Request for Additional Information No. 124 (948, 1420, 1509), Revision 0

11/10/2008

U. S. EPR Standard Design Certification
AREVA NP Inc.
Docket No. 52-020
SRP Section: 14.03.02 - Structural and Systems Engineering - Inspections, Tests, Analyses, and Acceptance Criteria
SRP Section: 14.03.04 - Reactor Systems - Inspections, Tests, Analyses, and Acceptance Criteria
SRP Section: 14.03.11 - Containment Systems and Severe Accidents - Inspections, Tests, Analyses, and Acceptance Criteria
Application Section: EPR FSAR Section 14.3

QUESTIONS for Structural Engineering Branch 2 (ESBWR/ABWR Projects) (SEB2)
QUESTIONS for Component Integrity, Performance, and Testing Branch 1 (AP1000/EPR Projects) (CIB1)
QUESTIONS for Containment and Ventilation Branch 1 (AP1000/EPR Projects) (SPCV)

14.03.02-10

(1) In Tier 1, Table 2.1.1-7, item 4.2 under the column titled Commitment Wording it states that the NI structures are constructed to withstand design basis loads as specified in Section 2.1.1.The section referenced does not contain all design basis loads, such as earthquake and flood which are required under GDC 2. Section 2.1.1 should be revised to contain all design basis loads required for NI structures.

(2) In Tier 1, Table 2.1.1-7, item 4.2, under the column titled Inspection, Analysis or Test, it states that a verification inspection of the NI structures design analysis versus construction records will be performed. Please indicate what the design analysis includes and whether or not it includes all approved design basis documents such as design specifications, design drawings, and design reports. Also indicate if a comparison of these design basis documents with the construction records will include an inspection of the as-built condition.

(3) In Tier 1, Table 2.1.2-2, item 4.3 for the EPGB and Table 2.1.5-2, item 4.3 for the ESWB, under the column titled Inspection, Analysis, or Test, it states that a verification of the structures seismic design analysis versus construction records will be performed. In Tier 1, Section 2.1.2 for the EPGB and Tier 1, Section 2.1.5 for the ESWB each structure is to be designed for external loads including loads due to SSE earthquake, tornado, missiles, and flood. Please indicate what the seismic design analysis includes and whether or not all required design loads, approved design basis documents such as design specifications, design drawings, and design reports will be included in a comparison with the construction records. Also indicate if a comparison of these design basis documents with the construction records will include an inspection of the as-built condition.

14.03.04-1

10 CFR 52.47(b)(1) requires that a DC application contain the proposed inspections, tests, analyses, and acceptance criteria (ITAAC) that are necessary and sufficient to provide reasonable assurance that, if the inspections, tests, and analyses are performed and the acceptance criteria met, a plant that incorporates the design certification is built and should operate in accordance with the design certification, the provisions of the Atomic Energy Act, and the NRC's regulations. Table 2.2.1-5 "RCS Inspections, Tests, Analyses, and Acceptance Criteria" of the U.S. EPR FSAR provides design commitments related to the reactor pressure vessel (RPV) system. However, the staff finds that additional design commitments are needed in order for the EPR DC to meet 10 CFR 52.47(b)(1) as it relates to the RPV system. Specifically, ITAAC relating to the following areas should be addressed in Table 2.2.1-5:

a. Key dimensions of the as-built RPV
b. ASME Code Section III requirements for pressure boundary welds in ASME Code Section III components
c. Pressure boundary integrity under internal pressure during service of ASME Code Section III components
d. RPV material surveillance program (i.e., material types of specimens and bracket locations)

Please provide ITAAC for the above design features to ensure that the reactor vessel is constructed in accordance with the design certification.

14.03.11-3

FSAR Tier 2, section 6.2.5.2.2, Hydrogen Monitoring System (HMS), describes both the low range HMS system and the high range HMS system which provide hydrogen concentration displays and alarms in the main control room (MCR). Hydrogen concentration in containment is identified as a safety significant feature in FSAR Table 14.3-7, indicating that there should be an associated ITAAC for this HMS instrumentation.

The low range and the high range HMS monitors in the MCR should be added to FSAR Tier 2, Table 18.7-1, Minimum Inventory of Main Control Room Fixed Alarms, Displays, and Controls, to both display and alarm. The low range and the high range HMS monitors should be added to FSARTier 1, Table 2.4.14-2, Hydrogen Monitoring System ITAAC, providing an ITAAC that will confirm that they both alarm and display in the MCR.