

March 5, 2013

Mr. Pedro Salas, Manager
U.S. EPR New Plants Regulatory Affairs
AREVA NP Inc.
3315 Old Forest Road
P.O. Box 10935
Lynchburg, VA 24506-0935

SUBJECT: AREVA NP, INC. – REVISED REVIEW SCHEDULE FOR THE U.S. EPR
STANDARD DESIGN CERTIFICATION APPLICATION

Dear Mr. Salas:

By letter dated May 21, 2012 (Agencywide Documents Access and Management System (ADAMS) Accession No. ML120960140), the U.S. Nuclear Regulatory Commission (NRC) staff issued a revised schedule for the review of your December 11, 2007, application for a standard design certification of the U.S. EPR reactor which was submitted pursuant to Title 10 of the *Code of Federal Regulations* (10 CFR) Part 52, "Licenses, Certifications, and Approvals for Nuclear Power Plants." In accordance with that schedule and previous schedules, the application is currently in Phase 4 of the review where the staff is working with AREVA NP, Inc. (AREVA), to close open items (OIs).

This letter transmits the NRC staff's new revised review schedule (enclosure) for your application. The NRC staff re-evaluated your schedule considering the current status of the review, the significant technical issues that must be resolved before the staff can complete its review, your recently submitted closure plans to resolve OIs (ML12356A068, ML12361A033, ML13023A270, and ML13022A539), and the recent challenges with regard to your responses to staff's requests for additional information (RAIs) and audit findings.

The staff re-examined whether the May 21, 2012, review schedule is still achievable due to several methodology and design changes that AREVA has made over the past year. With approximately 6 months remaining before the final responses to the staff's RAIs are due (in accordance with the staff's May 21, 2012, schedule letter), AREVA has not yet submitted a large portion of the remaining design information to close the significant issues. Significant issues that remain unresolved include seismic and structural evaluations, fuel seismic design and methodology, digital instrumentation and controls, and aircraft impact assessment. For the most part, the timing of when AREVA has committed to submit its responses has not significantly changed since May 2012. However, AREVA has proposed or made multiple changes in methodology and design in several prominent areas (e.g., fuel seismic and blast wave effects) since May 2012 which have added or will significantly add to the staff's review. These changes have undermined the current schedule.

Also, the staff reviewed your closure plans to resolve Open Items. The staff focused on your closure strategy and assessed the impacts on the review schedule. As part of this process, the staff revisited its previous assumptions that it used in developing the current schedule (the staff's May 21, 2012 schedule) and identified that the assumption it used for determining the amount of time the staff needed to review the seismic margin analysis was not realistic. Such reviews are complex and have historically taken more than 60 days for the applicant to bring closure to issues identified by the staff. Therefore, as part of the schedule evaluation, the staff extended the schedule in this area.

In addition, AREVA has not kept some of its commitments in the seismic/structural area. AREVA has shifted work to the future. Specifically, with less than 2 weeks before a planned audit at the end of February 2013, AREVA told the staff that it would not be able to provide the design calculations for all nine critical sections that it had previously committed to provide. Rather, AREVA informed the staff that design calculations would be available for only three of the critical sections

Furthermore, during the February 25 – 27, 2013, audit of the three critical section designs that AREVA had completed to date, the staff identified a number of design specific issues that will add to the staff's review efforts. For example, AREVA used American Society of Mechanical Engineers (ASME) STS-1-2006 for the design of the vent stack. The staff has not endorsed this design code for the design of seismic Category I structures. In addition, at the audit, AREVA could not justify the use of this code outside of the limits that ASME had established for its use. Also, AREVA relied on test data from a paper presented at a conference for the force displacement characteristics of the liner-anchor for the EPR containment liner. At the audit, AREVA could not show how it established the quality or applicability of the test data on which it had relied. These issues will require issuing new Requests for Additional Information (RAIs). AREVA will need to spend additional time to address these issues and, subsequently, the staff will be spending additional time to determine the acceptability of the use of the code and test data.

Since the NRC received the March 30, 2012, modified closure plan for the U.S. EPR Fuel Assembly Design Topical Report ANP-10285P Open Items, the staff has had many interactions with AREVA, including public meetings and audits, related to fuel mechanical performance under seismic loads. The staff and AREVA have discussed a number of possible approaches to address the issue; however, the overall path to resolution remains unclear. Significant technical issues have been discussed with AREVA during these interactions and preliminary design information was presented although no new information has been submitted on the docket. Additionally, AREVA has proposed design and methodology changes, and the staff identified additional technical concerns during the December 2012 audit. Due to the scope and complexity of the proposed changes and additional new concerns, the staff has concluded that additional time is needed to complete the technical review. As a result of these impacts, the staff extended the schedule in this area.

The staff also considered the challenges to the review regarding AREVA's submittal of partial RAI responses, responses that required multiple iterations to resolve the issue, changed approaches to resolve issues late in the review, and responses that merely point to future submittals for answers in order to meet AREVA's schedule commitments. Such challenges further compress the staff's review time and, therefore, have schedule impacts. In order to

focus on closing the issues efficiently, as discussed with AREVA on January 17, 2013, if AREVA is unable to close on an issue associated with an RAI after a second attempt, the NRC will request a meeting with AREVA's senior management, to discuss AREVA's performance and associated schedule impacts.

After considering the totality of the review work remaining and the progress on the project to date, we have revised the milestone schedule for completion of the standard design certification rulemaking. The revised schedule projects completion of the rulemaking by June 2015. The revised milestone for the design certification rulemaking activities is consistent with SECY-09-0018, "Streamlining Design Certification Rulemakings," dated January 30, 2009, with regard to duration (12.5 months) and will start upon completion of Phase 4. In developing the revised schedule, the staff assumed that a Final Safety Analyses Report (FSAR) revision that incorporates FSAR markups that close all outstanding OIs and confirmatory items will be issued by November 1, 2013, with a possibility of another FSAR revision.

The staff believes the enclosed schedule, while still aggressive, is achievable with substantial management oversight and commitment from AREVA to meet the established milestones with quality submittals that resolve identified technical issues. The staff also expects AREVA to maintain a high level of commitment to provide the necessary information to the NRC in accordance with AREVA's May 10, 2012, RAI response commitment schedule and AREVA's closure plans. There is no margin in the enclosed schedule that would permit movement of critical milestones and still achieve the goal of completing the rulemaking by the end of June 2015. The staff acknowledges the importance of meeting its schedule commitments, while ensuring that the design meets all applicable NRC regulatory requirements before we proceed to certification rulemaking. However, the staff remains open to any new or innovative approach from AREVA to effectively and efficiently bring the open issues to early resolution.

As indicated in our letter dated March 26, 2008 (ADAMS Accession No. ML080790431), any new and significant changes to the request for additional information response schedule or additions to the design certification application or supporting documentation could affect scheduled completion dates.

P. Salas

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If you have any questions or comments concerning this matter, please contact Ms. Amy Snyder, project manager for review of the U.S. EPR design certification application, at 301-415-6822 or via e-mail at amy.snyder@nrc.gov.

Sincerely,

/RA/

David B. Matthews, Director
Division of New Reactor Licensing
Office of New Reactors

Docket No.: 52-020

Enclosure:
As stated

P. Salas

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If you have any questions or comments concerning this matter, please contact Ms. Amy Snyder, project manager for review of the U.S. EPR design certification application, at 301-415-6822 or via e-mail at amy.snyder@nrc.gov.

Sincerely,

/RA/

David B. Matthews, Director
Division of New Reactor Licensing
Office of New Reactors

Docket No.: 52-020

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As stated

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*via email

NRO-002

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|---------------|------------------------------------|-------------------|------------------|-------------|
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| DATE | 02/14/2013 | 02/14/2013 | 02/14/2013 | 03/01 /2013 |
| OFFICE | NRO/DSRA:D* | NRO/DARR:D | NRO/DNRL: D | |
| NAME | CAder (KHawkins for) w/comments | MMayfield | DMatthews | |
| DATE | 03/01/2013 | 03/01/2013 | 03/05/2013 | |

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**AREVA NP, Inc. – U.S. EPR Design Certification Application
Review Milestones**

| Task | Previous Date | Target Date |
|--|----------------------|--------------------|
| Phase 1 - Preliminary Safety Evaluation Report (SER) and Request for Additional Information (RAI) | Completed | Completed |
| Phase 2 - SER with Open Items | Completed | Completed |
| Phase 3 – Advisory Committee on Reactor Safeguards (ACRS) Review of SER with Open Items | Completed | Completed |
| Phase 4 - Advanced SER with No Open Items | March 4, 2014 | June 26, 2014 |
| Phase 5 - ACRS Review of Advanced SER with No Open Items | May 2014 | September 2014 |
| Phase 6 – Final SER with No Open Items | July 2014 | November 2014 |
| Final Design Certification Rule | December 2014 | June 2015 |

Enclosure

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(Revised 02/28/2013)

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