AUDIT PLAN TO REVIEW SELECTED AREAS RELATED TO
U.S. EPR FSAR CHAPTER 6 AND SUPPORTING TECHNICAL REPORTS

APPLICANT:	AREVA NP, Inc.
APPLICANT CONTACT:	Ronda Pederson
TIME:	1:00 pm to 4:30 pm on 10/22/2009
LOCATION:	AREVA NP, Inc., Twinbrook Office, Rockville, MD
REVIEWERS:	Walton Jensen (NRO, Audit Lead) Getachew Tesfaye (NRO) Jason Carneal (NRO) Zoltan Rosztoczy (Numark Associates) Michael Snodderly (NRO)

BACKGROUND

AREVA NP, Inc. has submitted to the U.S. Nuclear Regulatory Commission (NRC) a Final Safety Analysis Report (FSAR) for its application of the U.S. Evolutionary Power Reactor (EPR) in December, 2007. NRC staff has initiated the design certification review on March 19, 2008. The U.S. EPR design does not rely on active containment cooling systems for post-accident containment mixing. As a result, to adequately justify the level of mixing in the containment and the level of steam condensation in the reactor coolant system credited in the post-accident analysis, the staff issued a request for additional information which required long lead items to properly address the issue at the beginning of Phase 1. On January 28, 2009, AREVA provided a response to the RAI in the submittal of ANP-10299P Revision 0, "Applicability of AREVA NP Containment Response Evaluation Methodology to the U.S. EPR for Large Break LOCA Analysis Technical Report." An audit was held concerning Revision 0 of ANP-10299P on April 6 and 7, 2009 at the AREVA headquarters in Lynchburg, VA. On July 31, 2009, AREVA provided Revision 1 to ANP-10299P for NRC staff review. On September 1 and 2, 2009 an audit was held at the AREVA offices in Rockville, MD to review the material submitted in Revision 1 to ANP-10299P.

In order to cover important review areas handled by the NRO Containment and Ventilation Branch, the staff is proposing an audit that will be carried out at the AREVA office in Rockville, MD. The review of the additional technical documents, made available by AREVA at its local office, will be facilitated by the presence of AREVA personnel at the audit. The audit is needed to resolve existing questions in accomplishing the U.S. EPR review schedule in an efficient manner.

PURPOSE AND APPROACH

The purpose of this audit is to review additional documents and calculations provided by AREVA that pertain to the generation of ANP-10299P, "Applicability of AREVA NP Containment Response Evaluation Methodology to the U.S. EPR for Large Break LOCA Analysis Technical Report." The topics covered in the audit will include the status of the multi-node containment analysis, scaling analysis, sample problems, and other selected topics of discussion as listed in Attachment B.

To achieve the review goals in an efficient manner, the staff assembled an interdisciplinary audit team. The audit team will include experts from NRC and consulting organizations. To facilitate and expedite the work, it is foreseen that the audit will be attended by representatives from AREVA who will introduce the audit topics and provide supporting documents and technical evidence to the reviewers. The staff will document the audit findings in an audit report.

AUDIT ACTIVITIES AND SCHEDULE

The NRC staff will conduct the review over a period of one business day. If necessary, NRC may request an ad-hoc extension of the audit at the same location if findings during the ongoing audit reveal the need for additional time. Such an extension will be requested before the meeting is adjourned on 10/22/2009 by the NRC staff responsible for the audit.

Following the audit, each technical reviewer will prepare a separate audit report with specific findings will send the report to Walton Jensen by 11/06/2009. The NRC staff responsible for the audit will assemble and prepare a final audit report. The final report will be made available to all contributors for their concurrence by 11/27/2009. Any final notes by the contributors will be communicated to Walton Jensen no later than 11/20/2009.

A detailed agenda for the audit is presented in Attachment A. A detailed list of discussion topics is presented in Attachment B. If necessary, any circumstances related to the conductance of the audit will be communicated to Walton Jensen (NRC) at 301-415-2856 or at Walton.Jensen@nrc.gov.

Attachment A

Agenda
NRC Containment Analysis Status AUDIT
Pertaining to the Review of the U.S. EPR FSAR, Chapter 6
October 22, 2009
1700 Rockville Pike, Suite 400, Large Conference Room
Rockville, MD

Thursday, October 22, 2009, AFTERNOON SESSION: AUDIT - proprietary

13:00-14:00	Containment Discussion Topics	[AREVA]
14:00-16:15	Document Review / Break-out Sessions	[NRC/AREVA]
16:15-16:30	Summary, Actions, and Exit	[NRC/AREVA]
16:30	**Adjourn**	

Attachment B

Containment Discussion Topics
Technical Report ANP-10299P Containment Functional Design

1. Subcompartment analysis: Provide a schedule and status update concerning subcompartment analysis.
2. Scaling analysis: discussion will focus on qualification of EPR-GOTHIC based on European containment test data.
3. AREVA will present overlays of GOTHIC nodalization and equipment drawings.
4. The effect of nozzle gap on hot leg injection condensation.
5. Where does RELAP choke in the MLSB analysis? Why is the break flow less than four times Moody?
6. MSLB analysis: Chapter 15 vs. Chapter 6 assumptions and the effects on pressure and temperature.
7. MSIV - Worst single failure and effects of MSIV failure location.
8. ICECON benchmark against multi-node GOTHIC. By Phone(TE)
9. Status of the foils and dampers testing report (testing is complete, report is underway).
10. Negative containment pressure / need for an ITAAC.
11. Changes in SI flow from accumulator nitrogen injection.
12. LHSI heat exchanger fouling and associated GSI-191 issues.
13. How the SRP requirements are addressed regarding SBLOCA
14. GOTHIC input file for pump suction cold leg sample problem – RAI 266.

Additional Documentation for Audit

1. A large format noding diagram of the multi-node containment model showing all the flow paths. NRC staff have a small scale picture in ANP-10299P Rev. 1, however it does not show all the flow paths or name them.