

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
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 to amend the design certification for the AP1000 standard plant design in response to an application submitted on May 26, 2007 (Agencywide Documents Access and Management System (ADAMS) Accession No. ML071580939 (public version)), 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 (SAMDAs) 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. Issuing the subject design certification amendment 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 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, 49,427; 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 the following two matters: 1) whether any design change that is the subject of the proposed amendment renders a SAMDA previously rejected in the earlier EA cost beneficial; and 2) whether such a design change 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 proposed amendment would not cause a SAMDA that was previously rejected in the

environmental review for the AP1000 design to become cost beneficial or lead to the identification of any new SAMDAs.

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 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 NUREG-1793, Supplement 2). 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 Reactor Accidents Regarding Future Designs and Existing Plants" (50 FR 32138; August 8, 1985), 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 in the EA issued for the original AP1000 DCR. NRC staff reviewed the applicant's evaluation of the proposed design changes and concluded that those changes would not result in a significant change in the core damage frequency, as compared with the existing AP1000 design. Therefore, NRC 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 for further evaluation in accordance with 10 CFR 51.30(d).

5.0 Public Comments and NRC Responses

On February 24, 2011 (76 FR10269), the NRC issued the draft EA for public comment (ADAMS Accession No. ML103000415). The comment period expired May 10, 2011. While the NRC did not receive any comments specifically directed to the EA, the NRC received several comments regarding technical issues related to the AP1000 amendment SAMDA analysis. These comments and the NRC responses to the comments, as well as other comments and associated NRC responses regarding this AP1000 amendment rulemaking can be found under ADAMS Accession No. ML112212319. See NRC responses to comments under the SAMDA heading.

6.0 Finding of No Significant Impact

On the basis of the EA, the NRC concludes that the proposed action will 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 (ADAMS Accession No. ML103000397). 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> and search on Docket ID NRC-2010-0131.