September 16, 2013

MEMORANDUM TO: John Segala, Chief
Licensing Branch 1
Division of New Reactor Licensing
Office of New Reactors

FROM: William (Billy) Gleaves, Sr. Project Manager **/RA/**
Licensing Branch 1
Division of New Reactor Licensing
Office of New Reactors

SUBJECT: SUMMARY OF PUBLIC TELECONFERENCE MAY 23, 2013, WITH AREVA NP TO DISCUSS U.S. EPR DESIGN CERTIFICATION TECHNICAL ISSUE RESOLUTION

On Thursday, May 23, 2013, the U.S. Nuclear Regulatory Commission (NRC) held a Category I public meeting with AREVA, NP, Inc., via conference call. The purpose of the meeting was to discuss the resolution of open items (OIs) in the safety evaluation for the U.S. EPR Design Certification. The meeting notice was available through both the NRC website under public meetings and through the Agencywide Documents and Management System (ADAMS) at accession no. ML13119A235. The meeting notice included the meeting agenda. This teleconference was attended by 11 AREVA representatives, 5 NRC staff, and 3 members of the public. A list of the meeting attendees is included in Enclosure 1 to this summary.

This public meeting was led by NRC Sr. Project Manager, Pete Hearn, beginning at 1:00 p.m. ET.

At 1:40 p.m. the teleconference participants discussed Request for Additional Information (RAI) 524, Question 06.02.02-127, "Containment Accident Pressure." The NRC staff's talking points associated with this issue can be found in Attachment 2 to this memo. The NRC staff started the discussion of the probabilistic risk assessment (PRA) portion of the NRC review. On the NRC's talking points, AREVA stated 1) AREVA is reviewing its response with an intention of removing references to the severe accident heat removal (SAHR) system, 2) in regard to the question of the result of accident sequences involving failure of long-term in-containment refueling water storage tank (IRWST) cooling, AREVA stated that this scenario would cause core damage, 3) AREVA verified that low-head-safety-injection (LHSI) containment heat removal (CHR) support systems are completely modeled in the PRA, 4) AREVA verified that LHSI common cause failures are modeled, 5) AREVA verified that no operator actions are needed to start LHSI pumps, and 6) the latest PRA model was used to calculate risk (Revision 2013).

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In regard to the “non-PRA” talking points in Attachment 2, Item 7) AREVA stated that they intend to update the final safety analysis report (FSAR) to incorporate a summary-level description of the issue, evaluation, and results in a future revision to the FSAR. Item 8, AREVA described the flashing analysis method and how it addressed the potential for voiding in the water column (boiling only occurs at the surface layer, top 1 foot, due to pressure from static head of water). Item 9, for the best estimate approach, AREVA assumed the net-positive-suction-head (NPSH) for the pumps is the lowest possible combined with the best possible pump performance using manufacturer specified pump condition and piping conditions. The best-estimate analysis applies uncertainty to NPSH required. No previously accepted strainer assumptions were adjusted in this analysis. Item 10, Stuart Jones of AREVA stated that the response should be clarified to state that boiling will occur on the surface of the IRWST water. Item 11, AREVA clarified that the reference to SAHR in the response is not relevant and will be deleted as a clarification. As a summary, AREVA agreed that they have to take action to address items #7 and #11 as discussed above.

At 2:40pm, the meeting topic changed to NRC staff feedback on 515, Question 06.02.05-26 & RAI 574, Question 06.02.05-33 & -34. The NRC staff provided the staff’s feedback to AREVA on these RAI responses. The NRC staff commented on RAI 574, Question 06.02.05-33, that the RAI response does not describe the qualification method. AREVA clarified that it would be by qualification test to Institute of Electrical and Electronic Engineers (IEEE) Standard 344. A shaker table test with the PARS unit with catalytic plates installed but will not be done in the presence of a hydrogen rich atmosphere. To demonstrate post-test functionality, AREVA will perform a functional test of 2-3 of the catalytic plates to demonstrate operability before and after a shaker test. AREVA clarified that there is an existing combined operating license (COL) item # 3.10-3 that covers equipment qualification tests for COL applicants. AREVA agreed to clarify FSAR 6.2.5.2.1 to specify that the passive autocatalytic recombiner (PARS) include catalytic plates when testing. The NRC staff also relayed some editorial comments on the related FSAR text.

The second NRC comment related to RAI 574, Question 06.02.05-34 for PAR post-ignition functional tests. AREVA Topical Report ANP-10322, Revision 1, Figures 6-3, 6-4, and 6-7 have confusing or difficult to read labels. AREVA explained the interpretation of the figures and had no actions to take.

The third, and last, NRC comment related to RAI 515, Question 06.02.05-26 on PAR recombination rate ITAAC questions. The NRC staff asked for the rationale behind not specifying the PAR recombination rate as an ITAAC for later verification by a COL applicant. AREVA stated that the recombination rate is specified in Technical Report ANP-10299P and is referenced in Tier 2 of the FSAR so is a part of the design basis. The NRC staff was satisfied and no further actions were requested.

The meeting was adjourned at 3:16 p.m.

Docket No.: 52-020

Enclosures: 1. List of Attendees
2. Feedback on RAI 524, Question 06.02.02-127

cc w/encl: See next page

The third, and last, NRC comment related to RAI 515, Question 06.02.05-26 on PAR recombination rate ITAAC questions. The NRC staff asked for the rationale behind not specifying the PAR recombination rate as an ITAAC for later verification by a COL applicant. AREVA stated that the recombination rate is specified in Technical Report ANP-10299P and is referenced in Tier 2 of the FSAR so is a part of the design basis. The NRC staff was satisfied and no further actions were requested.

The meeting was adjourned at 3:16 p.m.

Docket No.: 52-020

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cc w/encl: See next page

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OFFICE	DNRL/LB1: PM	DNRL/LB1: LA	DSRA/SPCV	DNRL/LB1: PM	DNRL/LB1: BC
NAME	WGleaves	JMcLellan	JMcKirgan (wcomments)	ASnyder	JSegala
DATE	07/02/2013	07/02/2013	07/11/2013	08/22/2013	09/16/2013

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Public Teleconference, May 23, 2013, with AREVA NP Inc., To Discuss U.S. EPR Design Certification Technical Issues
1:40 p.m. – 3:15 p.m.
U.S. Nuclear Regulatory Commission

Name	Organization
Clint Ashley	U.S. NRC/NRO
Hanh Phan	U.S. NRC/NRO
Anne-Marie Grady	U.S. NRC/NRO
Billy Gleaves	U.S. NRC/NRO
Amy Snyder	U.S. NRC/NRO
Stuart Jones*	AREVA NP
Graydon Uyeda*	AREVA NP
Vesna Dimitrijevic*	AREVA NP
Pravan Thallapragada*	AREVA NP
Ogden Sawyer*	AREVA NP
Len Gucwa*	AREVA NP
David Noxon*	AREVA NP
Dennis Williford*	AREVA NP

*Public session attendance by conference bridge line only

Enclosure 1

Feedback for AREVA on RAI 524, Question 06.02.02-127

PRA Talking Points:

1. Verify the following statement on Pages 3&4 “The best estimate T/H analysis, summarized above, shows that with two LHSI heat exchangers, given a loss of CAP, NPSH will still be available for the ECCS and severe accident heat removal (SAHR) pumps, and their performance will not be affected.”
2. Discuss the accident sequences and consequences involving “Failure of Long Term IRWST Cooling.” Would failure of LTC result in core damage as mentioned on Page 4?
3. Verify the modeling of support systems (i.e., AC, CCW, etc.,) under transfer gates “LHSI CHR CL1, 2, 3, and 4.”
4. Verify the modeling of LHSI common-cause failures.
5. Discuss the operator actions to start (automatically or manually) LHSI second train.
6. Clarify whether the latest PRA model is used for the calculation.

Non-PRA Talking Points

7. Explain why the response makes no commitments to update the FSAR – either chapter 6 or 19 – to reflect this issue, evaluation, and results.
8. The response does not describe the flashing analysis method and/or approach to explain the water level drop of 0.79 feet. Therefore, describe the flashing analysis method and inputs and assumptions. How is the potential for voiding in the water column addressed?

Enclosure 2

9. The response does not describe the best-estimate approach for NPSH margin only the result. The response does not describe what was changed and why the change is appropriate for a best-estimate approach. For example, changes to inputs and assumptions for NPSH available analysis were not discussed.
10. Please clarify the last paragraph in the T-H analysis; is there operation above the boiling point?
11. At the top of page 4 of 7, reference is made to the best estimate NPSH summary, which only discussed ECCS, but SAHR pump is included in the conclusion. Discuss the basis for including SAHR?

cc:

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