

February 16, 2010

Mr. Thomas E. Sliva
Vice President
New Plants Projects
AREVA NP Inc.
3315 Old Forest Road
Lynchburg, VA 24506-0935

SUBJECT: AREVA NP INC. - U.S. EPR STANDARD DESIGN CERTIFICATION
APPLICATION REVIEW SCHEDULE

Dear Mr. Sliva:

By letter dated June 25, 2009, in Agencywide Documents Access and Management System (ADAMS) Accession No. ML091730460, the NRC staff issued a revised review schedule for your December 11, 2007, application for a standard design certification (DC) of the U.S. EPR, 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, the staff has completed or is in the process of completing Phase 2 (Safety Evaluation Report [SER] with Open Items) and Phase 3 (Advisory Committee on Reactor Safeguards [ACRS] Review of SER with Open Items) reviews of Chapters 2, 4, 5, 8, 10, 11, 12, 13, 16, 17, and 19 of your application. However, the staff is unable to complete its review of the remaining eight chapters within the published milestone schedule due to changes to your previously committed schedule for providing responses to the staff's request for additional information (RAI) and new design information that you submitted recently. This letter transmits the results of the staff's latest assessment of the review schedule for your application based on the RAI response schedule and other information you provided through January 29, 2010.

As we informed you in a telephone conference on January 6, 2010, the major developments that necessitated the U.S. EPR design certification review schedule change are listed below.

- During a December 14-15, 2009, public meeting, the staff was briefed on the progress of the development of a new soil-structure interaction analysis model to support certification of the U.S. EPR. The intent of AREVA's new analyses is to include the U.S. eastern hard rock site seismic characteristics in the U.S. EPR design certification. The new analyses will also be used to address a number of open RAIs that were initiated during the staff's review of the original seismic analyses. The previous issuance date for Chapter 3 was April 2, 2010. Based on delayed RAI responses, the Chapter 3 issuance date has been extended by 7 months. This schedule change places Chapter 3 on critical path and extends the current Phase 2 public milestone date by 6 months. This new schedule takes a number of factors into account including: 1) the soil-structure interaction analysis model development schedule provided at the aforementioned December 14-15, 2009, public meeting; 2) correspondence from AREVA outlining the current RAI response schedule for Final Safety Analysis Report (FSAR) Sections 3.7 and 3.8 RAIs; 3) AREVA's schedule for the reconciliation of previous RAI responses with the results from the new analysis; and 4)

- future NRC interactions with AREVA necessary to resolve technical issues, as well as the conduct of an audit of the new analysis methodology.
- The analysis and testing supporting the adequacy of the U.S. EPR sump design did not adequately address key technical topics such as sump performance, chemical effects, and downstream effects. After a July 8, 2009, public meeting, AREVA committed to perform U.S. EPR specific strainer head loss testing, chemical effects testing, and downstream effects testing. The strainer design basis head loss test was aborted due to failure of the experimental design in early December 2009. AREVA subsequently committed to re-design the experimental facility and perform a new set of sump performance tests in February 2010. The previous Chapter 6 issuance date was May 11, 2010. AREVA's commitment to submit a final report by April 22, 2010, represents a 4 month delay in the submission of information critical to the staff's safety review. Based on the schedule for submission of this information, the Chapter 6 issuance date has been extended by 4 months.
- The significance of issues remaining to be resolved for the U.S. EPR FSAR Chapter 7, "Instrumentation and Controls," review regarding Defense-in-Depth and Diversity (D-3), Priority Actuation and Control Module Design, and Communications Independence has resulted in the extension of the Phase 2 schedule for this chapter by 4 months. The previous issuance date for Chapter 7 was April 2, 2010. The staff determined that an additional 4 months was necessary to review the technical information regarding D-3. Based on the need for additional review, the Chapter 7 issuance date has been extended by 4 months.
- AREVA recently submitted a technical report containing a complete re-design of the new and spent fuel storage racks. The design change requires a complete re-review of Section 9.1.1 of the FSAR. The previous Chapter 9 issuance date was April 21, 2010. As a result of this design change and the need for additional review, the Chapter 9 Phase 2 review completion date has been extended by 4 four months.
- The staff found the U.S.EPR Chapter 18, "Human Factors Engineering," material initially submitted in the form of a topical report to be insufficient to address established guidance documents for this chapter. RAIs responses were not effective in resolving the staff concerns. As a result, AREVA withdrew the topical report and submitted new implementation plans to address each of the elements in the guidance document. The quality of the implementation plans is generally good. However, some detail is still missing or is in lower level documents. The staff issued RAIs and AREVA has committed to submit responses during the first quarter of 2010. The previous Chapter 18 issuance date was March 25, 2010. Based on delayed responses, the Chapter 18 issuance date has been extended by 5 months.

Revised milestones for the remaining five phases of the design certification review, as well as the supporting topical reports that are currently under review, are provided in the enclosure to this letter. The overall review schedule for U.S. EPR design certification is now 45 months. The Phase 6 target date continues to maintain the 60 work-day managed reserve included in the original schedule. A revised milestone for the design certification rule making activities consistent with SECY-09-0018, "Streamlining Design Certification Rulemaking," is also provided.

The staff will continue to evaluate schedule impacts as new information is received from both internal and external sources. As indicated in our March 26, 2008 (ML080790431), letter, any new and significant changes to RAI response schedule or additions to the design certification application or supporting documentation could impact scheduled completion dates.

If you have any questions or comments concerning this matter, please contact Mr. Getachew Tesfaye, the Project Manager for U.S. EPR design certification application, at 301-415-3361 or via e-mail address at getachew.tesfaye@nrc.gov.

Sincerely,

/RA/

Frank Akstulewicz,
Deputy Director
Licensing Operations
Division of New Reactor Licensing
Office of New Reactors

Docket No. 52-020

Enclosure:
As stated

cc: DC AREVA EPR Mailing List

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(Revised 01/26/2010)

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

Task	Target Date
Phase 1 - Preliminary Safety Evaluation Report (SER) and Request for Additional Information (RAI)	Completed
Phase 2 - SER with Open Items	December 21, 2010
Phase 3 – Advisory Committee on Reactor Safeguards (ACRS) Review of SER with Open Items	February 25, 2011
Phase 4 - Advanced SER with No Open Items	July 2011
Phase 5 - ACRS Review of Advanced SER with No Open Items	October 2011
Phase 6 – Final SER with No Open Items	December 2011
Rulemaking	June 2012

Topical Reports Draft Safety Evaluation

Topical Report	Target Date
ANP-10272, "Software Program Manual TELEPERM XS™ Safety Systems Topical Report"	April 30, 2010
ANP-10278P, Revision 0, "U.S. EPR Realistic Large Break Loss of Coolant Accident Topical Report"	July 31, 2010
ANP-10285P, "U.S. EPR Fuel Assembly Mechanical Design Topical Report"	June 30, 2010
ANP-10286P, "U.S. EPR Rod Ejection Accident Methodology Topical Report"	April 30, 2010

ENCLOSURE