

Westinghouse Non-Proprietary Class 3



Westinghouse Electric Company
 New Plants and Major Projects
 1000 Westinghouse Drive
 Cranberry Township, Pennsylvania 16066
 USA

Vonna Ordaz, Acting Director
 Office of New Reactors
 U.S. Nuclear Regulatory Commission
 Attention: Document Control Desk
 Washington, DC 20555-0001

Direct tel: 412-374-2111
 e-mail: easterr@westinghouse.com

52-006

DCP_NRC_003303

December 2, 2016

Subject: Request for Exemptions Related to the Duration of the AP1000® Design Certification

Westinghouse Electric Company LLC (Westinghouse), the holder of the AP1000 Design Certification (DC), is requesting exemptions related to the duration of the AP1000 DC. The AP1000 plant is the only certified design under construction and will also be the first to face renewal with the first units still under construction. The considerations for the timing of a DC renewal application for the AP1000 design are therefore unique. Specifically, there are four AP1000 units currently under construction in the United States, two each at the Vogtle and V.C. Summer sites, where lessons learned and construction experience continue to accumulate. This experience has led to numerous improvements and overall refinement of the AP1000 design. Currently, however, a DC renewal application must be submitted no later than February 27, 2020, which overlaps with the expected completion and initial operation of the AP1000 units at the Vogtle and V.C. Summer sites.

Thus, the current expiration date for the AP1000 DC and the associated time window for seeking renewal do not allow for all construction lessons learned to be identified, evaluated, and considered for inclusion into a DC renewal application nor does it allow for the incorporation of any operating lessons learned.

Rather than allow the current application deadline to pass, or, alternatively, submit an application based on available, but necessarily incomplete, information, Westinghouse is seeking exemptions that would extend the validity of the AP1000 DC for an additional five years beyond the current expiration date, from February 27, 2021 to February 27, 2026, which would allow for the completion and initial operation of all four domestic AP1000 units, and the subsequent incorporation of lessons learned from those activities into the DC renewal application. The exemptions would, as a result, allow Westinghouse to submit a DC renewal application between February 27, 2023 and February 27, 2025.

As demonstrated in Enclosure 1, the requested exemptions are authorized by law, present no undue risk to the public health and safety or security, and the requisite special circumstances are present. Moreover, the proposed exemptions would provide increased efficiency in the preparation and review of a renewal application when compared to alternatives, and would benefit the NRC, current AP1000 combined operating license (COL) licensees, future applicants, and Westinghouse.

The rulemaking record for Part 52 suggests that the fifteen-year DC duration was selected to permit a sufficient time for "operating experience with a given design to accumulate before the certification comes up for renewal," and is therefore not based on a safety or security concern. The proposed exemptions

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support this objective by allowing for all construction and a limited amount of operating lessons learned to be identified, evaluated, and considered for inclusion in the renewal application. The AP1000 plant has additionally been and continues to be subject to extensive and ongoing safety reviews (e.g. certification, amendment, inspections, and ITAAC closure). The NRC also has mechanisms independent of the DC renewal process to ensure that changes in the AP1000 design that are required for safety are implemented into the DC itself, a COL, or a COL application, and therefore, the NRC retains the authority to impose changes through these means should the need arise.

The proposed exemptions would also allow Westinghouse and NRC staff resources and critical AP1000 design expertise to remain focused on the current projects at a critical stage in construction, as opposed to being reallocated towards a parallel DC renewal effort. Further, the exemption would facilitate a more efficient NRC review by way of a more complete and comprehensive application, which would likely reduce the need for requests for additional information (RAIs), and subsequent revisions to the application. Additionally, incorporating lessons learned into a renewal, rather than requiring COL applicants to address such lessons via departure, streamlines the COL licensing process. The exemption would therefore support the objective of standardization because an applicant referencing a renewed AP1000 DC would have less need to seek departures from the certified design. Lastly, such an exemption would provide time for Westinghouse, the industry, and the NRC to collaboratively develop refined and formalized guidance for DC renewal applications.

Westinghouse appreciates the NRC's consideration of this request. If granted, Westinghouse believes that all stakeholders will benefit. Should clarification be needed, Westinghouse is available to meet with the NRC to more fully explain the rationale for the requested exemptions.

Questions related to the enclosures can be directed to Zachary S. Harper at 412-374-5093 or harperzs@westinghouse.com.

Very truly yours,

Paul A. Russ
acting for
Rick Easterling

Rick Easterling, Vice President
Technical Services and Licensing

/Enclosures

1. Exemption Request
2. Environmental Review

cc: Victor McCree
Michael Johnson
Catherine Haney
Frank Akstulewicz
Laura Dudes
Jennifer Dixon-Herrity

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ENCLOSURE 1

Exemption Request

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1.0 Purpose

Westinghouse Electric Company LLC requests exemptions from three provisions of Part 52 of Title 10 of the Code of Federal Regulations (10 CFR Part 52) related to the duration of the AP1000 Design Certification (DC). As demonstrated below, the requested exemptions are authorized by law, present no undue risk to public health and safety or security, and special circumstances are present. Special circumstances exist with respect to this request because strict compliance with Section VII of Appendix D to Part 52, 10 CFR 52.55(a), and 10 CFR 52.57(a) to the AP1000 DC renewal would:

1. Not serve the underlying purpose of the NRC's regulations (see Section 5.2.1), and
2. Result in undue hardship or other costs that are significantly in excess of those contemplated when the regulation was adopted (see Section 5.2.2).

2.0 Summary

The final DC rule for the AP1000 pressurized water reactor was issued on January 27, 2006 and became effective on February 27, 2006.^[1] The AP1000 DC is codified into regulation as Appendix D of 10 CFR Part 52. In accordance with 10 CFR 52.55(a) and Section VII of Appendix D to Part 52, the AP1000 DC may be referenced until February 27, 2021. Under 10 CFR 52.57(a) Westinghouse may submit an AP1000 DC renewal application to the NRC no later than February 27, 2020.

The AP1000 plant is the only NRC-certified design under construction in the United States and is also the first certified design with an existing reference plant to face renewal. This results in unique considerations for the timing of a DC renewal application. In particular, there are four AP1000 units currently under construction in the United States, two each at the Vogtle and V.C. Summer sites, where lessons learned continue to accumulate. This experience has repeatedly led to improvements in the AP1000 design.

The domestic AP1000 units are scheduled to be completed towards the end of the design certification renewal window; therefore the AP1000 experience base will continue to grow significantly until after the current deadline for Westinghouse to seek renewal. Thus, the current expiration date for the AP1000 DC and the associated time window for seeking renewal do not allow for all construction and initial operation lessons learned to be identified, evaluated, and considered for inclusion in a DC renewal application.

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As explained in the regulatory history of the Part 52 rules governing the expiration and renewal of design certifications,^[2] from a regulatory, safety and standardization perspective, it is preferable to have experience from construction and operation available at the time an applicant prepares, and the NRC reviews, a DC renewal application. An operating unit will have incorporated lessons learned and other enhancements made during construction; it will also have obtained valuable initial operating data, which will inform design improvements that will be ripe for an efficient review on a generic basis at the time of DC renewal.

Westinghouse agrees with the need for a finite DC validity period. However, given that the first domestic AP1000 units will still be under construction during the window for renewal, the application of the regulations establishing a 15-year DC duration—Section VII of Appendix D to Part 52, 10 CFR 52.55(a), and 10 CFR 52.57(a)—in these particular circumstances would not serve the relevant underlying purpose of the rule, which is “to permit more operating experience with a given design to accumulate before the certification comes up for renewal.”^[3] Conversely, allowing the time to complete these projects and a subsequent limited period of initial operation prior to developing a DC renewal application supports our mutual goal of a comprehensive and complete application. Further, there are efficiencies to be gained by the NRC granting the requested exemptions (see Sections 5.2.2 and 5.3). Lastly, such an exemption would provide time for Westinghouse, the industry, and the NRC to collaboratively develop refined and formalized guidance for DC renewal applications (see Section 5.4).

3.0 Regulatory Requirements Proposed for Exemption

Part 52 – Licenses, Certifications, and Approvals for Nuclear Power Plants

§ 52.55 Duration of certification.

(a) Except as provided in paragraph (b) of this section, a standard design certification issued under this subpart is valid for 15 years from the date of issuance.

§ 52.57 Application for renewal.

(a) Not less than 12 nor more than 36 months before the expiration of the initial 15-year period, or any later renewal period, any person may apply for renewal of the certification. An application for renewal must contain all information necessary to bring up to date the information and data contained in the previous application. The Commission will require, before renewal of certification, that information normally contained in certain procurement specifications and construction and installation specifications be completed and available for audit if this information is necessary for the

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Commission to make its safety determination. Notice and comment procedures must be used for a rulemaking proceeding on the application for renewal. The Commission, in its discretion, may require the use of additional procedures in individual renewal proceedings.

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

VII. Duration of this Appendix

This appendix may be references for a period of 15 years from February 27, 2006, except as provided for in 10 CFR 52.55(b) and 52.57(b). This appendix remains valid for an applicant or licensee who references this appendix until the application is withdrawn or the license expires, including any period of extended operation under a renewed license.

4.0 The Proposed Exemptions

Westinghouse seeks the following exemptions related to the duration of the AP1000 DC. These exemptions would extend the date for the expiration of the AP1000 DC. The associated time window for Westinghouse to seek renewal of the DC would thereby also be extended until after the current domestic construction projects have been completed and a more complete set of design changes, lessons learned, and initial operating experience (OE) can be identified, evaluated, and considered for inclusion in a renewal application. This, in turn, would allow Westinghouse to develop a more comprehensive and complete DC renewal application that could be more efficiently reviewed by the NRC staff.

1. Westinghouse seeks an exemption from Section VII of Appendix D to Part 52, which would extend the validity of the AP1000 DC for an additional five years beyond the current expiration date (from February 27, 2021 to February 27, 2026). The exemption would allow Westinghouse to submit a DC renewal application between February 27, 2023 and February 27, 2025—as opposed to the current deadline of February 27, 2020. Should a DC renewal application not be submitted in that timeframe, then the DC would no longer be valid to reference in a new combined operating license (COL) application (COLA) after February 27, 2026.
2. Consistent with the above, Westinghouse also seeks a conforming exemption from 10 CFR 52.55(a) for the AP1000 DC, which would similarly extend the validity of the AP1000 DC for five additional years.
3. Consistent with the above, Westinghouse also seeks a conforming exemption from 10 CFR 52.57(a) for the AP1000 DC, which would extend the validity of the AP1000 DC for an additional five years.

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The basis for the requested five years duration of the requested exemptions is discussed in detail in Section 5.2.1.2.

5.0 Regulatory Requirements for Exemptions under Part 50 and Part 52

10 CFR 52.7 authorizes the NRC to grant exemptions from Part 52 regulations if the criteria in 10 CFR 50.12 are met. 10 CFR 50.12, in turn, allows the NRC to grant exemptions that are “authorized by law, will not present an undue risk to the public health and safety, and are consistent with the common defense and security.”

In addition to satisfying these criteria, 10 CFR 50.12 requires that an applicant for an exemption demonstrate at least one “special circumstance” is present, as outlined in 10 CFR 50.12(a)(2). As relevant here, “special circumstances” can include: (1) that the “Application of the regulation in the particular circumstances would not serve the underlying purpose of the rule or is not necessary to achieve the underlying purpose of the rule”; or (2) that “Compliance would result in undue hardship or other costs that are significantly in excess of those contemplated when the regulation was adopted, or that are significantly in excess of those incurred by others similarly situated.”

As demonstrated below, the criteria for granting an exemption are met, including the two special circumstances listed above.

5.1 The exemptions are authorized by law, will not present an undue risk to the public health and safety, and are consistent with the common defense and security (10 CFR 50.12(a)(1))

5.1.1 The proposed exemptions are authorized by law

The proposed exemptions are authorized under the Atomic Energy Act of 1954, as amended (the Act). The Act does not address the period of a design certification or timing of an application for renewal of a design certification. The NRC established the 15-year certification period in 10 CFR 52.55(a), 52.57(a), and Part 52 Appendix D pursuant to the agency’s broad discretion under the Act. Neither the Act nor any other law prohibits the NRC from extending the duration of a design certification or for filing an application for its renewal. Similarly, the Act does not require the NRC to limit a design certification to a specified period, let alone a specific duration of 15 years.

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The rulemaking record for Part 52 confirms that the design certification duration is entirely discretionary and not based on any specific statutory or other legal requirement. When the original Part 52 rule was proposed in 1988, the NRC initially proposed a duration of 10 years.^[2] In the Final Rule issued in 1989, however, the NRC modified the duration to its current period of 15 years, without any reference to any associated legal constraints.^[3] Therefore, there is no legal prohibition against extending the duration of a design certification beyond 15 years.

5.1.2 The proposed exemptions present no undue risk to the public health and safety or the common defense and security

Additionally, no undue risk to the public health and safety or the common defense and security would be presented by extending the expiration date for the AP1000 DC to February 27, 2026.

5.1.2.1 The duration of a certified design is not based on safety considerations

As a threshold matter, Westinghouse's request is a request for exemptions from schedule requirements as opposed to an exemption from any substantive safety or security requirements. As noted above, the rulemaking record for Part 52 does not suggest that the NRC imposed a specific duration out of a safety or security concern. Rather, the rulemaking record reflects that the period for certification appears to be primarily administrative in nature.

Moreover, the existing NRC regulations governing the AP1000 DC are based on the conclusion that there is no public health and safety or security concern with the continued use of the design for many decades. Specifically, under 10 CFR Part 52.55(b) and 52.57(b), the AP1000 DC will remain valid until the expiration of any COL issued to a licensee who references the DC, including any period or periods of extended operation.

Therefore, a current or future COL holder could be operating an AP1000 unit for 40 or more years based on a design that will have long since either been revised through the renewal process or expired. Put another way, should the exemptions be granted, the duration of the requested extension for the AP1000 DC (5 years) is significantly less than the duration of a COL (40 years).

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5.1.2.2 The AP1000 design has been and continues to be subject to extensive and ongoing safety reviews

Moreover, the AP1000 design is being subjected to perhaps the most extensive series of safety reviews of any design the NRC has reviewed. For example, the NRC has expended in excess of 200,000 hours to date reviewing the initial and amended AP1000 design certifications. This does not include the approximately 230,000 hours spent reviewing the similar AP600 design. Additionally, the NRC has extensively reviewed aspects of the AP1000 design as part of the six COLs it has issued, and xx others which are under review at this time.

Additionally, the NRC is actively inspecting the AP1000 plants under construction; these inspections have been performed at a number of locations, including at Westinghouse facilities, the AP1000 construction sites where there are permanent resident NRC inspectors, and vendor sites for AP1000 components. Further, the NRC has approved approximately 50 License Amendment Requests (LARs) since construction began and will continue to review the design as part of closure of inspections, tests, and acceptance criteria (ITAAC) prior to the 10 CFR 52.103(g) findings.

By the time of the anticipated 10 CFR 52.103(g) findings for the current projects, the NRC's review of the AP1000 plant design will likely increase by tens of thousands of hours. To make those findings, and as further explained in Section 5.2.1.2, the NRC will in fact be engaged in a separate validation of the safety basis for the AP1000 design just at the time the window for timely DC renewal is closing.

These considerations further support the conclusion that there will be no undue risk to the public health and safety or the common defense and security should the NRC grant the requested exemptions related to the DC validity period.

5.1.2.3 The NRC has mechanisms available to ensure that changes in the AP1000 design that are required for safety are implemented

Finally, and perhaps most significantly, the NRC has regulatory mechanisms available to ensure that the public health and safety and common defense and security would remain protected should the proposed exemptions be granted. While 10 CFR 52.59(b) provides a mechanism in the DC renewal process to ensure that changes in the AP1000 design that are required for safety are implemented (see Section 5.3 and as discussed in the following

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sections), there are parallels elsewhere in the NRC’s regulations that would allow for the intent of 52.59(b) to be met under the proposed exemptions.

5.1.2.3.1 The NRC has the authority to ensure COL applicants referencing the AP1000 DC during the period covered by the exemptions will incorporate design changes necessary for safety or security

As stated earlier, there are mechanisms in place to ensure that a COLA complies with the Commission’s regulations and orders applicable and in effect at the time the associated DC was issued, and thus, meet the underlying purposes of the NRC’s 52.59(b)(1) and 52.59(b)(2) review of a DC renewal application.

10 CFR 52.97, “Issuance of combined licenses” subparagraph (a), states that “...the Commission may issue a combined license if the Commission finds that: (i) The applicable standards and requirements of the Act and the Commission’s regulations have been met...(iii) There is reasonable assurance that the facility will be constructed and will operate in conformity with the license, the provisions of the Act, and the Commission’s regulations...[and] (v) Issuance of the license will not be inimical to the common defense and security or to the health and safety of the public”.

Under this regulation, in its recent reviews of the COL applications for Levy County Units 1 and 2, Turkey Point Units 6 and 7, and W.S. Lee Units 1 and 2, the NRC ensured that necessary changes to the AP1000 design were incorporated into the COLs. Specifically, changes to the AP1000 design were made for these sites in the form of departures from the AP1000 DC. As one example, the design basis accident main control room habitability dose analyses for the Levy COL were updated from that reflected in the AP1000 certified design in order to show compliance with the control room habitability regulatory requirements in 10 CFR Part 50, Appendix A, General Design Criteria 19, “Control Room.” The Levy COL has since been issued,^[4] with the other COL applications still under review.

Therefore, as demonstrated above, the NRC has the authority to require future COL applicants to incorporate design changes required for safety, similar to its authority under 10 CFR 52.59(b)(1) and 10 CFR 52.59(b)(2).

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5.1.2.3.2 The NRC retains authority to impose changes to a certified design or COL application that are necessary for safety or security outside of the renewal process

10 CFR 52.59(b)(3) allows the NRC to impose additional requirements on a DC renewal if “there is a substantial increase in overall protection of the public health and safety or the common defense and security to be derived from the new requirements, and the direct and indirect costs of implementing those requirements are justified in view of this increased protection.” But the NRC has equivalent authority to impose changes to a certified design or to a COL holder, outside of the DC renewal process, under the traditional backfit provisions of 10 CFR 50.109(a)(3) as evidenced by 10 CFR 52.98, “Finality of combined licenses; information requests.”

Specifically, 10 CFR 52.98(a) states that “After issuance of a combined license, the Commission may not modify add, or delete any term or condition of the combined license, the design of the facility, the inspections, tests, analyses, and acceptance criteria contained in the license which are not derived from a referenced standard design certification or manufacturing license, except in accordance with the provisions of...50.109 of this chapter, as applicable.” Section 50.109(a)(3), in turn, allows the NRC to impose changes upon a facility when “there is a substantial increase in the overall protection of the public health and safety or the common defense and security . . . and that the direct and indirect costs of implementation for that facility are justified in view of this increased protection”; i.e., the same standards as set forth in Section 52.59(b)(3). The same standards also apply under 10 CFR 52.63, “Finality of standard design certifications.”

Therefore, the NRC can ensure the underlying purpose of 10 CFR 52.59(b)(3) is applied before, during, or after a COL under other regulatory provisions.

In summary, the proposed exemptions are authorized by law, will not present an undue risk to the public health and safety, and are consistent with the common defense and security.

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5.2 Special circumstances are present (10 CFR 50.12(a)(2))

The requirements of 10 CFR 50.12(a)(2) for special circumstances are also met. 10 CFR 50.12(a)(2) lists six “special circumstances” for which an exemption may be granted. Only one of these special circumstances must be present for the NRC to grant an exemption request.

As discussed in the following sections, the requested exemptions meet the requirements of 10 CFR 50.12(a)(2)(ii), which defines special circumstances as when “application of the regulation in the particular circumstances would not serve the underlying purpose of the rule or is not necessary to achieve the underlying purpose of the rule.” Additionally, the requested exemptions meet the requirements of 10 CFR 50.12(a)(2)(iii), which defines special circumstances as when “compliance would result in undue hardship or other costs that are significantly in excess of those contemplated when the regulation was adopted, or that are significantly in excess of those incurred by others similarly situated.”

5.2.1 Application of the regulation in the particular circumstances would not serve the underlying purpose of the rule or is not necessary to achieve the underlying purpose of the rule (10 CFR 50.12(a)(2)(ii))

5.2.1.1 Underlying purpose of the rules under consideration

In the Final Rule for 10 CFR 52, the Commission states that it was extending the period of certification from 10 years to 15 years “to permit more operating experience with a given design to accumulate before the certification comes up for renewal...”^[3] The underlying purpose of this aspect of the rule, is therefore to provide a reasonably sufficient time period for experience with a given design to accumulate.

5.2.1.2 The application of Section VII of Appendix D to Part 52, 10 CFR 52.55(a), and 10 CFR 52.57(a) to the AP1000 Design Certification renewal at this time would not serve the underlying purpose of the NRC’s regulations

As previously noted, the underlying purpose of the 15 year DC duration is to provide a reasonably sufficient time period for experience with a given design to accumulate. However, the current schedule requirements for AP1000 DC renewal do not allow for all construction and initial operation lessons learned to be identified, evaluated, and considered

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for inclusion in a DC renewal application. Therefore, the current schedule requirements do not meet the underlying purpose of the regulations.

The AP1000 plant is the only certified design under construction and is also the first with a reference plant under construction to face renewal. This results in unique considerations for the timing of a DC renewal application. There are four AP1000 units currently under construction in the United States, two each at the Vogtle and V.C. Summer sites, where lessons learned continue to accumulate. This experience has repeatedly led to improvements in the AP1000 design.

The four domestic AP1000 units under construction are scheduled to be completed towards the end of the DC renewal window; therefore the AP1000 experience base will continue to grow significantly, even after the current deadline for Westinghouse to seek renewal passes. Thus, the current expiration date for the AP1000 DC and the associated time window for seeking renewal do not allow for all construction and initial operation lessons learned to be identified, evaluated, and considered for inclusion in a DC renewal application.

The first domestic unit (Vogtle Unit 3) is scheduled to come online in the third quarter of 2019,^[5] with the last (V.C. Summer Unit 3) in the fourth quarter of 2020.^[6] Therefore, application of the current DC renewal schedule requirements would leave less than one year between the time of start-up of the first domestic unit (Q3 2019) and the latest submittal date of a DC renewal application (Q1 2020); further, two of the domestic units would still be under construction (Vogtle Unit 4 and V.C. Summer Unit 3) at the time of the required DC renewal application submittal.

To fully capitalize on lessons learned during construction and initial operation of the current domestic AP1000 projects, construction must be complete, along with a period of initial operation, before a DC renewal application is developed. The completion of one fuel cycle of operation (18 months), and the subsequent refueling outage, prior to developing a DC renewal application would provide sufficient experience to support this objective. This would enable Westinghouse to fully identify and assess the relevant lessons learned and initial OE from the completed and operational fleet of AP1000 plants.

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It would then take approximately 18 months for Westinghouse to develop and submit an AP1000 DC renewal application (including necessary pre-submittal meetings and other early-engagements with the NRC). Therefore, the five year exemption request is based on the following timeline:

- Last domestic unit begins operation: Q4 2020
- Operate for one fuel cycle (18 months): Q1 2022
- Identify/evaluate design changes, lessons learned, and OE (18 months): Q4 2023
- Develop and submit DC renewal application (18 months): Q1 2025

There are other AP1000 plants expected to come online overseas in the near-term. However, there are differences between those plants and the domestic units. For example, there are differences in the turbine generator, turbine building, and shield building designs used in the AP1000 plants under construction overseas compared to the domestic AP1000 plants. Additionally, Westinghouse does not have procurement responsibility for some of the primary equipment overseas (e.g. pressurizer, core makeup tanks, and accumulator tanks). Further, plants overseas are not subject to the same regulatory requirements as the domestic plants. In light of these differences, unique operating experience at NRC-regulated facilities is likely to be useful. Experience with the AP1000 units overseas will prove beneficial to the overall AP1000 OE knowledge base, but they will not serve well as the sole source of experience considering the aforementioned differences.

As part of Westinghouse's evaluation of the AP1000 DC renewal, Westinghouse requested a public meeting with the NRC to clarify requirements and expectations related to DC renewal.^[7] The Staff's response^[8] stated that many issues related to DC renewal applications had been addressed in draft guidelines developed for the Advanced Boiling Water Reactor (ABWR) renewal effort,^[9] hereafter referred to as the "Draft ABWR Guidelines." The Draft ABWR Guidelines place a strong emphasis on bringing a DC renewal application "up to date" in accordance with 10 CFR 52.57(a), which includes design changes and the incorporation of lessons learned and relevant OE.

The underlying purpose of the 15 year DC validity period identified above (a reasonably sufficient time period for experience to accumulate) is in turn reflected throughout the Draft

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ABWR Guidelines by way of the emphasis on bringing a DC “up to date” through incorporation of design changes and inclusion of construction lessons learned and OE.

Contrary to the expectations reflected in the Draft ABWR Guidelines, the current window for the AP1000 DC renewal does not allow for all construction and initial operation lessons learned to be identified, evaluated, and considered for inclusion in a DC renewal application. Completion of these projects followed by a period of initial operation for a single fuel cycle prior to developing a DC renewal application would allow for such lessons learned to be identified, evaluated, and considered for inclusion into a DC renewal application, thereby enabling the NRC staff to conduct a more efficient and effective review.

In summary, the AP1000 experience base will continue to grow throughout construction and initial operation. These unique circumstances differ from a DC renewal for a plant that is not under construction, where an extension of time would not reasonably lead to more experience. Therefore, granting the requested exemptions and thereby allowing Westinghouse to submit an application for renewal between February 27, 2023 and February 27, 2025, permits Westinghouse to meet the underlying intent of the 15 year period in Section VII of Appendix D to Part 52, 10 CFR 52.55(a), and 10 CFR 52.57(a).

Therefore, application of the regulation in the particular circumstances would not serve the underlying purpose of the rule.

5.2.2 Compliance would result in undue hardship or other costs that are significantly in excess of those contemplated when the regulation was adopted, or that are significantly in excess of those incurred by others similarly situated (10 CFR 50.12(a)(2)(iii))

If the requested exemptions are not granted, two alternative scenarios are possible. The first would be for Westinghouse to submit a DC renewal application within the current time window, and then later amend the application as necessary to apply lessons learned, corrections, design changes, and OE as construction of the current AP1000 projects is completed. The second approach would be a decision to allow the AP1000 DC to expire. Westinghouse could then, if deemed appropriate at a later time, develop and submit an AP1000 DC application as an entirely new DC (as opposed to a DC renewal).

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As discussed further in the following sections, both of these approaches are inefficient and result in undue hardship or other costs that are significantly in excess of those contemplated when the regulation was adopted, for Westinghouse, the NRC, and potential future COL applicants.

5.2.2.1 Alternate Approach 1: Submit DC renewal application according to current schedule requirements and later amend the application or DC to incorporate operating experience and lessons learned

As an alternative to the proposed exemption requests, Westinghouse could submit a DC renewal application within the current window of 2018 to 2020. Such an application would necessarily lack a complete set of “additional information”^[9] related to all lessons learned and initial OE, as contemplated, for example, in the Draft ABWR Guidance. Assuming the application were found sufficient for docketing and the NRC staff commenced its technical review, Westinghouse could later amend it as construction is completed, initial operation progresses, and OE is obtained. Similarly, Westinghouse could seek to amend the renewed DC itself, after approval.

These alternatives would be, by comparison to the proposed exemptions, an inefficient and costly approach for both Westinghouse and the NRC, as they would necessarily entail duplicative reviews of new information. As a basis for comparison, the amendment to the AP1000 DC resulted in approximately twice as many NRC review hours as did the original AP1000 DC. Therefore it is unlikely that an amendment to either a renewal application or to a DC itself would be an efficient use of resources. In addition, any COL applicant that referenced the renewed DC would be subject to making conforming changes when the DC application was updated to reflect the full body of OE. Thus, the inefficiencies would be propagated through multiple NRC licensing actions.

The NRC has stated that the submittal of complete and high-quality applications is a key factor in the success of a licensing process and the efficiency of the review.^[10] A “submit-and-amend” approach would not leverage this particular lesson learned and further, would also not support the NRC’s goal of a 42-month safety review.^[11]

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Moreover, such an approach would require Westinghouse and the NRC staff to allocate resources and critical AP1000 design expertise towards renewal efforts that would otherwise be focused on the Vogtle and V.C. Summer projects at a critical stage in construction.

A variation of this approach would be to submit a renewal application based on available information, and then after docketing request the NRC to suspend its review while Westinghouse gathers the requisite OE previously discussed. Westinghouse could later amend the application to reflect new lessons learned and OE. This approach would meet the timely renewal requirement of 10 CFR 52.55(b) and extend the life of the DC without an exemption. The Toshiba ABWR renewal effort followed a similar approach, albeit for different reasons.^[12] The NRC granted the requested suspension,^[13] suggesting again that the 15-year term of a DC is not based on safety considerations. This approach would, however, still be inefficient in comparison to the proposed exemptions.

The only other DC renewal application pending before the NRC is for a certified design that is now four years past its original expiration date. Specifically, the expiration date for the GE-Hitachi Nuclear Energy's ABWR design was June 2012. An application to renew the GE-Hitachi ABWR DC was submitted to the NRC on December 7 2010, and remains under review at this time.^[14]

Therefore, Westinghouse's submission of a DC renewal application according to current schedule requirements, followed by later amendments to address new lessons learned would result in undue hardship or other costs that are significantly in excess of those contemplated when the regulation was adopted.

5.2.2.2 Alternate Approach 2: Submittal of entirely new DC application

As a second alternative to the proposed exemption requests, Westinghouse could allow the current AP1000 DC to expire and then, if deemed appropriate at a later time (after the current projects are completed and lessons learned applied), develop and submit a new AP1000 DC application—as opposed to a DC renewal. The NRC has previously defined such a scenario as “a new DC application related to a previously certified design,” where “previously certified design” refers to a DC rule that has expired and for which a DC renewal application either was not timely submitted or, if timely submitted, was denied.^[8]

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In the Draft AWBR Guidance, the Staff has reemphasized that “a new DC application related to a previously certified design is treated as a new design certification application” and that the new DC application would be based on any new regulations, Regulatory Guides, Standard Review Plan, etc.^[8] In other words, 10 CFR 52.59(a) would no longer apply, which provides a DC renewal application the benefit of NRC approval “of the renewal if the design...complies with the Atomic Energy Act and the Commission’s regulations applicable and in effect at the time the certification was issued...” (additional changes imposed via 52.59(b), notwithstanding). Therefore, a “new DC application” would, in effect, be reviewed de novo by the NRC staff.

This was discussed at length with the Commission during several public meetings on Part 52 in 1996, where the topic of “de novo” reviews for a renewal versus “a new DC application related to a previously certified design” was identified as a significant process issue due to it being a burden on both industry and NRC resources.^[15,16,17] As stated above, a “new DC application related to a previously certified design” would by definition, involve a repetitive and inefficient reconsideration of previously-resolved issues. This is in contrast to the NRC’s expectations of renewal, as stated in the System 80+ DC: “The Commission does not plan or expect to be able to conduct a de-novo review of the entire design if a certification renewal application is filed under 52.59. It expects that the review focus would be on the changes to the design that are proposed by the applicant and insights from relevant operating experience with the certified design or other designs, or other material new information arising after the NRC staff’s review of the design consideration.”^[18]

Based on the discussions documented in the aforementioned meeting transcripts and as stated in the System 80+ DC, it is clear that a renewal review is intended to be something less than a de novo review and so this approach results in undue hardship or other costs that are significantly in excess of those contemplated when the regulation was adopted, and further, could potentially distract reviewers from focusing on the changed and/or safety elements of the design.

Therefore, allowing to AP1000 DC to expire, followed by a potential later DC application addressing lessons learned from construction and initial operation would result in undue hardship or other costs that are significantly in excess of those contemplated when the regulation was adopted.

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5.3 The proposed exemptions enable Westinghouse to support the underlying intent of 10 CFR 52.59 by facilitating an efficient NRC review of potential regulatory improvements or changes that could meet the 10 CFR 52.59(b) criteria

The proposed exemptions to Section VII of Appendix D to Part 52, 10 CFR 52.55(a), and 10 CFR 52.57(a) would not only meet the underlying purpose of the regulations proposed to be exempted, but would also facilitate a more efficient NRC review of a future AP1000 design certification renewal application under 10 CFR 52.59, including consideration of potential necessary changes under Section 52.59(b).

Specifically, in accordance with 10 CFR 52.59, the staff will review renewal applications to “determine whether any other NRC requirements should be imposed on the certified design based on application of the renewal criteria in 52.59(b). These criteria include: adequate protection [52.59(b)(1)], compliance with the regulations in effect at the time of the original certification [52.59(b)(2)], and cost-justified significant increase in overall protection of the public health and safety or common defense and security [52.59(b)(3)]”^[8]. For previous DC renewal applications, the Staff has identified design changes that the NRC considers to be regulatory improvements or changes that could meet the 10 CFR 52.59(b) criteria^[19].

The proposed exemptions would not eliminate the AP1000 DC renewal application review under Section 52.59(b) discussed above. To the contrary, the exemptions would allow for all construction and initial operation lessons learned to be identified, evaluated, and considered for inclusion in a DC renewal application, which would in turn facilitate the NRC’s review for potential regulatory improvements or changes that could meet the 10 CFR 52.59(b) criteria. In fact, the engineering, procurement, construction, and programmatic developments that would occur during completion of construction and initial operation may result in self-imposed improvements or changes that may not otherwise be considered if the NRC were to review a renewal application without the benefit of such information.

As previously explained, the NRC staff has reviewed the AP1000 design in detail more recently than DCD Revision 15, which was the basis for initial DC approval in 2006. The Final Rule for the AP1000 DC Amendment (DCD Revision 19) was published in 2011,^[20] with multiple COLs issued (Vogtle Units 3 and 4, V.C. Summer Units 2 and 3) soon thereafter. Further, a 15-year period

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beginning with the approval of DCD Revision 19 would correspond to the duration of the requested exemptions.

Therefore, the proposed exemptions enable Westinghouse to support the underlying intent of 10 CFR 52.59 by facilitating an efficient NRC review of potential regulatory improvements or changes that could meet the 10 CFR 52.59(b) criteria.

5.4 The proposed exemptions would allow sufficient time for Westinghouse, the industry, and the NRC to collaboratively develop formalized guidance for DC renewal applications.

It was noted in Section 5.2.1.2 that draft renewal guidance had been developed specifically for the ABWR DC renewal effort (Draft ABWR Guidance), which states “Following the staff’s initial use of these draft guidelines for the ABWR DCR renewal applications, the staff plans to develop generic guidance for DC renewal applications and staff review guidance. The staff will develop the generic guidance based upon lessons learned from the ABWR DCR renewal reviews, and will solicit external stakeholder feedback in developing and finalizing the guidance.”^[9]

On June 22, 2015, the NRC held a public meeting to discuss DC renewal in generic terms. The meeting included participants from across the industry including NEI, Westinghouse, Toshiba, Southern Nuclear Company, GE-Hitachi, and others.^[21] As stated in the meeting summary, “at the conclusion of the meeting, industry representatives and NRC were in agreement on the importance of the renewal “pre-application” period in order to gain alignment on technology specific issues and topics prior to a renewal submittal and also the need for the NRC to develop formal guidance.”^[21] Consequently, Westinghouse sought further clarification from the staff, specific to the AP1000 DC renewal, as part of a pre-submittal meeting.^[22]

As part of the ongoing revision to Regulatory Guide 1.206, “Combined License Applications,” elements of the Draft ABWR Guidelines have been echoed in newly-issued draft revision to Section C.2.16, “Finalizing Licensing-basis Information.”^[23] However, the lone entry under the “Errors in Design Certifications Referenced by Combined License Applications” heading is not comprehensive enough to cover the nuances of a DC renewal, as it merely restates an interpretation of 10 CFR 52.57(a). Further, given that Regulatory Guide 1.206 pertains to COL applications, the need for guidance on DC renewals remains. Other options for developing a comprehensive and generic set of guidance specific to DC renewal should be considered.

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The current AP1000 DC renewal window will not provide sufficient time to allow for the development of generic guidance for DC renewal applications that incorporates lessons learned from the ABWR DCR renewal reviews. With the AP1000 DC being the next DC renewal that will come due, coupled with the fact that the AP1000 design is the only certified design under construction and is also the first with a reference plant to face renewal, the NRC and industry should develop generic guidance in a timeframe that supports a AP1000 DC renewal effort. The proposed exemptions, if granted, would allow for sufficient time for Westinghouse, the industry, and the NRC to collaboratively develop generic and formalized guidance for DC renewal applications which incorporates lessons learned from the ABWR DCR renewal reviews.

6.0 Conclusions

The proposed exemptions would allow an AP1000 DC renewal application to be submitted after the current construction projects have been completed and the full set of lessons learned identified, evaluated, and considered for inclusion into a DC renewal application. This, in turn, would allow for a comprehensive and complete DC renewal application, which could be reviewed efficiently by the NRC staff. There would be no compromise on safety, as the NRC would retain the authority to impose any necessary changes to the design of new AP1000 units through other means.

The following key conclusions are made with respect to the acceptability of the requested exemption:

1. The exemptions are authorized by law, will not present an undue risk to the public health and safety, and are consistent with the common defense and security. Other regulatory mechanisms exist that would allow the NRC to ensure that any design changes necessary for safety are applied to any COLA that were to be submitted during the DC extension period. See Section 5.1.
2. Special circumstances are present under 10 CFR 50.12(a)(2)(ii) because applying the current time window for AP1000 DC renewal would not support the underlying purpose of the 15-year DC duration, which is to allow sufficient time for the complete identification of experience and lessons learned from the construction and operation of the current AP1000 units. See Section 5.2.1.
3. Special circumstances are also present under 10 CFR 50.12(a)(2)(iii) because Westinghouse, the NRC, and potential COL applicants would experience undue burden and cost should any of the alternatives to the requested exemption be pursued. See Section 5.2.2.

Therefore, the NRC should grant the proposed exemptions.

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7.0 References

- [1] Final Rule, “AP1000 Design Certification,” 71 Fed. Reg. 4464, (Jan. 23, 2006).
- [2] Proposed Rule, “Early Site Permits, Standard Design Certifications; and Combined Licenses for Nuclear Power Reactors,” 53 Fed. Reg. 32060, 32074, (Aug. 23, 1988).
- [3] Final Rule, “Early Site Permits, Standard Design Certifications; and Combined Licenses for Nuclear Power Reactors,” 54 Fed. Reg. 15372, 15382, (Apr. 18, 1989).
- [4] “Issuance of Combined Licenses for Levy Nuclear Plant Units 1 and 2,” ADAMS Accession Number ML16176A200, (Oct. 26, 2016).
- [5] “Vogtle Nuclear Construction Marks More Milestones,” Power Magazine, (Jun. 7, 2016).
- [6] “V.C. Summer Unit 2 Reactor Vessel in Place,” Power Magazine, (Aug. 31, 2016).
- [7] DCP_NRC_003284, “Westinghouse Request for a Public Meeting with the NRC Staff to Discuss 10 CFR Part 52 Renewal Requirements (Parts 52.55, 52.57, and 52.59)...,” ADAMS Accession Number ML15173A155, (Jan. 15, 2015).
- [8] “Westinghouse Questions and Responses – Discuss 10 CFR Part 52 Renewal Requirements and Expectations,” ADAMS Accession Number ML15139A287, (May 28, 2015).
- [9] “Advanced Boiling Water Reactor Design Certification Renewal Applications: Draft NRC Staff Views on Application Content and Draft Staff Review Guidelines, Revision 3,” ADAMS Accession Number ML103140050, (Dec. 1, 2010).
- [10] “New Reactor Licensing Process Lessons Learned Review: 10 CFR Part 52,” ADAMS Accession Number ML13059A239, (Apr. 19, 2013).
- [11] “Staff Report: 10 CFR Part 52 Application Reviews – Efficiency Opportunities and Review Timelines,” ADAMS Accession Number ML15117A466, (Mar. 28, 2016).
- [12] “Response to NRC Letter: Toshiba Corporation-United States Advanced Boiling Water Reactor Design Certification Renewal Application,” ADAMS Accession Number ML12355A030, (Dec. 14, 2012).
- [13] “Toshiba Corporation – United States Advanced Boiling-Water Reactor Design Certification Renewal Application,” ADAMS Accession Number ML13018A025, (Jan. 31, 2013).
- [14] “ABWR Standard Plant Design Certification Renewal Application Design Control Document, Revision 5, Tier 1 and Tier 2,” ADAMS Accession Number ML110040176, (Dec. 7, 2010).
- [15] “Public Workshop on Design Certification,” ADAMS Accession Number ML003708218, (May 2, 1996).

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- [16] “Public Meeting on Design Certification Rulemaking,” ADAMS Accession Number ML003708160, (Jul. 15, 1996).
- [17] “Briefing on Design Certification Issues – Public Meeting,” ADAMS Accession Number ML15140A569, (Aug. 27, 1996).
- [18] Final Rule, “Standard Design Certification for the System 80+ Design,” 62 Fed. Reg. 27840, (May 21, 1997).
- [19] “Advanced Boiling Water Reactor Design Certification Renewal Design Changes for GE-Hitachi Nuclear Energy’s Consideration,” ADAMS Accession Number ML12125A385, (July 20, 2012).
- [20] Final Rule, “AP1000 Design Certification Amendment,” 76 Fed. Reg. 82079, (Dec. 30, 2011).
- [21] “Summary of Category 3 Public Meeting to Discuss Title 10 of the Code of Federal Regulations, Part 52 Design Certification Renewal Requirements on June 22, 2015,” ADAMS Accession Number ML15195A544, (Jul. 28, 2015).
- [22] DCP_NRC_003288, “Pre-Submittal of Presentations for Meeting to Discuss Design Certification Renewal for AP1000®,” ADAMS Accession Number ML16117A385, (Apr. 22, 2016).
- [23] “C.2.16 Finalizing Licensing-basis Information DRAFT,” ADAMS Accession Number ML16299A166, (Oct. 24, 2016).

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ENCLOSURE 2

Environmental Review

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Westinghouse's proposed exemption meets the eligibility criterion for categorical exclusion from environmental review set forth in 10 CFR 51.22(c)(25), because the proposed exemption involves: (i) no significant hazards consideration; (ii) no significant change in the types or significant increase in the amounts of any effluents that may be released offsite; (iii) no significant increase in individual or cumulative public or occupational radiation exposure; (iv) no significant construction impact; (v) no significant increase in the potential for or consequences from radiological accidents; and (vi) the requirements from which the exemption is sought involve scheduling requirements or other requirements of an administrative, managerial, or organizational nature. Therefore, pursuant to 10 CFR 51.22(b), no environmental impact statement or environmental assessment need be prepared in connection with the proposed exemption.

(i) No Significant Hazards Consideration Determination.

Westinghouse has evaluated the proposed exemption to determine whether or not a significant hazards consideration is involved by focusing on the three standards set forth in 10 CFR 50.92. The proposed exemption is purely administrative, and would effectively only extend the period during which Westinghouse can submit an application for AP1000 DC renewal. The proposed exemption does not involve modification of the AP1000 plant design or any of its underlying analyses, or a physical alteration to a facility referencing the design. As explained in the exemption request, the 15 year duration for a DC is primarily administrative, and not tied to any safety concerns. Therefore, the requested exemption: (a) does not involve a significant increase in the probability or consequences of an accident previously evaluated; (b) does not create the possibility of a new or different kind of accident; and (c) does not involve a significant reduction in the margin of safety. Therefore, the requested exemption does not involve a significant hazards consideration under the standards set forth in 10 CFR 50.92(c) and, accordingly, a finding of "no significant hazards consideration" is justified.

(ii) There would be no significant change in the types or significant increase in the amounts of any effluents that may be released offsite.

The proposed exemption is purely administrative, and would effectively only extend the period during which Westinghouse can submit an application for AP1000 DC renewal. There are no changes in the types, characteristics, or quantities of effluents discharged to the environment associated with the requested exemption.

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(iii) There would be no significant increase in individual or cumulative public or occupational radiation exposure.

The proposed exemption is purely administrative, and would effectively only extend the period during which Westinghouse can submit an application for AP1000 DC renewal. There are no increases in individual or cumulative occupational radiation exposure on either the workforce or the public, nor are there any increases in normal occupational doses associated with the requested exemption.

(iv) There would be no significant construction impact.

The proposed exemption is purely administrative, and would effectively only extend the period during which Westinghouse can submit an application for AP1000 DC renewal. There is no change to the design or the manner of construction. Therefore, there will be no change in the environmental impacts of construction as a result of the requested exemption.

(v) There would be no significant increase in the potential for consequences from radiological accidents.

The proposed exemption is purely administrative, and would effectively only extend the period during which Westinghouse can submit an application for AP1000 DC renewal. There are no increases in the potential for consequences from radiological accidents.

(vi) The requirements from which exemptions are sought involve scheduling requirements or other requirements of an administrative, managerial or organizational nature.

The proposed exemption is purely administrative, and would effectively only extend the period during which Westinghouse can submit an application for AP1000 DC renewal. As discussed in Enclosure 1, the 15 year period of a DC under 10 CFR 52.55(a) and Section VII of Appendix C to 10 CFR 52 is primarily administrative, and permitting Westinghouse additional time during which it may file an application for renewal amounts to an exemption of scheduling requirements.

In summary, Westinghouse's request for exemption meets the criteria outlined in 10 CFR. 51.22(c)(25) for categorical exclusion, and no environmental impact statement or environmental assessment need be prepared in connection with the proposed exemption.