial or Financial Information. The NRC will follow the procedures in 10 CFR 9.28 if the

NRC determines, under paragraph 7 of this section, that access to SUNSI constituting trade secrets or confidential commercial or financial information will be provided to the requester. However, any objection filed by the applicant under 10 CFR 9.28(b) must be filed within 15 days of the NRC notice in paragraph 7 of this section rather than the 30-day period provided for under that paragraph. In applying the provisions of 10 CFR 9.28, the applicant for the DCR will be treated as the “submitter.”

VIII. Plain Language

The Presidential memorandum “Plain Language in Government Writing” published on June 10, 1998 (63 FR 31883), directed that the Government’s documents be in clear and accessible language. The NRC requests comments on the proposed rule specifically with respect to the clarity and effectiveness of the language used. Comments should be sent to the NRC as explained in the ADDRESSES heading of this document.

IX. Voluntary Consensus Standards

The National Technology and Transfer Act of 1995, 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 proposed rule, the NRC proposes to approve Amendment 1 to the AP1000 standard plant design for use in nuclear power plant licensing under 10 CFR Part 50 or 52. Design certifications (and amendments thereto) are not generic rulemakings establishing a generally applicable standard with which all 10 CFR Parts 50 and 52 nuclear power plant licensees must comply. Design certifications (and amendments thereto) are Commission approvals of specific nuclear power plant designs by rulemaking. Furthermore, design certifications (and amendments thereto) are initiated by an applicant for rulemaking, rather than by the NRC. For these reasons, the NRC concludes that the National Technology and Transfer Act of 1995 does not apply to this proposed rule.

X. Finding of No Significant Environmental Impact: Availability

The Commission has determined under NEPA, and the Commission's regulations in Subpart A, "National Environmental Policy Act; Regulations Implementing Section 102(2)," of 10 CFR Part 51, "Environmental Protection Regulations for Domestic Licensing and Related Regulatory Functions," that this proposed DCR, if adopted, would not be 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 EA, is that the Commission has made a generic determination under 10 CFR 51.32(b)(2) that there is no significant environmental impact associated with the issuance of an amendment to a design certification. This amendment to 10 CFR Part 52 would not authorize the siting, construction, or operation of a facility using the amended AP1000 design; it would only codify the amendment to 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 for the construction and operation of a facility referencing this amendment to the AP1000 DCR. In addition, as part of the draft EA for the amendment to 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. According to 10 CFR 51.30(d), an EA for a design certification amendment is limited to the consideration of whether the design change, which is the subject of the proposed amendment renders a SAMDA previously rejected in the earlier EA to become cost beneficial, or results in the identification of new SAMDAs, in which case the costs and benefits of new SAMDAs and the bases for not incorporating new SAMDAs in the design certification must be addressed. Based upon review of Westinghouse's evaluation, the Commission concludes that the proposed design changes: 1) do not cause a SAMDA previously rejected in the EA for the initial AP1000 design certification to become

cost-beneficial; and 2) do not result in the identification of any new SAMDAs that could become cost beneficial.

The Commission is requesting comment on the draft EA. As provided in 10 CFR 51.31(b), comments on the draft EA will be limited to the consideration of SAMDAs as required by 10 CFR 51.30(d). The Commission will prepare a final EA following the close of the comment period for the proposed standard design certification. If a final rule is issued, all environmental issues concerning SAMDAs associated with the information in the final EA and Appendix 1B of the AP1000 DCD Tier 2 will be considered resolved for plants referencing Amendment 1 to the AP1000 design whose site parameters are within those specified in SAMDA evaluation. The existing site parameters specified in the SAMDA evaluation are not affected by this design certification amendment.

The draft EA, upon which the Commission's finding of no significant impact is based, and Revision 18 of the AP1000 DCD are available for examination and copying at the NRC's PDR, One White Flint North, 11555 Rockville Pike, Room O-1 F21, Rockville, Maryland 20852.

XI. Paperwork Reduction Act Statement

This proposed 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.). This rule has been submitted to OMB for review and approval of the information collection requirements.

Type of submission, new or revision: Revision

The title of the information collection: 10 CFR Part 52, AP1000 Design Certification Amendment

The form number if applicable: N/A

How often the collection is required: On occasion. Reports required under 10 CFR Part 52, Appendix D, paragraph IV.A.4, are collected and evaluated once if licensing action is sought on a COL application referencing the AP1000 design and the COL applicant is not using

the entity that was the original applicant for the design certification, or amendment, to supply the design for the license applicant's use. In addition, COL applicants and the applicant for a design certification must keep records of the aircraft impact assessment performed to comply with the requirements of 10 CFR 50.150(a).

Who will be required or asked to report: COL applicants and one applicant for a design certification

An estimate of the number of annual responses: 8 (0 annual responses plus 8 recordkeepers)

The estimated number of annual respondents: 8

An estimate of the total number of hours needed annually to complete the requirement or request: 24 hours (0 hours reporting and 24 hours recordkeeping)

Abstract: The NRC proposes to amend its regulations to certify an amendment to the AP1000 standard plant design to bring the design into compliance with NRC's regulations and to increase standardization of the design. This action is necessary so that applicants or licensees intending to construct and operate an AP1000 design may do so by referencing this DCR as amended.

The NRC is seeking public comment on the potential impact of the information collections contained in this proposed rule and on the following issues:

1. Is the proposed information collection necessary for the proper performance of the functions of the NRC, including whether the information will have practical utility?

2. Is the estimate of burden accurate?

3. Is there a way to enhance the quality, utility, and clarity of the information to be collected?

4. How can the burden of the information collection be minimized, including the use of automated collection techniques?

A copy of the OMB clearance package may be viewed free of charge at the NRC's PDR, One White Flint North, 11555 Rockville Pike, Room O-1 F21, Rockville, Maryland 20852. The OMB clearance package and rule are available at the NRC Web site: <http://www.nrc.gov/public-involve/doc-comment/omb/index.html> for 60 days after the signature date of this notice.

Send comments on any aspect of these proposed information collections, including suggestions for reducing the burden and on the above issues, by **[INSERT DATE 30 DAYS AFTER PUBLICATION IN THE *FEDERAL REGISTER*]** to the Information Services Branch (T-5 F52), U.S. Nuclear Regulatory Commission, Washington, DC 20555-0001, or by e-mail to INFOCOLLECTS.RESOURCE@NRC.GOV; and to the Desk Officer, Office of Information and Regulatory Affairs, NEOB-10202, (3150-0151), Office of Management and Budget, Washington DC 20503. Comments on the proposed information collections may also be submitted via the Federal Rulemaking Web site, <http://www.regulations.gov>, Docket ID NRC-2010-0131. Comments received after this date will be considered if it is practical to do so, but assurance of consideration cannot be given to comments received after this date. You may also e-mail comments to [Christine J. Kymn@omb.eop.gov](mailto:Christine.J.Kymn@omb.eop.gov) or comment by telephone at 202-395-4638.

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.

XII. Regulatory Analysis

The NRC has not prepared a regulatory analysis for this proposed rule. The NRC prepares regulatory analyses for rulemakings that establish generic regulatory requirements applicable to all licensees. Design certifications (and amendments thereto) are not generic rulemakings in the sense that design certifications (and amendments thereto) do not establish standards or requirements with which all licensees must comply. Rather, design certifications

(and amendments thereto) 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 (or amendments thereto), 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.

XIII. Regulatory Flexibility Certification

Under the Regulatory Flexibility Act (5 U.S.C. 605(b)), the Commission certifies that this rule would not, if promulgated, have a significant economic impact on a substantial number of small entities. This proposed rule provides for certification of an amendment to a nuclear power plant design. Neither the design certification amendment applicant, nor prospective nuclear power plant licensees who reference this DCR, fall within the scope of the definition of “small entities” presented in the Regulatory Flexibility Act, or the size standards established by the NRC (10 CFR 2.810). Thus, this rule does not fall within the purview of the Regulatory Flexibility Act.

XIV. Backfitting

The NRC has determined that this proposed rule meets the requirements of the backfit rule, 10 CFR 50.109, and the requirements governing changes to DCRs in 10 CFR 52.63(a)(1).

The proposed rule does not constitute backfitting as defined in the backfit rule (10 CFR 50.109) with respect to operating licenses under 10 CFR Part 50 because there are no operating licenses referencing this DCR.

Westinghouse requested many changes to the AP1000 DCD to correct spelling, punctuation, or similar errors and results in text that has the same essential meaning. The NRC concludes that these Westinghouse-requested changes, which are editorial in nature, neither

constitute backfitting as defined in 10 CFR 50.109(a)(1), nor are these changes inconsistent with the issue finality provisions of 10 CFR 52.63 or 10 CFR 52.83. The backfitting and issue finality provisions were not meant to apply to such editorial changes in as much as such changes would have insubstantial impact on licensees with respect to their design and operation, and are not the kind of changes falling within the policy considerations that underlie the backfit rule and the issue finality provisions of 10 CFR 52.63 and 52.83.

Westinghouse also requested changes to the AP1000 DCD, which the NRC understands were the result of requests to Westinghouse from COL applicants referencing the AP1000 design, in order to achieve consistency in description and approach in different portions of the DCD. In the absence of a generic change to the AP1000, the referencing COL applicants stated to Westinghouse and the NRC, that each would likely take plant-specific departures to address the inconsistency. While this could result in more consistency within any given COL application, it would result in inconsistencies among the different referencing COLs, which is inconsistent with the overall standardization goal of 10 CFR Part 52. Accordingly, the NRC concludes that the Westinghouse-requested changes to the AP1000 to address consistency do not constitute backfitting under the backfit rule (in as much as they are voluntary) and are not otherwise inconsistent with the issue finality provisions of 10 CFR 52.63 and 52.83.

Westinghouse also proposed numerous substantive changes to the AP1000 design, including, but not limited to, minor component design details, replacement of a design feature with another having similar performance (e.g., turbine manufacturer, power for the auxiliary boiler), and changes allowing additional capability for operational flexibility (e.g., liquid waste holdup tanks, unit reserve transformer). Westinghouse included within its application a detailed list of each DCD content change and the basis under 10 CFR 52.63(a)(1) that supports including that change in this amendment.

With respect to DCD Revision 18, the bases under 10 CFR 52.63(a)(1) for the various changes to the DCD are documented in an enclosure, entitled Revision Change Roadmap, to a December 1, 2010, Westinghouse letter sent to the NRC. This Revision Change Roadmap cross-references the DCD changes in DCD Revision 18, as compared to DCD Revision 17, and applicable 10 CFR 52.63(a)(1) criteria. Revision 18 contains both proposed changes previously described in the design change packages and changes already accepted by the NRC in the review process of Revision 17 to the AP1000 DCD. In the course of the review of both design change packages, the NRC determined that DCD changes were needed. In response to NRC questions, Westinghouse proposed such changes. Once the NRC was satisfied with these DCD markups, they were documented in the safety evaluation report (SER) as “confirmatory items” (CIs). The CIs were first identified during the NRC’s review of Revision 17 of the AP1000 DCD. With the review of Revision 18, the NRC will confirm that Westinghouse has made those changes to the DCD accepted by the NRC that were not addressed in Revision 17 to the AP1000 DCD. The use of CIs is restricted to cases where the NRC has reviewed and approved specific design control document proposals. For the final rule, the NRC will complete the review of the CIs and prepare an FSER reflecting that action. The CIs are closed based upon an acceptable comparison between the revised DCD text and the text required by the CI. No technical review of Revision 18 by the NRC is necessary, because only CIs and design changes pursuant to DC/COL-ISG-011, previously accepted by the NRC, are contained in Revision 18 to the DCD.

A September 22, 2008, Westinghouse letter provides a similar set of cross-references for those changes associated with DCD Revision 17, as compared to DCD Revision 16. For Revision 16, in contrast, Westinghouse used TRs to identify the DCD changes in DCD Revision 16, as compared to DCD Revision 15, and listed the corresponding applicable 10 CFR 52.63(a)(1) criteria in an enclosure to a Westinghouse letter dated May 26, 2007 (Table 1).

These tables include the editorial and consistency changes described above as well as design changes. In the course of the NRC review of the technical changes proposed by Westinghouse, the NRC considered the basis offered by Westinghouse and made conclusions about whether the criteria of 10 CFR 52.63(a) were satisfied. These conclusions are included in the chapters of the Advanced Final Safety Evaluation Report. The NRC concluded that all of these changes met at least one of the criteria in 10 CFR 52.63(a) and are not otherwise inconsistent with the issue finality provisions of 10 CFR 52.63 and 52.83. Fifteen of the most significant changes are discussed below, to show that each of the 15 substantive changes to the AP1000 certified design meet at least one of the criteria in 10 CFR 52.63(a)(1)(i) through (a)(1)(vii) and, therefore, do not constitute a violation of the finality provisions in that section.

Revision 17 provides a similar cross-reference in the DCD as submitted by a September 22, 2008, Westinghouse letter for those changes associated with Revision 17. Revision 16 on the other hand, uses TRs to identify the DCD changes and lists the corresponding applicable 10 CFR 52.63(a)(1) criteria in an enclosure to a Westinghouse letter, dated May 26, 2007 (Table 1). These tables include the editorial and consistency changes described above as well as design changes. In the course of the NRC review of the technical changes proposed by Westinghouse, the NRC considered the basis offered by Westinghouse and made conclusions about whether the criteria of 10 CFR 52.63(a) were satisfied. These conclusions are included in the chapters of the Advanced Final Safety Evaluation Report. The NRC concluded that all of these changes met at least one of the criteria in 10 CFR 52.63(a) and are not otherwise inconsistent with the issue finality provisions of 10 CFR 52.63 and 52.83. Fifteen of the most significant changes are discussed below, to show that each of the 15 substantive changes to the AP1000 certified design meet at least one of the criteria in 10 CFR 52.63(a)(1)(i) through (a)(1)(vii) and, therefore, do not constitute a violation of the finality provisions in that section.

- I. **10 CFR 52.63 Criterion (a)(1)(iv): Provides the Detailed Design Information to be Verified under those ITAAC, which are Directed at Certification Information (i.e., DAC).**

Title: Removal of Human Factors Engineering Design Acceptance Criteria from the Design Control Document

Item: 1 of 15

Significant Change: The ITAAC Design Commitments for Human Factor Engineering (HFE) is in Tier 1, Table 3.2-1. In Revision 17 of the AP1000 DCD, Westinghouse proposed deletion of the Human Factors DAC (Design Commitments 1 through 4) and provided sufficient supporting documentation to meet the requirements of these ITAAC. Design Commitment 1 pertains to the integration of human reliability analysis with HFE design. Design Commitment 2 pertains to the HFE task analysis. Design Commitment 3 pertains to the human-system interface. Design Commitment 4 pertains to the HFE program verification and validation implementation. The information developed by Westinghouse to satisfy these ITAAC is included in Chapter 18 of the DCD.

Location within the Safety Evaluation (SER) where the changes are principally described:

The details of the NRC's evaluation of Westinghouse's design features associated the HFE DAC are in Sections 18.7.6 (design commitment 1), 18.5.9 (design commitment 2), 18.2.8 (design commitment 3), and 18.11 (design commitment 4) of the SER (ADAMS Accession No. ML103260072).

Evaluation of the Criteria in 10 CFR 52.63(a)(1):

The additional information included in Tier 2 provides detailed design information on human factors design that would otherwise have to be addressed through verification of

implementation of the human factors DAC. Therefore, the changes to the DCD eliminate the need for DAC on human factors and meet the finality criteria in § 52.63(a)(1)(iv).

Title: Change to Instrumentation and Control DAC and Associated ITAAC

Item: 2 of 15

Significant Change: In the proposed revision to DCD Chapter 7, Westinghouse chose the Common Q platform to implement the Protection and Safety Monitoring System (PMS) and removed all references to the Eagle 21 platform. This design change, coupled with the development of other information about the PMS system definition design phase, was the basis for Westinghouse's proposed removal of its Tier 1, Chapter 2, Section 2.5.2, Design Commitment 11(a) Design Requirements phase from Table 2.5.2-8, "Inspections, Tests, Analyses, and Acceptance Criteria," for the PMS.

In its proposed revision to the DCD in Chapter 7, Westinghouse altered its design for the Diverse Actuation System (DAS) by implementing it with Field Programmable Gate Array (FPGA) technology instead of microprocessor-based technology. Additional information about the design process for the DAS was added as the basis for Westinghouse's proposed completion of its Tier 1, Chapter 2, Section 2.5.1, Design Commitment 4a) and 4b) Design Requirements and System Definition phases from Table 2.5.1-4 "Inspections, Tests, Analyses, and Acceptance Criteria" for the DAS.

Location within the Safety Evaluation (SER) where the changes are principally described:

The details of the NRC's evaluation of Westinghouse's design features associated with I&C DAC and ITAAC are in Sections 7.2.2.3.14, 7.2.5, 7.8.2, 7.9.2, and 7.9.3 of the SER (ADAMS Accession No. ML103260072).

Evaluation of the Criteria in 10 CFR 52.63(a)(1):

Westinghouse provided additional information that incorporates the results of the design process implementation for the PMS and DAS (which both support completion of Design Commitments 11a from Table 2.5.2-8 and 4a and 4b from Table 2.5.1-4, respectively) into the DCD. The additional information included in Tier 2 provides detailed design information on I&C design that would otherwise have to be addressed through verification of implementation of the I&C DAC. Therefore, the changes to the DCD eliminate the need for DAC on I&Cs and meet the finality criteria in § 52.63(a)(1)(iv).

II. 10 CFR 52.63 CRITERION (a)(1)(vii): Contributes to Increased Standardization of the Certification Information

The changes being proposed for the AP1000 amendment generally fall into one of two categories: (1) changes which provide additional information or a greater level of detail not previously available in the currently-approved version of the AP1000 DCD (Revision 15); or (2) changes requested by COL applicants referencing the AP1000 who would plan to include these changes in their application as departures if they were not approved in the AP1000 DCR amendment. The Commission concludes that both categories of changes meet the 10 CFR 52.63 criterion of “contributes to increased standardization.” The bases for the Commission’s conclusions, including each category of change, are discussed below.

Additional and more detailed information

Westinghouse proposes that the DCD be changed by adding new, more detailed design information that expands upon the design information already included in the DCD. This information would be used by every COL referencing the AP1000 DCR. Incorporating these proposed changes into the AP1000 DCR as part of this amendment contributes to the increased standardization of the certification information by eliminating the possibility of multiple

departures. Therefore, these changes enhance standardization, and meet the finality criterion for changes in 10 CFR 52.63(a)(1)(vii).

Changes for which COL applicants would otherwise request departures

Westinghouse proposes several changes to its DCD with the stated purpose of contributing to increased standardization. Westinghouse represents that these changes were requested by the lead COL applicants currently referencing the AP1000. The NRC, in meetings with these applicants as part of the “Design-Centered Working Group” process for jointly resolving licensing issues, confirmed that these applicants requested these changes and committed to pursuance of plant-specific departures from the AP1000 if Westinghouse did not initiate such changes to the AP1000 DCR. Such departures may be pursued by individual COL applicants (and licensees) as described in Part VIII, “Processes for Changes and Departures” of the AP1000 DCR (Appendix D to 10 CFR Part 52). Incorporating these proposed changes into the AP1000 DCR as part of this amendment contributes to the increased standardization of the certification information by eliminating the possibility of multiple departures. Therefore, all Westinghouse-initiated changes for the purpose of eliminating plant-specific departures enhance standardization, and meet the finality criterion for changes in 10 CFR 52.63(a)(1)(vii).

Title: Minimization of Contamination (10 CFR 20.1406 (b))

Item: 3 of 15

Significant Change: In DCD Section 12.1.2.4, Westinghouse discussed features incorporated into the amended design certification to demonstrate compliance with 10 CFR 52.47(a)(6), which requires that a design certification application include the information required by 10 CFR 20.1406 (b), which was adopted in 2007 as part of the general revisions to 10 CFR Part 52. This regulation requires design certification applicants whose applications are submitted after August 20, 1997, to describe how the design will minimize, to the extent practicable, contamination of the facility and the environment, facilitate decommissioning and

minimize the generation of radioactive waste. The DCD changes are documented in Westinghouse Technical Report 98, "Compliance with 10 CFR 20.1406" (APP-GW-GLN-098), Revision 0 (ADAMS Accession No. ML071010536). Westinghouse evaluated contaminated piping, the spent fuel pool (SFP), air handling systems, and the radioactive waste drain system to show that piping and components utilize design features that will prevent or mitigate the spread of contamination within the facility or the environment. Westinghouse has incorporated modifications and features such as SFP, elimination of underground radioactive tanks, RCPs without mechanical seals, fewer embedded pipes, less radioactive piping in auxiliary building and containment vessel, and monitoring the radwaste discharge pipeline to demonstrate that the AP1000 design certification, as amended, will be in compliance with the subject regulation and Regulatory Guidance (RG) 4.21, "Minimization of Contamination and Radioactive Waste Generation: Life-Cycle Planning," (June 2008).

Location within the SER where the changes are principally described:

The details of the NRC's evaluation of Westinghouse's design features are in Section 12.2 of the SER (ADAMS Accession No. ML103260072).

Evaluation of the Criteria in 10 CFR 52.63(a)(1)(vii):

Inclusion in the DCD of the more detailed information about the features for minimization of contamination provides additional information to be included in the DCD for the AP1000 that increases standardization of the AP1000 design. Thus, the changes meet the finality criterion for changes in 10 CFR 52.63(a)(1)(vii).

Title: Extension of Seismic Spectra to Soil Sites and Changes to Stability and Uniformity of Subsurface Materials and Foundations

Item: 4 of 15

Significant Change: In AP1000 DCD Tier 2, Sections 2.5.2 and 3.7, Westinghouse extended the AP1000 design to five soil profiles, including firmrock through soft soil sites, for

Category I structures, systems, and components. The certified design included only hard rock conditions. To support the technical basis for the extension, Westinghouse provided: seismic analysis methods, procedures for analytical modeling, soil-structure interaction analysis with three components of earthquake motion, and interaction of non-seismic Category I structures with seismic Category I structures. Also, in DCD Section 2.5.4, Westinghouse extended the AP1000 design with “Stability and Uniformity of Subsurface Materials and Foundations,” where the DCD presents the requirements related to subsurface materials and foundations for COL applicants referencing AP1000 standard design. The site-specific information includes excavation, bearing capacity, settlement, and liquefaction potential. On April 21, 2010, Westinghouse submitted Revision 5 to TR-03, “Extension of Nuclear Island Seismic Analysis to Soil Sites,” Revision 0, and summarized the report in DCD Appendix 3G, to provide more detail about its analyses.

Location within the SER where the changes are principally described:

The details of the NRC’s evaluation of Westinghouse’s design features associated with extension of seismic spectra to soil sites are in Section 3.7 of the SER (ADAMS Accession No. ML103260072). The details of the NRC’s evaluation of Westinghouse’s design features associated with stability and uniformity of subsurface materials and foundations are in Sections 2.5.2 and 2.5.4 of the SER (ADAMS Accession No. ML103260072).

Evaluation of the Criteria in 10 CFR 52.63(a)(1):

Westinghouse submitted a change to the DCD that would provide the seismic design and supporting analysis for a range of soil conditions representative of expected applicants for a COL referencing the AP1000 design. As a result, the certified design can be used at more sites without the need for departures to provide site-specific analyses or design changes, thus leading to a more uniform analysis and seismic design for all the AP1000 plants. Including in the DCD the information demonstrating adequacy of the design for seismic events for a wider

range of soil conditions is a change that provides additional information leading to increased standardization of this aspect of the design. In addition, the change reduces the need for COL applicants to seek departures from the current AP1000 design in as much as most sites do not conform to the currently-approved hard rock sites. Therefore, the change increases standardization and meets the finality criterion for changes in 10 CFR 52.63(a)(1)(vii).

Title: Long-Term Cooling

Item: 5 of 15

Significant Change: DCD Tier 2, DCD Section 6.3.8 describes the changes to COL information items related to containment cleanliness and verification of water sources for long-term recirculation cooling following a loss-of-coolant accident (LOCA). The COL information item related to verification of water sources for long-term recirculation cooling following a LOCA was closed based on Westinghouse TR-26, "AP1000 Verification of Water Sources for Long-Term Recirculation Cooling Following a LOCA," APP-GW-GLR-079 (ADAMS Accession No. ML102170123) and other information contained in DCD Chapter 6. Section 6.3.2.2.7 describes the evaluation of the water sources for long-term recirculation cooling following a LOCA, including the design and operation of the AP1000 PCCS debris screens. DCD Tier 1, Section 2.2.3, includes the associated design descriptions and ITAAC. The COL information item requires a cleanliness program to limit the amount of latent debris in containment consistent with the analysis and testing assumptions.

Location within the SE where the changes are principally described:

The details of the NRC's evaluation of Westinghouse's design features associated with long-term cooling in the presence of LOCA-generated and latent debris and General Design Criteria 35 and 38 is in Subsection 6.2.1.8 of the SE (ADAMS Accession No. ML103260072).

Evaluation of the Criteria in 10 CFR 52.63(a)(1):

Inclusion in the DCD of the design and analysis information that demonstrates adequacy of long-term core cooling provides additional information leading to increased standardization of this aspect of the design. Therefore, the change meets the finality criterion for changes in 10 CFR 52.63(a)(1)(vii).

Title: Control Room Emergency Habitability System

Item: 6 of 15

Significant Change: DCD Tier 2, Section 6.4 has undergone significant revision.

Westinghouse re-designed its main control room emergency habitability system to meet control room radiation dose requirements using the standard assumed in-leakage of 5 cubic feet per minute in the event of a release of radiation. The changes include the addition of a single-failure proof passive filter train. The flow through the filter train is provided by an eductor downstream of a bottled air supply. These changes were prompted by Westinghouse's proposal to revise the containment atmospheric dispersion factors from those certified in Revision 15 to larger values to better accommodate COL sites. As a result, other design changes were needed to maintain doses in the control room within acceptable limits.

Location within the SER where the changes are principally described:

The details of the NRC's evaluation of Westinghouse's design features associated with radiation dose to personnel under accident conditions are in Section 6.4 of the SER (ADAMS Accession No. ML103260072).

Evaluation of the Criteria in 10 CFR 52.63(a)(1):

Incorporation of design changes to the main control room ventilation systems would contribute to increased standardization of this aspect of the design. Therefore, the change meets the finality criterion for changes in 10 CFR 52.63(a)(1)(vii).

Title: Changes to the Component Cooling Water System

Item: 7 of 15

Significant Change: In Revision 18 to AP1000 DCD Tier 2, Westinghouse proposed changes to the design of the component cooling water system (CCWS) to modify the closure logic for system motor-operated containment isolation valves and install safety-class relief valves on system supply and return lines. The closure logic would close the isolation valves upon a high reactor coolant pump (RCP) bearing water temperature signal, which might be indicative of a large leak in the heat exchanger tube. This change would automatically isolate this potential leak to eliminate the possibility of reactor coolant from a faulted heat exchanger discharging to portions of the CCWS outside containment.

Location within the SER where the changes are principally described:

The details of the NRC's evaluation of Westinghouse's design features associated with the CCWS are in Chapter 23, Section V, of the SER (ADAMS Accession No. ML103260072).

Evaluation of the Criteria in 10 CFR 52.63(a)(1):

Westinghouse included changes to the component cooling water in the DCD. These changes will contribute to increased standardization of this aspect of the design. Therefore, the change meets the finality criterion for changes in 10 CFR 52.63(a)(1)(vii).

Title: Changes to Instrumentation and Control Systems

Item: 8 of 15

Significant Change: In AP1000 DCD Tier 2 Sections 7.1 through 7.3, Westinghouse completed planning activities related to the architecture of its safety related I&C protection system, referred to as the PMS. Westinghouse also proposed changes to the DCD to reflect resolution of PMS interdivisional data communications protocols and methods utilized to ensure a secure development and operational environment. A secure development and operational environment in this context refers to a set of protective actions taken against a predictable set of

non-malicious acts (e.g., inadvertent operator actions, undesirable behavior of connected systems) that could challenge the integrity, reliability, or functionality of a digital safety system. The establishment of a secure development and operational environment for digital safety systems involves: (i) measures and controls taken to establish a secure environment for development of the digital safety system against undocumented, unneeded and unwanted modifications and (ii) protective actions taken against a predictable set of undesirable acts (e.g., inadvertent operator actions or the undesirable behavior of connected systems) that could challenge the integrity, reliability, or functionality of a digital safety system during operations.

Location within the SER where the changes are principally described:

The details of the NRC's evaluation of Westinghouse's design features associated with I&C systems are in Sections 7.1 through 7.3, and 7.9 of NRC's Chapter 7 SER (ADAMS Accession No. ML103260072).

Evaluation of the Criteria in 10 CFR 52.63(a)(1):

Inclusion in the DCD of the more detailed information about the I&C architecture and communications provides additional information leading to increased standardization of this aspect of the design. Therefore, the change meets the finality criterion for changes in 10 CFR 52.63(a)(1)(vii).

Title: Changes to the Passive Core Cooling System – Gas Intrusion

Item: 9 of 15

Significant Change: In AP1000 DCD Tier 1 and Tier 2, Westinghouse proposed changes to the design of the PCCS to add manual maintenance vent valves and manual maintenance drain valves, and to re-route accumulator discharge line connections in order to address concerns related to gas intrusion. In addition, Westinghouse provided descriptions of surveillance and venting procedures to verify gas void elimination during plant startup and operations. These proposed changes are responsive to the actions requested by Generic Letter

2008-01, “Managing Gas Accumulation in Emergency Core Cooling, Decay Heat Removal, and Containment Spray Systems.”

The passive core cooling system (PCCS) provides rapid injection of borated water, which provides negative reactivity to reduce reactor power to residual levels and ensures sufficient core cooling flow. Non-condensable gas accumulation in the PCCS has the potential to delay injection of borated water, which would impact the moderating and heat removal capabilities, thus providing a challenge to the primary fission product barrier and maintenance of a coolable core geometry. As part of its review, the NRC determined that the proposed changes in the design of the PCCS were acceptable for providing protection for design basis events, such as LOCAs.

Location within the SER where the changes are principally described:

The NRC’s evaluation of proposed changes to the DCD associated with changes to the PCCS is in Chapter 23, Section L, of the SER (ADAMS Accession No. ML103260072).

Evaluation of the Criteria in 10 CFR 52.63(a)(1):

Inclusion in the DCD of the design and analysis information that provides for venting of non-condensable gases provides additional information leading to increased standardization of this aspect of the design. Therefore, the change meets the finality criterion for changes in 10 CFR 52.63(a)(1)(vii).

Title: Integrated Head Package – Use of the QuickLoc Mechanism

Item: 10 of 15

Significant Change: In DCD Tier 2, Section 5.3.1.2, Westinghouse describes a revised integrated head package (IHP) design. The new design includes eight QuickLoc penetrations in lieu of the forty-two individual in-core instrument thimble-tube-assembly penetrations on the reactor vessel head, which is a significant decrease in the number of RPV closure head penetrations for access to in-core and core exit instrumentation. The QuickLoc mechanism

allows the removal of the RPV closure head without removal of in-core and core exit instrumentation and, thus, decreases refueling outage time and overall occupational exposure. This head package design has been installed on a number of operating plants and, as noted, has several operational and safety advantages.

Location within the SER where the changes are principally described:

The details of the NRC's evaluation of Westinghouse's design features associated with the (1) IHP and QuickLoc mechanism are in Section 5.2.3 of the SER (ADAMS Accession No. ML103260072) and (2) radiation protection pertaining to the addition of the integrated reactor head package and QuickLoc connectors are in Subsection 12.4.2.3 of the SER (ADAMS Accession No. ML103260072).

Evaluation of the Criteria in 10 CFR 52.63(a)(1):

Inclusion in the DCD of the changes to the IHP would contribute to the increased standardization of this aspect of the design. Therefore, the change meets the finality criterion for changes in 10 CFR 52.63(a)(1)(vii).

Title: Reactor Coolant Pump Design

Item: 11 of 15

Significant Change: In AP1000 DCD Tier 2 Subsection 5.4.1, Westinghouse proposed changes related to the RCP design. These changes include: change to a single-stage, hermetically sealed, high inertia, centrifugal sealless RCP of canned motor design; use of an externally mounted heat exchanger; and change of the RCP flywheel to bimetallic construction. These DCD changes are documented in: TR-34, "AP1000 Licensing Design Change Document for Generic Reactor Coolant Pump," APP-GW-GLN-016, November 2006 and in other documentation in response to NRC inquiries. The supporting documentation includes an analysis demonstrating that failure of the flywheel would not generate a missile capable of

penetrating the surrounding casing, and, therefore, that such failure would not damage the reactor coolant pressure boundary.

Location within the SER where the changes are principally described:

The details of the NRC's evaluation of Westinghouse's design features associated with the RCP design are in Section 5.4.1 of the NRC's Chapter 5 SER (ADAMS Accession No. ML103260072).

Evaluation of the Criteria in 10 CFR 52.63(a)(1):

Inclusion in the DCD of the changes to the RCP would reduce the possibility of plant-specific departure requests by COL applicants referencing the AP1000 DCR. Therefore, the change meets the finality criterion for changes in 10 CFR 52.63(a)(1)(vii).

Title: Reactor Pressure Vessel (RPV) Support System

Item: 12 of 15

Significant Change: The RPV structural support system of the AP1000 standard design is designed to provide the necessary support for the heavy RPV in the AP1000 standard design. The original anchorage design was bolting into embedded plates of the CA04 structural module. Subsection 3.8.3.1.1 of the AP1000 DCD Tier 2 would be changed to reflect modifications to the RPV support design. In the revised design, there are four support "boxes" or "legs" located at the bottom of RPV's cold leg nozzles. The support boxes are anchored directly to the primary shield wall concrete base via steel embedment plates. This CA04 structural module is no longer used in the new design. The four RV support boxes are safety-related and the design of the RPV associated support structures is consistent with the safe shutdown earthquake design of Seismic Category I equipment.

Subsections 3.8.3.5.1 and 5.4.10.2.1 would also be modified.

Location within the SER where the changes are principally described:

The details of the NRC's evaluation of Westinghouse's design features associated with RPV supports are in Chapter 23, Section R, of the SER (ADAMS Accession No. ML103260072).

Evaluation of the Criteria in 10 CFR 52.63(a)(1):

Inclusion in the DCD of the changes to the RPV supports contributes to the increased standardization of this aspect of the design. Therefore, the change meets the finality criterion for changes in 10 CFR 52.63(a)(1)(vii)

Title: Spent Fuel Pool Decay Heat Analysis and Associated Design Changes

Item: 13 of 15

Significant Change: In AP1000 DCD Tier 2 Section 9.1.3, Westinghouse proposed changes to the SFP cooling system. Westinghouse proposed to increase the number of spent fuel storage locations from 619 to 889 fuel assemblies and implement the following associated design changes: (1) increase in component cooling system (CCS) pump design capacity, (2) increase in the CCS supply temperature to plant components, and (3) changes in the CCS parameters related to the RCPs. The increase in the number of assemblies affects the decay heat removal/SFP heatup analyses. The supporting bases for DCD changes are documented in: TR-111, "Component Cooling System and Service Water System Changes Required for Increased Heat Loads," APP-GW-GLN-111, Revision 0, dated May 2007 (ADAMS Accession No. ML071500563); TR-103, "Fluid System Changes," APP-GW-GLN-019, Revision 2, dated October 2007 (ADAMS Accession No. ML072830060); TR-108, "AP1000 Site Interface Temperature Limits," APP-GW-GLN-108, Revision 2, dated September 2007 (ADAMS Accession No. ML103260072), and TR-APP-GW-GLR-097, "Evaluation of the Effect of the AP1000 Enhanced Shield Building on the Containment Response and Safety Analysis," Revision 1, dated August 2010 (ADAMS Accession No. ML102220579).

Location within the SER where the changes are principally described:

The details of the NRC's evaluation of Westinghouse's design features associated with the SFP decay heat analysis are in Section 9.2.2 of the SER (ADAMS Accession No. ML103260072).

Evaluation of the Criteria in 10 CFR 52.63(a)(1):

Inclusion in the DCD of the changes to the SFP decay heat analysis would contribute to the increased standardization of this aspect of the design. Therefore, the change meets the finality criterion for changes in 10 CFR 52.63(a)(1)(vii).

Title: Spent Fuel Rack Design and Criticality Analysis

Item: 14 of 15

Significant Change: In DCD Tier 2 Section 9.1.2, Westinghouse proposed changes to the spent fuel racks: (1) to increase the storage capacity by 270 additional fuel assemblies, and (2) to integrate a new neutron poison into the rack design. These changes included a different rack design and associated structural analysis and a revised criticality analysis. These DCD changes are documented in TR-54, "Spent Fuel Storage Racks Structure and Seismic Analysis," APP-GW-GLR-033, Revision 4, dated June 2, 2010 (ADAMS Accession No. ML101580475); and TR-65, "Spent Fuel Storage Racks Criticality Analysis," APP-GW-GLR-029, Revision 2, date January 5, 2010 (ADAMS Accession No. ML100082093).

Location within the SER where the changes are principally described:

The details of the NRC's evaluation of Westinghouse's design features associated with the spent fuel rack design and criticality analysis are in Section 9.1.2 of the SER (ADAMS Accession No. ML103260072).

Evaluation of the Criteria in 10 CFR 52.63(a)(1):

Inclusion in the DCD of the changes to the spent fuel rack design and criticality analysis would contribute to the increased standardization of this aspect of the design. Therefore, the change meets the finality criterion for changes in 10 CFR 52.63(a)(1)(vii).

Title: Vacuum Relief System

Item: 15 of 15

Significant Change: In Revision 18 to AP1000 DCD Tier 2, Chapters 3, 6, 7, 9, and 16, Westinghouse proposed changes to the design of the containment which add a vacuum relief system to the existing containment air filtration system vent line penetration. The proposed vacuum relief system consists of redundant vacuum relief devices inside and outside containment sized to prevent differential pressure between containment and the shield building from exceeding the design value of 1.7 psig, which could occur under extreme temperature conditions.

Each relief flow path consists of a check valve inside containment and motor operated butterfly valve outside of containment. The redundant relief devices outside containment share a common inlet line with redundant outside air flow entry points. The outlet lines downstream of the outside containment relief devices are routed to a common header connected to the vent line penetration. The redundant relief devices inside containment share a common inlet line from the vent line penetration and have independent discharge lines into containment.

Location within the SER where the changes are principally described:

The details of the NRC's evaluation of Westinghouse's design features associated with the addition of the vacuum relief system are in Chapter 23, Section W, of the SER (ADAMS Accession No. ML103260072).

Evaluation of the Criteria in 10 CFR 52.63(a)(1):

Inclusion in the DCD of the introduction of a containment vacuum relief system would contribute to the increased standardization of this aspect of the design. Therefore, the change meets the finality criterion for changes in 10 CFR 52.63(a)(1)(vii).

Changes Addressing Compliance with Aircraft Impact Assessment Rule (10 CFR 50.150)

The proposed rule would amend the existing AP1000 DCR, in part, to address the requirements of the AIA rule. The AIA rule itself mandated that a DCR be revised, (if not during the DCR's current term, then no later than its renewal) to address the requirements of the AIA rule. In addition, the AIA rule provided that any COL issued after the effective date of the final AIA rule must reference a DCR complying with the AIA rule, or itself demonstrate compliance with the AIA rule. The AIA rule may therefore be regarded as inconsistent with the finality provisions in 10 CFR 52.63(a) and Section VI of the AP1000 DCR. However, the NRC provided an administrative exemption from these finality requirements when the final AIA rule was issued. See *Federal Register* notice, 74 FR 28112; June 12, 2009, at 28143-28145. Accordingly, the NRC has already addressed the backfitting implications of applying the AIA rule to the AP1000 with respect to the AP1000 and referencing COL applicants.

Conclusion

The proposed amendment to the AP1000 DCR does not constitute backfitting and is not otherwise inconsistent with finality provisions in 10 CFR Part 52. Accordingly, the NRC has not prepared a backfit analysis or documented evaluation for this rule.

List of Subjects in 10 CFR Part 52

Administrative practice and procedure, Antitrust, Backfitting, Combined license, Early site permit, Emergency planning, Fees, 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, Incorporation by reference.

For the reasons set out in the preamble and under the authority of the Act, as amended; the Energy Reorganization Act of 1974, as amended; and 5 U.S.C. 552; the NRC is proposing to adopt the following amendments to 10 CFR Part 52.

PART 52 – LICENSES, CERTIFICATIONS, AND APPROVALS 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); Energy Policy Act of 2005, Pub. L. No. 109–58, 119 Stat. 594 (2005), secs. 147 and 149 of the Atomic Energy Act.

2. In Appendix D to 10 CFR Part 52, Section IV, revise paragraph A.3 and add paragraph A.4 to read as follows:

Appendix A to Part 52--Design Certification Rule for the U.S. Advanced Boiling Water Reactor

* * * * *

IV. Additional Requirements and Restrictions

A. * * *

3. Include, in the plant-specific DCD, the SUNSI (including PI) and SGI referenced in the AP1000 DCD.

4. Include, as part of its application, a demonstration that an entity other than Westinghouse is qualified to supply the AP1000, design unless Westinghouse supplies the design for the applicant's use.

* * * * *

3. In Appendix D to 10 CFR Part 52:

a. In Section III, revise paragraphs A and D.

b. In section V, redesignate paragraph A as paragraph A.1 and add a new paragraph A.2;

c. In Section VI, revise paragraphs B.1, B.2, B.7, and E;

d. In Section VIII, revise the introductory text of paragraph B.5.b, redesignate paragraphs B.5.d, B.5.e, and B.5.f as paragraphs B.5.e, B.5.f, and B.5.g, respectively, and add a new paragraph B.5.d, and revise paragraphs B.6.b and B.6.c; and

e. In Section X, revise paragraph A.1 and add a new paragraph A.4 to read as follows:

Appendix D to Part 52—Design Certification Rule for the AP1000 Design

* * * * *

III. Scope and Contents

A. Tier 1, Tier 2 (including the investment protection short-term availability controls in Section 16.3), and the generic TSs in the AP1000 DCD (Revision 18, dated December 1, 2010) are approved for incorporation by reference by the Director of the Office of the Federal Register under 5 U.S.C. 552(a) and 1 CFR Part 51. Copies of the generic DCD may be obtained from Stanley E. Ritterbusch, Manager, AP1000 Design Certification, Westinghouse Electric Company, 1000 Westinghouse Drive, Cranberry Township, PA 16066. A copy of the generic DCD is also available for examination and copying at the NRC's PDR, Room O-1F21, One White Flint North, 11555 Rockville Pike, Rockville, Maryland 20852. Copies are available for examination at the NRC Library, Two White Flint North, 11545 Rockville Pike, Rockville, Maryland 20852, telephone 301-415-5610, e-mail LIBRARY.RESOURCE@NRC.GOV. The DCD can also be viewed on the Federal Rulemaking Web site <http://www.regulations.gov> by searching for documents filed under Docket ID NRC-2010-0131 or in the NRC's Electronic Reading Room at <http://www.nrc.gov/reading-rm/adams.html> by searching under ADAMS Accession No. ML103480059. All approved material is available for inspection 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/cfr/ibr-locations.html>.

* * * * *

D.1. If there is a conflict between the generic DCD and either the application for the initial design certification of the AP1000 design or NUREG-1793, "Final Safety Evaluation Report Related to Certification of the Westinghouse Standard Design," and Supplement No. 1, then the generic DCD controls.

2. If there is a conflict between the generic DCD and either the application for Amendment 1 to the design certification of the AP1000 design or NUREG-1793, "Final Safety

Evaluation Report Related to Certification of the Westinghouse Standard Design,” Supplement No. 2, then the generic DCD controls.

* * * * *

V. Applicable Regulations

A.1. 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 January 23, 2006, that are applicable and technically relevant, as described in the FSER (NUREG-1793) and Supplement No. 1.

2. The regulations that apply to those portions of the AP1000 design approved by Amendment 1 [FINAL RULE *FEDERAL REGISTER* CITATION] are in 10 CFR Parts 20, 50, 73, and 100, codified as of [DATE THIS FINAL RULE IS SIGNED BY THE SECRETARY OF THE COMMISSION], that are applicable and technically relevant, as described in the Supplement No. 2 of the FSER.

* * * * *

VI. Issue Resolution

B. * * *

1. All nuclear safety issues, except for the generic TS and other operational requirements, associated with the information in the FSER and Supplement Nos. 1 and 2, 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 records for initial certification and Amendment 1 of the AP1000 design;

2. All nuclear safety and safeguards issues associated with the referenced SUNSI (including PI) and SGI which, in context, are intended as requirements in the generic DCD for the AP1000 design;

* * * * *

7. All environmental issues concerning severe accident mitigation design alternatives associated with the information in the NRC's EA for the AP1000 design, Appendix 1B of Revision 15 of the generic DCD, the NRC's final EA for Amendment 1 to the AP1000 design, and Appendix 1B of Revision 18 of the generic DCD, for plants referencing this appendix whose site parameters are within those specified in the severe accident mitigation design alternatives evaluation.

* * * * *

E. The NRC will specify at an appropriate time the procedures to be used by an interested person who wishes to review SUNSI (including PI⁷) or SGI for the AP1000 certified design, for the purpose of participating in the hearing required by 10 CFR 52.85, the hearing provided under 10 CFR 52.103, or in any other proceeding relating to this appendix in which interested persons have a right to request an adjudicatory hearing.

* * * * *

VIII. Processes for Changes and Departures

B. * * *

5. * * *

b. A proposed departure from Tier 2, other than one affecting resolution of a severe accident issue identified in the plant-specific DCD or one affecting information required by 10 CFR 52.47(a)(28) to address 10 CFR 50.150, requires a license amendment if it would:

* * * * *

d. If an applicant or licensee proposes to depart from the information required by 10 CFR 52.47(a)(28) to be included in the FSAR for the standard design certification, then the

⁷ PI includes trade secrets and commercial or financial information obtained from a person that are privileged or confidential (10 CFR 2.390 and 10 CFR Part 9).

applicant or licensee shall consider the effect of the changed feature or capability on the original assessment required by 10 CFR 50.150(a). The applicant or licensee must also document how the modified design features and functional capabilities continue to meet the assessment requirements in 10 CFR 50.150(a)(1) in accordance with Section X of this appendix.

* * * * *

6. * * *

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) Reactor coolant pump type.
- (6) Small-break LOCA 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) ASME Code piping design restrictions, and ASME Code Cases.
- (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, "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) I&C system design processes, methods, and standards.

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

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

(12) Polar crane parked orientation.

(13) Piping DAC.

(14) Containment vessel design parameters, including ASME Code, Section III, Subsection NE.

(15) Human factors engineering.

* * * * *

X. Records and Reporting

A. * * *

1. The applicant for this appendix shall maintain a copy of the generic DCD that includes all generic changes it makes to Tier 1 and Tier 2, and the generic TS and other operational requirements. The applicant shall maintain SUNSI (including PI) and SGI referenced in the generic DCD for the period that this appendix may be referenced, as specified in Section VII of this appendix.

* * * * *

4.a. The applicant for the AP1000 design shall maintain a copy of the AIA performed to comply with the requirements of 10 CFR 50.150(a) for the term of the certification (including any period of renewal).

b. An applicant or licensee who references this appendix shall maintain a copy of the AIA performed to comply with the requirements of 10 CFR 50.150(a) throughout the pendency of the application and for the term of the license (including any period of renewal).

* * * * *

Dated at Rockville, Maryland, this _____ day of _____ 2011.

For the Nuclear Regulatory Commission.

Annette L. Vietti-Cook,
Secretary of the Commission

DRAFT ENVIRONMENTAL ASSESSMENT BY THE
U.S. NUCLEAR REGULATORY COMMISSION
RELATING TO THE CERTIFICATION OF THE
AMENDMENT TO THE AP1000 STANDARD PLANT DESIGN
DOCKET NO. 52-006

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UNITED STATES NUCLEAR REGULATORY COMMISSION
DRAFT ENVIRONMENTAL ASSESSMENT AND FINDING OF
NO SIGNIFICANT IMPACT
RELATING TO THE CERTIFICATION OF THE
AMENDMENT TO THE AP1000 STANDARD PLANT DESIGN
DOCKET NO. 52-006

The U.S. Nuclear Regulatory Commission (NRC or the Commission) is proposing an amendment to the design certification for the AP1000 design in response to an application submitted on May 26, 2009, by Westinghouse Electric Company, LLC (Westinghouse). The purpose of the amendment is to replace combined license (COL) information items and design acceptance criteria (DAC) with specific design information, address the effects of the impact of a large commercial aircraft, incorporate design improvements, and increase standardization of the design. A design certification is a rulemaking; the NRC has decided to adopt design certification rules (DCRs) as appendices to Part 52 of Title 10 of the *Code of Federal Regulations* (10 CFR).

The NRC has performed the following environmental assessment (EA) of the environmental impacts of the proposed amendment and has documented a finding of no significant impact in accordance with the requirements of 10 CFR 51.21 and the National Environmental Policy Act of 1969, as amended. This EA also addresses the severe accident mitigation design alternatives (SAMDA) that the NRC has considered for the Westinghouse amendment to the AP1000 design. This EA does not address the site-specific environmental impacts of constructing and operating any facility that references the AP1000 design certification amendment at a particular site. Those impacts would be evaluated as part of any application or applications for the siting, construction, or operation of such a facility.

As discussed in Section 3.0 of this EA, the NRC has determined that issuing the subject design certification amendment does not constitute a major Federal action significantly affecting the quality of the human environment. This determination is based on the generic finding made in 10 CFR 51.32(b)(2) that there is no significant environmental impact associated with an amendment to a design certification. The action would not authorize the siting, construction, or operation of a facility using the AP1000 design. Rather, it would merely codify the amendment to the AP1000 design in a rule that could be referenced in a future COL application. Furthermore, because certification of the amendment constitutes only a rule rather than a physical action, it would not involve the commitment of any resources that have alternative uses. As explained in the statements of consideration for “Licenses, Certifications, and Approvals for Nuclear Power Plants; Final Rule” (72 FR 49352, at 49427; August 28, 2007), the 10 CFR 51.32(b)(2) generic finding of no significant impact is legally equivalent to a categorical exclusion. Therefore, the NRC has not prepared an environmental impact statement (EIS) for the action.

In accordance with 10 CFR 51.30(d), an EA for an amendment to a design certification is limited to consideration of whether the design change which is the subject of the proposed amendment, renders a SAMDA previously rejected in the earlier EA to become cost beneficial, or results in the identification of new SAMDAs, in which case the costs and benefits of new SAMDAs and the bases for not incorporating new SAMDAs in the design certification must be addressed. As discussed in Section 4.0 of this EA, the amendment would not cause a SAMDA previously rejected in the environmental review for the AP1000 design to become cost beneficial or lead to the identification of any new SAMDAs.

In addition, this draft EA is being issued in connection with a proposed rule published in the *Federal Register* on [PROPOSED RULE PUBLICATION DATE] ([PROPOSED RULE

FEDERAL REGISTER CITATION]). As provided in 10 CFR 51.31(b)(1)(ii), comments on this EA will be limited to the consideration of SAMDAs as required by 10 CFR 51.30(d).

ENVIRONMENTAL ASSESSMENT

1.0 Identification of the Proposed Action

The proposed action is to issue a rule amending the certified AP1000 design in Appendix D to 10 CFR Part 52. The revised rule would allow applicants to reference the revised design control document (DCD) as part of a COL application under 10 CFR Part 52.

2.0 The Need for the Proposed Action

The NRC has long sought the safety benefits of commercial nuclear power plant standardization and early final resolution of design issues. The NRC achieves these benefits by certifying nuclear plant designs. Subpart B of 10 CFR Part 52 allows for certification of nuclear plant designs in the form of rulemaking.

The proposed action is to issue a rule amending 10 CFR Part 52 to revise the certified AP1000 design to replace COL information items and DAC with specific design information, address the effects of the impact of a large commercial aircraft, incorporate design improvements, and increase standardization of the design. The amendment would allow COL applicants to reference the revised AP1000 DCD as part of a COL application under 10 CFR Part 52. Those portions of the AP1000 design included in the scope of the certification amendment rulemaking would not be subject to further safety review or approval in a COL proceeding. In addition, the DCR could eliminate the need to consider SAMDAs individually for any future facilities that reference the certified AP1000 design.

3.0 The Environmental Impact of the Proposed Action

The proposed action constitutes issuance of an amendment to the AP1000 design certification. According to 10 CFR 51.32(b)(2), the NRC has generically determined that there is no significant environmental impact associated with the issuance of an amendment to a design certification. The amendment would merely codify the NRC's approval of the amendment to the AP1000 design through its final safety evaluation report (FSER) on the design and any FSER supplement issued during rulemaking (refer to Agencywide Documents Access and Management System (ADAMS) Accession No. ML103260072). Furthermore, because certification of the amendment constitutes a rule rather than a physical action, it would not involve the commitment of any resources that have alternative uses.

The amendment to the DCR by itself would not authorize the siting, construction, or operation of a nuclear power plant. An applicant for a COL that references the AP1000 design will be required to address the environmental impacts of construction and operation at a specific site. The NRC would then evaluate the environmental impacts and issue an EIS in accordance with 10 CFR Part 51. However, the SAMDA analysis that has been completed as part of this EA can be incorporated by reference into an EIS related to an application for siting, construction, or operation of a nuclear plant that references the AP1000 design.

4.0 Severe Accident Mitigation Design Alternatives

4.1 Westinghouse's Assessment of Severe Accident Mitigation Design Alternatives

Consistent with the objectives of standardization and early resolution of design issues, the Commission decided to evaluate SAMDAs as part of the original design certification for the AP1000 design. In the 1985 policy statement on severe accidents, the Commission defined the term, "severe accident," as an event that is "beyond the substantial coverage of design-basis events (DBEs)," including events where there is substantial damage to the reactor core

(whether or not there are serious offsite consequences). DBEs are events analyzed in accordance with the NRC's Standard Review Plan (NUREG-0800) and documented in several chapters of the AP1000 DCD such as Chapters 2, 3, and 15.

The SAMDA analysis in Appendix 1B to the AP1000 DCD, Revision 15, as originally certified, concluded that there were no cost-beneficial SAMDAs for the AP1000 design. In Westinghouse's technical report APP-PRA-GER-001, "AP1000 Design Change Proposal Review for PRA and Severe Accident Input," Westinghouse assessed the impacts of the proposed design changes on the probabilistic risk assessment (PRA) and the SAMDA analysis for the certified AP1000 design.

Westinghouse concluded that if design changes did not significantly affect the applicability of the previous PRA, it could be inferred that the "AP1000 PRA revision will not impact the AP1000 SAMDA." Westinghouse further noted that it did not identify any new SAMDAs to incorporate that had not previously been considered. Therefore, Westinghouse concluded the design changes will not result in a change to the applicability of the certified AP1000 PRA, and the AP1000 SAMDA assessment in the original design remains valid.

As a result, Westinghouse concluded that the SAMDAs that were considered and rejected as not being cost beneficial in the original SAMDA assessment did not become cost beneficial due to the proposed design changes.

4.2 NRC Evaluation

NRC staff reviewed the information in the technical report, and the EA issued for the original AP1000 DCR.

NRC staff reviewed the applicant's evaluations of the design changes and concluded that the proposed design changes would not result in a significant change in the core damage frequency, as compared with the existing AP1000 design. Therefore, the staff concluded that

the proposed design changes would not alter the original SAMDA evaluation and would not change the conclusions reached in the EA issued for the original AP1000 DCR. The staff did not identify any new SAMDAs worthy of further evaluation in accordance with 10 CFR 51.30(d).

5.0 Public Comments and NRC Responses

(RESERVED FOR FUTURE USE)

6.0 Finding of No Significant Impact

On the basis of the EA, the NRC concludes that the proposed action would not have a significant effect on the quality of the human environment. Accordingly, the NRC has decided not to prepare an EIS for the proposed action.

For further details with respect to the proposed action, see the proposed design certification amendment and the documents referenced in the statements of consideration for the proposed amendment. Documents may be examined, and/or copied for a fee, at the NRC's Public Document Room (PDR), located at One White Flint North, 11555 Rockville Pike, Room O-1F21, Rockville, Maryland 20852. Publicly available records are accessible electronically from the ADAMS Public Electronic Reading Room on the NRC Web site at <http://www.nrc.gov/reading-rm/adams.html>. Persons who do not have access to ADAMS or who encounter problems in accessing the documents in ADAMS should contact the NRC PDR reference staff at 1-800-397-4209 or 301-415-4737 or via e-mail to PDR.Resource@nrc.gov. Documents are also available electronically by accessing the Federal Rulemaking Web site at <http://www.regulations.gov> by searching on Docket ID NRC-2010-0131.