

September 9, 2010

APPLICANT: AREVA NP

APPLICATION: U.S. EPR Design Certification Review

SUBJECT: SUMMARY OF JULY 22, 2010, PUBLIC MEETING WITH AREVA NP TO DISCUSS DRAFT RESPONSES FOR DIVERSITY AND DEFENSE-IN-DEPTH IN INSTRUMENTATION AND CONTROLS SYSTEMS

On July 22, 2010, a Category 1 Public meeting was held between the U.S. Nuclear Regulatory Commission (NRC) staff and representatives of AREVA NP (AREVA). The meeting was held at the NRC Headquarters office at 11545 Rockville Pike, Room T6-A01 in Rockville MD 20852. The purpose of this meeting was to discuss with AREVA the NRC Draft Request for Additional Information (RAI) 413, as published in the Agencywide Documents Access and Management System (ADAMS) Accession No. ML101550087. The discussion addressed AREVA's potential approach in addressing these questions, which are related to Diversity and Defense-in-Depth (D-3) analysis for the U.S. EPR Instrumentation and Control Systems design. The meeting notice with the agenda can be found in ADAMS Accession No. ML101810524. The agenda identified that portions of the meeting might include designated times for discussion of proprietary information related to the topics of discussion, and also for provided for public interactions with the NRC staff. Enclosure 1 lists the meeting attendees.

The meeting started at 9:05 a.m. (Eastern Time). After the opening remarks and introductions of the attendees, meeting ground rules and logistics were announced. Two individuals also attended by telephone. The NRC staff then briefly reviewed the agenda items.

A noted departure from the agenda was identified in that AREVA did not intend to address all the questions in RAI 413 at this time. AREVA identified that their presentation would be describing the scope and methodology of their analysis activities as it pertained to the Best Estimate accident analysis. This analysis was performed to demonstrate compliance with the "Standard Review Plan for the Review of Safety Analysis Reports for Nuclear Power Plants: LWR Edition - Instrumentation and Controls" (NUREG-0800, Chapter 7), specifically regarding Branch Technical Position (BTP)-7-19, Revision 5, Point 2.

The NRC staff made a short presentation under to describe the areas of D-3 to be addressed, their regulatory criteria and related guidance to ensure common understanding of the objectives. This presentation can be found under ADAMS Accession No. ML102080152.

Point 2 states:

....the vendor or applicant/licensee should analyze each postulated common-cause failure for each event that is evaluated in the accident analysis section of the safety analysis report (SAR) using best-estimate or SAR Chapter 15 analysis methods. The vendor or applicant/licensee should demonstrate adequate diversity within the design for each of these events.

AREVA then began their presentation (see ADAMS Accession No. ML102080151). This presentation included a description of the overall analysis approach, and the methodology used for Non-Loss of Coolant Accident (LOCA), LOCA and Core Thermal-Hydraulics analysis. A break was called at approximately 11:30 a.m. A member of the public addressed questions to the NRC staff regarding the potential generic significance of some of the information discussed prior to this break

Included in the approach was identification of the events, parameters and values used for the analysis as well as the basic assumptions used to frame the analysis.

The NRC staff discussed the need for AREVA to include in their D-3 analysis information their analytical approach for, and validation of, credited manual operator actions in accordance with Digital Instrumentation and Control (DI&C) – Interim Staff Guidance (ISG)-5, Revision 1, Section 3. Specifically, the analysis, preliminary validation, integrated system validation (including simulator functionality, fidelity and accuracy) and long term maintenance of the credited manual actions need to be addressed, as discussed in the ISG.

The presentation and discussion continued to address the S-RELAP5 Code enhancements made in order to process the Best Estimate analysis. The NRC staff questioned the validity of the averaging temperature approximation $(T_j + T_{j-1})/2$ and left this assumption for later assessment. The NRC staff stated that the approach would yield lower peak cladding temperatures, which made the approach less than best estimate. The $(T_j + T_{j-1})/2$ approach appears to be the wrong approach, but if it is to be utilized, it must be fully justified

After the presentation by AREVA regarding the D-3 LOCA Analysis, some questions from the public were addressed to the NRC staff; the meeting then broke for lunch.

The meeting resumed at approximately 1:20 p.m. with the next portion of the AREVA presentation on Non-LOCA analysis methodology followed by the presentation on D-3 Core Thermal-hydraulic and reactivity modeling methodology. AREVA then discussed their specific analysis activities using evaluation examples.

At the conclusion of the presentations, as no questions were posed by members of the public, a short break was taken and the meeting resumed at about 3:20 p.m. The NRC staff addressed each specific question in Draft RAI 413 (ADAMS Accession No. ML101550087), in order to determine which had been sufficiently clarified to allow final release to AREVA for their action, and which questions were still open for additional discussion with the AREVA.

Path Forward

RAI 413, Questions 07.08-10, 11, 12 13, 17, 25, 35, 37, and 42 were not discussed as the appropriate members of AREVA staff were not available to access if clarification were needed in order for AREVA for take action. (9 questions)

RAI 413, Questions 07.08-14, 15, 16, 18, 20, 22, 26, 24, 27, 28, 29, 30, 31, 32, 33, 34, 36, 38, 39, 40, and 41 were found to be sufficient as written and will be transmitted to Final in their current form. (21 questions)

RAI 413, Questions 07.08-19, 21, 23, and 41 will be amended based on the comments received during the meeting to clarify the NRC staff's intent for these questions. (5 questions)

Having offered the members of the public the opportunity to address questions to the staff, and having received a no-comment response, the meeting was officially adjourned at approximately 4:30 p.m.

Questions regarding this meeting can be directed to G. Tesfaye at 301-415-3361 or via e-mail at Getachew.Tesfaye@nrc.gov

Sincerely,

/RA/

Michael Canova, Project Manager
U.S. EPR Projects Branch
Division of New Reactor Licensing
Office of New Reactors

Docket No.: 52-020

Enclosures:

1. List of Attendees
2. AREVA Slides (ML102080151 and ML102080152)

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NRC-001

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DATE	09/01/2010	09/01/2010	09/08/2010	09/09/2010

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List of Attendees

Meeting with AREVA NP to discuss Diversity and Defense-In-Depth for Digital Instrumentation and Controls Systems

Thursday, July 22, 2010

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(Revised 06/23/2010)

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