ENVIRONMENTAL ASSESSMENT BY THE

U.S. NUCLEAR REGULATORY COMMISSION

RELATING TO RENEWAL OF THE U.S. ABWR STANDARD DESIGN CERTIFICATION

DOCKET NO. 52-045

ADAMS Accession No. ML21147A381

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ABWR	Advanced Boiling Water Reactor
ADAMS	Agencywide Documents Access and Management System
BLS	Bureau of Labor Statistics
CDF	core damage frequency
COL	combined license
CPI	Consumer Price Index
DCD	Design Control Document
EA	environmental assessment
ER	environmental report
ESP	early site permit
FSER	final safety evaluation report
GEH	GE-Hitachi Nuclear Energy Americas, LLC
GENE	GE Nuclear Energy Americas, LLC
NEPA	National Environmental Policy Act of 1969, as amended
NRC	U.S. Nuclear Regulatory Commission
OL	operating license
PDR	Public Document Room (NRC)
PRA	probabilistic risk assessment
SAMA	severe accident mitigation alternatives
SAMDA	severe accident mitigation design alternatives
SRP	Standard Review Plan (NUREG-0800)

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UNITED STATES NUCLEAR REGULATORY COMMISSION

ENVIRONMENTAL ASSESSMENT AND

FINDING OF NO SIGNIFICANT IMPACT

RELATING TO RENEWAL OF THE

U.S. ABWR STANDARD DESIGN CERTIFICATION

DOCKET NO. 52-045

1.0 Introduction

The U.S. Nuclear Regulatory Commission (NRC) is issuing a renewal for the design certification (DC) for the U.S. Advanced Boiling Water Reactor (ABWR) standard design in response to an application submitted on December 7, 2010 (Agencywide Documents Access and Management System (ADAMS) Accession No. ML110040176) and revised December 20, 2019 (ADAMS Accession No. ML20093K254), by General Electric-Hitachi Nuclear Energy Americas, LLC, hereinafter referred to as GEH or the applicant. The NRC adopts DC rules as appendices to Part 52 of Title 10 of the *Code of Federal Regulations* (10 CFR).

On July 13, 1994, the NRC issued the Final Safety Evaluation Report (FSER) related to certification of the U.S. ABWR design (NUREG-1503, “Final Safety Evaluation Report Related to the Certification of the Advanced Boiling Water Reactor Design”). On May 12, 1997, the NRC issued the final design certification rule for the original U.S. ABWR design in the *Federal Register* (62 FR 25800). Applicants or licensees intending to construct and operate a plant based on the U.S. ABWR design may do so by referencing the DC rule, as set forth in Appendix A to Part 52 of Title 10 of the Code of Federal Regulations (10 CFR Part 52, Appendix

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A). A design certification is valid for 15 years from the date of issuance under 10 CFR 52.55(a) and may be subsequently renewed for a period of 10 to 15 years under 10 CFR 52.61.

The NRC staff developed this environmental assessment (EA) of the environmental impacts of the new rule and documented the staff's finding of no significant impact consistent with the requirements of 10 CFR 51.21, "Criteria for and Identification of Licensing and Regulatory Actions Requiring Environmental Assessments," 10 CFR 51.31, "Determinations based on environmental assessment" and, the National Environmental Policy Act of 1969, as amended (NEPA). This EA addresses the severe accident mitigation design alternatives (SAMDAs) that the NRC staff evaluated for the renewed U.S. ABWR standard design. This EA does not address the site-specific environmental impacts of constructing and operating any facility that references the renewed U.S. ABWR DC at a particular site; those impacts will be evaluated as part of any application(s) for the siting, construction, or operation of such a facility.

Per Section 6 of this EA, the NRC staff has determined that issuing this DC renewal does not constitute a major Federal action significantly affecting the quality of the human environment. This finding is based on the generic finding made in 10 CFR 51.32(b)(1)-(2) that there is no significant environmental impact associated with the certification of a standard design under 10 CFR Part 52, Subpart B or an amendment to a design certification. This design certification rule renewal does not authorize the siting, construction, or operation of a facility referencing the U.S. ABWR standard design; but only codifies the renewed U.S. ABWR standard design in a rule. Furthermore, because the certification is a rule rather than a physical action, it does not involve the commitment of any resources that have alternative uses. The 10 CFR 51.32(b)(1) generic finding of no significant impact is, essentially, the legal equivalent of a categorical exclusion (72 FR 49352, 49427). Therefore, the NRC staff has not prepared an environmental impact statement for the action.

Under 10 CFR 51.30(d), an environmental assessment for a DC must identify the proposed action and is limited to consideration of the costs and benefits of SAMDAs and the

bases for not incorporating SAMDAs in the DC. Additionally, under 10 CFR 51.30(d), an environmental assessment for an amendment to a design certification is limited to the consideration of whether the design change which is the subject of the proposed amendment renders a severe accident mitigation design alternative previously rejected in the earlier environmental assessment 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.

The purpose of the NRC staff's SAMDA technical analysis is to document the review of the design changes, new information, and the analysis of GEH's supplemental consideration of SAMDAs with regards to the original SAMDA EA related to the U.S. ABWR DC (Attachment 2 to SECY-96-077, "Certification of Two Evolutionary Designs," (ADAMS Accession No. ML003708129). Based on the results of the NRC staff's SAMDA technical review (ADAMS Accession No. ML20024D602), the staff determined that there were no design changes or new information that would change the original SAMDA determination.

As discussed in Section 4.0 of this EA, the NRC staff also reviewed GEH's assessment of SAMDAs that generically apply to the U.S. ABWR standard design. The NRC staff finds that GEH's assessment considered a reasonable set of SAMDAs, and that no additional SAMDAs beyond those currently incorporated into the U.S. ABWR standard design would be cost-beneficial. This finding is applicable whether SAMDAs are to be considered at the time of the certification of the U.S. ABWR standard design or SAMDAs considered with respect to licensing a potential future facility referencing the U.S. ABWR DC rule, provided that the plant referencing the U.S. ABWR DC rule is sited at a location bounded by the averted radiological risk from severe accidents for each SAMDA as provided by the original "Technical Support Document for the ABWR" (ML100210563).

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2.0 Identification of the Proposed Action

The proposed action is to renew the U.S. ABWR standard design certification in Appendix A to 10 CFR Part 52. The new rule allows applicants to reference the renewed certified U.S. ABWR standard design as part of a COL application under 10 CFR Part 52, or by an applicant for a construction permit or operating license under 10 CFR Part 50.

3.0 Need for the Proposed Action

The proposed action will issue an amendment to 10 CFR Part 52 to renew the U.S. ABWR standard design certification. The renewal allows an applicant to reference the renewed certified U.S. ABWR standard design as part of a COL application under 10 CFR Part 52, or by an applicant for a construction permit or operating license under 10 CFR Part 50. Those portions of the U.S. ABWR standard design included in the scope of the design certification rulemaking are not subject to further safety review or approval in a COL proceeding. In addition, the DC rule could resolve SAMDAs for any future applications for facilities that reference the certified U.S. ABWR standard design.

4.0 Environmental Impact of the Proposed Action

The proposed action constitutes issuance of the DC as an amendment to 10 CFR Part 52 to certify the U.S. ABWR standard design. As stated in 10 CFR 51.32(b)(1), the NRC staff has determined that there is no significant environmental impact associated with the issuance of a DC. The DC merely codifies the NRC staff's approval of the U.S. ABWR standard design which is documented in NUREG-1503, "Final Safety Evaluation Report Related to the Certification of the Advanced Boiling Water Reactor Design," and its supplements (ADAMS Accession Nos. ML080670592, ML080710134, and ML20301A886). Furthermore, because the certification of the design constitutes a rule rather than a physical action, it would not involve the commitment of any resources that have alternative uses.

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As described in Section 5 of this EA, the NRC staff reviewed various alternative design features for preventing and mitigating severe accidents. NEPA requires consideration of alternatives to show that the DC rule is the appropriate course of action. The NRC's regulations at 10 CFR 51.30(d) in part require consideration of the costs and benefits of SAMDAs and the bases for not incorporating SAMDAs in the design certification.

Through an independent analysis, described in Section 5, the NRC staff concludes that GEH adequately considered an appropriate set of SAMDAs and that none in the set met the cost-beneficial criteria. Although GEH made no design changes as a result of considering SAMDAs as part of the initial design certification, GEH incorporated certain features in the U.S. ABWR standard design on the basis of probabilistic risk assessment (PRA). GEH evaluated the renewal SAMDAs using guidance in NEI 05-01, Revision A, "Severe Accident Mitigation Alternatives (SAMA) Guidance Document" (Adams Accession No. ML060530203) and reviewed the SAMDAs under current cost-benefit methods to determine if any of the BWR SAMAs in NEI 05-01, Revision A may become cost-beneficial.

Finally, this design certification renewal rule itself does not authorize the siting, construction, or operation of a nuclear power plant facility. An applicant that references the renewed U.S. ABWR standard design for a COL or early site permit under 10 CFR Part 52, or for a construction permit or operating license under 10 CFR Part 50 will be required to address the environmental impacts of construction and operation for its specific site. The NRC staff will then evaluate the environmental impacts for that particular site and issue an environmental impact statement in accordance with 10 CFR Part 51 and NEPA. However, the SAMDA analysis that has been completed as part of this EA can be incorporated by reference into an environmental impact statement related to an application for siting, construction, or operation of a nuclear plant that references the U.S. ABWR standard design.

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5.0 Severe Accident Mitigation Design Alternative Evaluation

The proposed action provides finality in licensing proceedings on a combined license application under 10 CFR Part 52 referencing the U.S. ABWR DC rule and proposing a plant located on a site with averted risk values less than or equal to the values in Table 5 of the original "Technical Support Document for the ABWR" (ADAMS Accession No. ML100210563), as described in the "ABWR Design Control Document" (ADAMS Package Accession No. ML11126A129) and recent revisions (ADAMS Accession No. ML20093K254).

This EA section provides a summary of the NRC staff's review of GEH's "Revised Supplement to ABWR Design Certification Environmental Report" (ADAMS Accession No. ML16235A415) and the related U.S. ABWR SAMDAs, as provided in the "ABWR Design Control Document" (ADAMS Accession No. ML11126A129) and recent revisions (ADAMS Accession No. ML20093K254). The specific details of the NRC staff's SAMDA evaluation, summarized in this EA, are provided in the staff's technical SAMDA analysis (ADAMS Accession No. ML20024D602).

5.1. Original U.S. ABWR Design Certification EA

The original (1996) SAMDA EA (ADAMS Accession No. ML003708129) evaluated the initial 1994 SAMDA analysis as provided in the original "Technical Support Document for the ABWR"[1] (ADAMS Accession No. ML100210563) against guidance provided in NUREG/BR-0058, Revision 2, "Regulatory Analysis Guidelines of the U.S. Nuclear Regulatory Commission", (ADAMS Accession No. ML111180434). The NRC staff's 1996 SAMDA evaluation determined that the U.S. ABWR design already included numerous plant features to reduce core damage frequency and risk and found significant margins in the results of the cost-benefit analysis of the

[1] Prior to the issuance on August 28, 2007 of 10 CFR 51.55, "Environmental report – standard design certification" (72 FR 49513), the SAMDA analysis was included in "Technical Support Document for the ABWR". The SAMDA analysis for standard design certifications is currently provided in a separate document entitled "Applicant's Environmental Report – Standard Design Certification" herein noted as an Environmental Report (ER).

original SAMDAs; therefore, additional plant improvements would not significantly reduce the risk of either internally or externally initiated events. The NRC staff further determined that any other design modifications would be unlikely to be justifiable on the basis of population exposure considerations due to estimated core damage frequencies (CDFs) and risk estimates remaining very low on an absolute scale.

5.2. New Information Subsequent to the Original U.S. ABWR EA

GEH submitted a 2010 U.S. ABWR DC renewal application (Adams Accession No. ML110040176), including a supplemental environmental report (ER) (Accession No. ML110040178), which was accepted by NRC for review in 2011(76 FR 9612). GEH subsequently provided a revised supplemental ER, “Revised Supplement to ABWR Design Certification Environmental Report”, in a 2016 letter package (ADAMS Accession No. ML16235A415). Under the original U.S. ABWR Design Certification (ADAMS Legacy Library Accession No. 9406130027), the applicant’s SAMDA assessment was documented in the 1994 original “Technical Support Document for the ABWR” submittal (ADAMS Accession No. ML100210563). In the 2016 letter package, GEH provided a list of the U.S. ABWR design changes along with their impact on the U.S. ABWR PRA and a brief description of the design change. GEH determined that the design changes included in the Design Control Document (DCD) amendments for the U.S. ABWR DC renewal did not require a modification to the U.S. ABWR PRA nor did the design changes impact the original SAMDA analysis.

5.2.1. *Evaluation of New Information*

Subsequent to the 1997 U.S. ABWR Design Certification rule, operating experience has been gained and interim improvements in PRA methods have occurred. Although GEH determined that the original PRA was adequate, and no DCD descriptions need be changed, the NRC staff reviewed the determination to satisfy the then current 10 CFR 52.47(a)(1)(v) and the need for a modification under 10 CFR 52.59(a) using the regulations in effect at the time of initial certification as a basis. As documented in the NRC staff’s supplemental FSER, Chapter

19.0, “Severe Accidents” (ADAMS Accession No. ML20301A886), the staff determined that these proposed design changes have negligible impact on the U.S. ABWR PRA results, including accident sequences and frequencies that could lead to the release of radioactive fission products to the environment. Based on its review, the NRC staff found that the process used by GEH to evaluate the risk impact of design changes is acceptable and meets the intent of staff guidance in Standard Review Plan (SRP) Section 19.0, Revision 3, “Probabilistic Risk Assessment and Severe Accident Evaluation for New Reactors.” Therefore, the NRC staff determined that no changes to the associated U.S. ABWR DCD descriptions of the PRA and corresponding results are warranted.

5.2.2. Review of the U.S. ABWR Supplemental Environmental Report

Information provided by GEH in the revised supplemental ER, “Revised Supplement to ABWR Design Certification Environmental Report”, (ADAMS Accession No. ML16235A415) indicated that the design changes submitted as part of the U.S. ABWR DC renewal would not have an impact on the U.S. ABWR severe accident risk. GEH included a discussion of the NRC staff’s original SAMDA EA (ADAMS Accession No. ML003708129), which determined that there were no cost-beneficial SAMDAs; staff determined, however, that the original U.S. ABWR SAMDA analysis in the original “Technical Support Document for the ABWR” (ADAMS Accession No. ML100210563) differs from those used as described in the original SAMDA EA. To address the potential descrepancies in methods and an accounting for new and relevant information subsequent to the original U.S. ABWR certification, the staff requested additional information (ADAMS Accession No. ML17032A537). GEH’s response was reviewed by NRC staff and incorporated into the staff’s evaluation as described in the following sections.

5.2.3. Risk Estimate for U.S. ABWR Renewal

Because the NRC staff determined that the GEH U.S. ABWR PRA results in the “Revised Supplement to ABWR Design Certification Environmental Report” (ADAMS Accession No. ML16235A415) remain unchanged when compared to the staff’s evaluation in the

supplemental FSER (ADAMS Accession No. ML20301A886) for the original U.S. ABWR DC PRA results (ADAMS Accession No. ML11126A129) staff determined that the offsite environmental consequences and resulting risk remain unchanged from the original “Technical Support Document for the ABWR” (ADAMS Accession No. ML100210563).

5.2.4. Potential Plant Improvements

NRC staff requested that GEH evaluate relevant new or additional information that could result in new SAMDASs (ADAMS Accession No. ML17032A537) subsequent to those SAMDAs associated with the 1996 U.S. ABWR DC as described in the original SAMDA EA (ADAMS Accession No. ML003708129). Based on GEH’s response (ADAMS Accession No. ML17080A064) and independent confirmatory analysis, NRC staff determined that there are no additional SAMDA candidates to consider and the list of SAMDAs given in the original SAMDA EA (ADAMS Accession No. ML003708129) is adequate for further assessment.

5.2.5. Maximum Benefit Evaluation

To evaluate the design changes and new information available subsequent to original U.S. ABWR DC EA maximum benefit analyses, the NRC staff reproduced the analyses contained in the original SAMDA EA (ADAMS Accession No. ML003708129) as a first step in adjusting the original assumptions to 2016 dollars for comparison with the applicant’s analysis (ADAMS Accession No. ML17080A064) performed in 2016. For this SAMDA evaluation, a later revision to the cost-benefit guidance applied in the NRC staff’s original EA, (ADAMS Accession No. ML19261A277), states that two sets of estimates should be developed considering a 3 percent and a 7 percent discount rate. The reproduced original SAMDA analysis was updated based on this revised cost-benefit guidance, a revision to NUREG-1530 entitled “'Reassessment of NRC's Dollar per Person-Rem Conversion Factor Policy” (ADAMS Accession No. ML16147A392), and by applying inflation factors to bring cost values and parameters into 2016 dollars based on the Bureau of Labor Statistics (BLS) Consumer Price Index (CPI) inflation calculator (https://www.bls.gov/data/inflation_calculator.htm).

The original U.S. ABWR DC EA population dose cases were based on an assumed plant life of 60 years with the measure of the population exposure calculated as the average dose per individual (in rem) multiplied by the number of people exposed. NRC staff applied the updated current values to four population dose cases assessed in the staff's original EA and presents the revised maximum benefit values in Table 1. The first case based on the population dose in the applicant's original "Technical Support Document for the ABWR" (ADAMS Accession No. ML100210563) and the other three cases as analyzed in Section 3.5 of the original SAMDA EA (ADAMS Accession No. ML003708129).

Table 1. NRC Staff's Updated Maximum Benefit Values

Population Dose (person-rem over 60 years)	Maximum Benefit for 7 Percent Discount Rate	Maximum Benefit for 3 Percent Discount Rate
0.269[a]	$21,600	$56,900
1[b]	$23,600	$60,800
40[b]	$130,400	$272,100
200[b]	$568,800	$1,138,900

[a] Original "Technical Support Document for the ABWR" population dose value.
[b] Cases analyzed in Section 3.5 of the original SAMDA EA.

The NRC staff's resulting analyses determined that updates to the cost values and parameters resulted in a maximum benefit increase of approximately 2.5 times relative to the values in Section 3.5 of the original U.S. ABWR DC EA. The largest maximum benefit (approximately $1,139,000) was found to be the 3 percent discount rate for the maximum population dose (i.e., 200 person-rem over 60 years) from the original "Technical Support Document for the ABWR" (ADAMS Accession No. ML100210563). NRC staff used the conservative valuation of 200 person-rem over 60 years for the sensitivity evaluation of potential cost-benefits of the U.S. ABWR SAMDAs as described below.

5.3. Cost-Benefit Analysis of Potential Plant Improvements

The NRC staff performed a sequential screening analysis of the potential cost-beneficial SAMDAs proceeding through the screening of the costs and benefits by: 1) evaluating the new implementation costs of the U.S. ABWR SAMDAs in current dollars; 2) comparing each

implementation cost to the new maximum benefit assuming all of the risk can be removed; and, 3) reassessing the maximum benefit that the SAMDA could affect based on its individual contribution to the total risk. In addition, the NRC staff assessed the sensitivity of the U.S. ABWR SAMDA cost-benefit analysis to certain risk factors that contribute to averted risk as described in the section below.

5.3.1. Cost-Benefit and Sensitivity Analysis

In response to the NRC staff's request for additional information (ADAMS Accession No. ML17032A537), GEH provided inflation-adjusted estimates to 2016 dollars for the SAMDA implementation costs (ADAMS Accession No. ML17080A064). The NRC staff used the updated 2016 values in the next step of comparing each SAMDA implementation cost. The NRC staff found that the original DC application (ADAMS Accession No. ML100210563), which considered representative site results for the 0.269 person-rem case and the 1 person-rem case, still results in no cost-beneficial SAMDAs. To assess the sensitivity of the results to external events, the NRC staff applied the upper maximum benefit value based on the 3 percent discount rate and largest seismic effect (i.e., the 200 person-rem case with a maximum benefit of $1,139,000). The sensitivity analysis determined that the implementation costs of the five SAMDAs were found to be below the upper maximum benefit value even if each SAMDA removed all of the risk (see Table 2 of the NRC staff's technical SAMDA analysis, ADAMS Accession No. ML20024D602). The five SAMDAs are:

- SAMDA 2c - Suppression Pool Jockey Pump
- SAMDA 3c - Improved Vacuum Breakers (Redundant valves in each line)
- SAMDA 7a - Drywell Head Flooding (Firewater crosstie to drywell head area)
- SAMDA 11a - ATWS Sized Vent
- SAMDA 13a - Reactor Building Sprays (Firewater crosstie for reactor building sprays)

All other SAMDA implementation costs are greater than the maximum benefit for the 3 percent discount rate which demonstrates that they are not potentially cost-beneficial. The above five SAMDAs are determined to be potentially cost-beneficial if they could remove all

risks and were further evaluated based on based on their individual contribution to the total averted risk. Due to ambiguity in the discussions of assumptions used in the analyses as described in the original SAMDA EA (ADAMS Accession No. ML003708129) and in the original "Technical Support Document for the ABWR" (ADAMS Accession No. ML100210563), the NRC staff evaluated, through a sensitivity analysis, several assumptions associated with the bases for the risk fraction that the five SAMDAs may affect.

For the sensitivity analysis, the NRC staff evaluated the averted risk, which is the principal measure of risk in the original SAMDA EA (ADAMS Accession No. ML003708129) for each SAMDA. The NRC staff used the averted risk value from the original U.S. SAMDA EA and a bounding (conservative) averted risk value to assess the specific fraction of risk that each of the five SAMDA candidates could affect. As a result of the NRC staff's sensitivity analysis and the resulting SAMDA risk contributions, the staff determined that the revised cost-benefit analysis confirmed that the five remaining SAMDAs are not potentially cost-beneficial for the U.S. ABWR DC renewal. Therefore, after incorporating the new information available subsequent to the original U.S. ABWR EA, the NRC staff arrived at similar conclusions and findings as determined in the original SAMDA EA (ADAMS Accession No. ML003708129) indicating that none of the SAMDAs are justified based on cost-benefit considerations.

5.4. SAMDA Finality Criteria

The NRC staff evaluated the orginal SAMDA EA (ADAMS Accession No. ML003708129) to determine if the design changes and new information subsequent to the original analysis could be applied to the current renewal request for specific U.S. ABWR DC evaluation criteria. Based on a review of available documents from the orginal U.S. ABWR DC, NRC staff determined that a future ABWR construction and operating application should demonstrate for SAMDA finality that the proposed site would have an averted risk person-rem value for each SAMDA that is less than or equal to the averted risk person-rem value for that SAMDA in Table

5 of the amendment to the original GENE SAMDA analysis (ADAMS Accession No. ML100210563).

5.5. Conclusions on SAMDAs

Based on a review of the U.S. ABWR DC and associated submittals, GEH responses to the NRC staff's request for additional information (ADAMS Accession No. ML17080A064) and the staff's independent confirmatory analysis, the staff determined that none of the design changes evaluated affect the U.S. ABWR PRA and that no design changes as described in GEH's recent submittal (ADAMS Accession No. ML20093K254) impact the results of the SAMDA analysis provided in the original SAMDA EA (ADAMS Accession No. ML003708129). For SAMDA finality in a future U.S. ABWR application, an applicant should demonstrate that the proposed site would have an averted risk person-rem value for each SAMDA that is less than or equal to the averted risk person-rem value for that SAMDA in Table 5 of the amendment to the original GENE SAMDA analysis (ADAMS Accession No. ML100210563). For any future U.S. ABWR application, the consideration of inflation of cost parameters and revised cost-benefit guidance in the intervening time from this analysis using 2016 dollars should be considered in determining the significance of the SAMDA conclusions described above.

6.0 Conclusions

On the basis of 10 CFR 51.32(b)(1), the NRC staff's technical SAMDA analysis (ADAMS Accession No. ML20024D602), and this EA, the NRC staff concludes that the proposed action will not have a significant effect on the quality of the human environment. Accordingly, the NRC staff is not required to prepare an environmental impact statement for the proposed action.

Further details with respect to the proposed action are found in the documents referenced in the statement of considerations for the final rule. The Public Document Room (PDR), where you may examine and order copies of public documents is currently closed. You may submit your request to the PDR via e-mail at PDR.Resource@nrc.gov or call 1-800-397-

4209 between 8:00 a.m. and 4:00 p.m. (EST), Monday through Friday, except Federal holidays. Publicly available records will be accessible electronically from the ADAMS Public Electronic Reading Room on the NRC Web site at https://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's Public Document Room (PDR) reference staff at 1-800-397-4209, at 301-415-4737, or by e-mail to PDR.Resource@nrc.gov.

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