

ArevaEPRDCPEm Resource

From: Pederson Ronda M (AREVA NP INC) [Ronda.Pederson@areva.com]
Sent: Tuesday, June 23, 2009 4:38 PM
To: Tesfaye, Getachew
Cc: BENNETT Kathy A (OFR) (AREVA NP INC); DELANO Karen V (AREVA NP INC); NOXON David B (AREVA NP INC)
Subject: Response to U.S. EPR Design Certification Application RAI No. 226, FSAR Ch. 17
Attachments: RAI 226 Response US EPR DC.pdf

Getachew,

Attached please find AREVA NP Inc.'s response to the subject request for additional information (RAI). The attached file, "RAI 226 Response US EPR DC.pdf" provides technically correct and complete responses to 2 of the 7 questions.

Appended to this file are affected pages of the U.S. EPR Final Safety Analysis Report in redline-strikeout format which support the response to RAI 226 Questions 17.04-17 and 17.06-2.

The following table indicates the respective pages in the response document, "RAI 226 Response US EPR DC.pdf," that contain AREVA NP's response to the subject question.

Question #	Start Page	End Page
RAI 226 — 17.04-16	2	2
RAI 226 — 17.04-17	3	3
RAI 226 — 17.04-18	4	4
RAI 226 — 17.04-19	5	5
RAI 226 — 17.04-20	6	6
RAI 226 — 17.04-21	7	7
RAI 226 — 17.06-2	8	8

A complete answer is not provided for 5 of the 7 questions. The schedule for a technically correct and complete response to these questions is provided below.

Question #	Response Date
RAI 226 — 17.04-16	July 24, 2009
RAI 226 — 17.04-18	July 24, 2009
RAI 226 — 17.04-19	July 24, 2009
RAI 226 — 17.04-20	July 24, 2009
RAI 226 — 17.04-21	July 24, 2009

Sincerely,

Ronda Pederson

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Licensing Manager, U.S. EPR Design Certification

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From: Getachew Tesfaye [mailto:Getachew.Tesfaye@nrc.gov]
Sent: Friday, May 22, 2009 8:10 PM
To: ZZ-DL-A-USEPR-DL
Cc: Hanh Phan; Theresa Clark; Edward Fuller; Lynn Mrowca; Prosanta Chowdhury; Joseph Colaccino; ArevaEPRDCPEm Resource
Subject: U.S. EPR Design Certification Application RAI No. 226 (2596, 2597),FSAR Ch. 17

Attached please find the subject requests for additional information (RAI). A draft of the RAI was provided to you on May 15, 2009, and on May 21, 2009, you informed us that the RAI is clear and no further clarification is needed. As a result, no change is made to the draft RAI. The schedule we have established for review of your application assumes technically correct and complete responses within 30 days of receipt of RAIs. For any RAIs that cannot be answered within 30 days, it is expected that a date for receipt of this information will be provided to the staff within the 30 day period so that the staff can assess how this information will impact the published schedule.

Thanks,
Getachew Tesfaye
Sr. Project Manager
NRO/DNRL/NARP
(301) 415-3361

Hearing Identifier: AREVA_EPR_DC_RAIs
Email Number: 604

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FSAR Ch. 17
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RAI 226 Response US EPR DC.pdf		146894

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Response to

Request for Additional Information No. 226 (2596, 2597), Revision 0

5/22/2009

U. S. EPR Standard Design Certification

AREVA NP Inc.

Docket No. 52-020

SRP Section: 17.04 - Reliability Assurance Program (RAP)

SRP Section: 17.06 - Maintenance Rule

Application Section: FSAR Ch. 17

**QUESTIONS for PRA Licensing, Operations Support and Maintenance Branch 1
(AP1000/EPR Projects) (SPLA)**

Question 17.04-16:

Follow-up to Question 17.04-12 of RAI 21, currently, COL applications that reference the US EPR design conclude that the SSCs within the plant-specific RAP scope are the same SSCs identified for consideration within the RAP during the design certification process. Since the list of D-RAP risk-significant SSCs is used as a foundation for the development of plant-specific RAP, the staff would benefit greatly in its review of the COL applications if AREVA formally identify and document the D-RAP risk-significant SSCs in the US EPR FSAR. Thus, the staff requests that AREVA include the list of D-RAP risk-significant SSCs in EPR FSAR Section 17.4.

Response to Question 17.04-16:

A response to this question will be provided by July 24, 2009.

Question 17.04-17:

Followup to Question 17.04-15 (RAI 21): The response to Question 17.04-15 (in the commitment wording and acceptance criteria) states that a Reliability Assurance Program exists and provides reasonable assurance that the overall plant reliability is maintained.

SRP 17.4 says that the purposes of the RAP are to provide reasonable assurance, for systems, structures, and components (SSCs) that are identified as being significant contributors to plant safety, that

1. a reactor is designed, constructed, and operated in a manner that is consistent with the assumptions and risk insights for these SSCs,
2. these SSCs do not degrade to an unacceptable level during plant operations,
3. the frequency of transients that challenge SSCs is minimized, and
4. these SSCs function reliably when challenged.

It is not clear that maintaining overall reliability satisfies these objectives for any given SSC.

Please revise the ITAAC commitment wording and acceptance criteria to address these issues. In addition, explain how you will inspect for the "existence of a Reliability Assurance Program," as noted in the inspections, tests, or analysis portion of the ITAAC.

Response to Question 17.04-17:

An inspection, test, analysis and acceptance criteria (ITAAC) for the reliability assurance program (RAP) was proposed by the NRC in a meeting with the ITAAC Closure Working Group (ML090340056, page 8 of 12). U.S. EPR FSAR Tier 1, Section 3.2, Item 2.1 and Table 3.2-1, Item 2.1 will be revised to be consistent with the proposed RAP ITAAC from the meeting with the ITAAC Closure Working Group, which addresses the issues identified in this Question.

FSAR Impact:

U.S. EPR FSAR Tier 1, Section 3.2 and Table 3.2-1 will be revised as described in the response and indicated on the enclosed markup.

Question 17.04-18:

Follow-up to Question 17.04-08 of RAI 21, please explicitly identify the ASME RA-Sb-2005 section which outlines the expert panel members selection process as mentioned in the response to Question 17.04-08.

Response to Question 17.04-18:

A response to this question will be provided by July 24, 2009.

Question 17.04-19:

Please explain why the EPR core melt stabilization passive flooding device, MOVs, and other SSCs credited in the severe accident assessment are excluded from the D-RAP list of risk-significant SSCs. These components are important in responding to the severe accident and should be included in the scope of RAP.

Response to Question 17.04-19:

A response to this question will be provided by July 24, 2009.

Question 17.04-20:

Regarding the EPR core melt stabilization, if water inadvertently enters the core spreading area, explain how the water is removed. What is the failure probability of the passive flooding device (including the spring-loaded valve and triggering device) to perform its intended function?

Response to Question 17.04-20:

A response to this question will be provided by July 24, 2009.

Question 17.04-21:

Please justify the exclusion of the following SSCs from the D-RAP list.

- a) Fire Water Distribution System (fire diesel pump, one firewater storage tank, fire mains feeding nuclear island)
- b) Gas fire suppression system (in MCR)
- c) Sprinkler/Deluge Systems in safety-related areas to include RCP pump deluge system, safety-related EDG (or fuel tank) spray system
- d) Smoke control portions of the HVAC system(s) - those portions designed IAW NFPA 90A and 92A (and 204)
- e) The RCP oil collection system
- f) MCR to Remote Shutdown Panel Transfer switch [and circuitry]
- g) Emergency [on-site] communications needed for safe shutdown and fire brigade operations.

Response to Question 17.04-21:

A response to this question will be provided by July 24, 2009.

Question 17.06-2:

Follow-up to Question 17.06-1 of RAI 121, as mentioned in Question 17.06-1, it is expected that implementing the industry operating experience (IOE) is the responsibility of the COL applicants as part of their MRule program. However, because the COL applications that reference US EPR DC would develop their MRule program in accordance with the template provided in NEI 07-02A and the US EPR FSAR Section 17.6, please include IOE in EPR FSAR Section 17.6 with other principal functions listed therein.

Response to Question 17.06-2:

U.S. EPR FSAR Tier 2, Section 17.6 will be revised to add a description of how IOE is one of the principal functions associated with the maintenance rule program. U.S. EPR FSAR, Tier 2, Table 1.8-2 will be revised to indicate the new section number for COL item 17.6-8.

FSAR Impact:

U.S. EPR FSAR Tier 2, Section 17.6.7 will be inserted as described in the response and indicated on the enclosed markup. U.S. EPR FSAR Tier 2, Table 1.8-2 will be revised as described in the response and indicated on the enclosed markup.

U.S. EPR Final Safety Analysis Report Markups

3.2 Reliability Assurance Program

1.0 Description

The Reliability Assurance Program (RAP) is implemented as an integral part of the design process and is implemented during the detailed design phase prior to initial fuel load. The RAP evaluates and sets priorities for the structures, systems and components (SSC) in the design, based on their degree of risk significance.

The objective of the RAP is to provide reasonable assurance that risk-significant SSC are designed such that: (1) assumptions from the risk analysis are maintained, (2) SSC when challenged, function in accordance with the assumed reliability, (3) SSC whose failure could result in a reactor trip, function in accordance with the assumed reliability, and (4) maintenance actions to achieve the assumed reliability are identified.

2.0 Design Features

2.1

17.04-17 →

~~A Reliability Assurance Program exists and provides reasonable assurance that the overall plant availability is maintained.~~ The RAP provides reasonable assurance that the plant is designed and will be constructed in a manner that is consistent with the key assumptions and risk insights for risk-significant SSC.

3.0 Inspections, Tests, Analyses, and Acceptance Criteria

Table 3.2-1 lists the RAP ITAAC.

Table 3.2-1— Reliability Assurance Program ITAAC

17.04-17	Commitment Wording	Inspections, Tests, Analyses	Acceptance Criteria
2.1	<p>The RAP provides reasonable assurance that the plant is designed and will be constructed in a manner that is consistent with the key assumptions and risk insights for risk-significant SSC. A Reliability Assurance Program exists and provides reasonable assurance that the overall plant reliability is maintained.</p>	<p>Inspection will be performed for the existence of a Reliability Assurance Program. An analysis will confirm the adequacy of the RAP.</p>	<p>A Reliability Assurance Program provides reasonable assurance that the overall plant reliability is maintained. A report exists and concludes that the RAP includes the following three (3) major elements:</p> <ul style="list-style-type: none"> • Identification of all SSC in the scope of the plant-specific RAP. • Description of the methodology used to identify the SSC in scope of the plant-specific RAP. • For the SSC in scope of RAP, identify and describe the reliability assurance activities that are accomplished prior to the initial fuel load, which provide reasonable assurance that the plant is designed and constructed in a manner that is consistent with the key assumptions (including reliability and availability assumptions in probabilistic risk assessment when applicable) and risk insights for the risk-significant SSC.

Rule-related responsibilities consistent with the provisions of Section 13.2 as applicable. Training will be commensurate with maintenance rule responsibilities, including Maintenance Rule Program administration, the expert panel process, operations, engineering, maintenance, licensing, and plant management.

17.6.6 Maintenance Rule Program Role in Implementation of Reliability Assurance Program (RAP) in the Operations Phase

A COL applicant referencing the U.S. EPR Design Certification will describe the relationship and interface between Maintenance Rule Program and the Reliability Assurance Program (refer to Section 17.4).

17.06-2

17.6.7

Maintenance Rule Program Relationship with Industry Operating Experience Activities

Industry operating experience (IOE) comprises information from a variety of sources that is applicable and available to the nuclear industry with the intent of minimizing, through shared experiences, adverse plant conditions or situations. Sources of IOE include information programs organized by the reactor vendor, safety-related equipment suppliers, the NRC, the Institute of Nuclear Power Operations (INPO), and the Electric Power Research Institute (EPRI).

IOE is reviewed for plant-specific applicability and, where appropriate, is applied in various elements of the Maintenance Rule Program and procedures, including scoping, performance/condition criteria development, monitoring, goal-setting, corrective action, training, program assessment, and maintenance and procurement activities. The specific steps for employing IOE in the various Maintenance Rule Program areas will be contained in the plan or process for maintenance rule implementation described in Section 17.6.8.

17.6.8 Maintenance Rule Program Implementation

A COL applicant referencing the U.S. EPR Design Certification will describe the plan or process for implementing the Maintenance Rule Program as described in the COL application, which includes establishing program elements through sequence and milestones and monitoring or tracking the performance and/or condition of SSC as they become operational. The Maintenance Rule Program will be implemented by the time that fuel load is authorized.

**Table 1.8-2—U.S. EPR Combined License Information Items
Sheet 43 of 46**

Item No.	Description	Section	Action Required by COL Applicant	Action Required by COL Holder
17.6-6	A COL applicant that references the U.S. EPR design certification will describe the program for selection, training, and qualification of personnel with Maintenance-Rule-related responsibilities consistent with the provisions of Section 13.2 as applicable. Training will be commensurate with maintenance rule responsibilities, including Maintenance Rule Program administration, the expert panel process, operations, engineering, maintenance, licensing, and plant management.	17.6.5	Y	
17.6-7	A COL applicant that references the U.S. EPR design certification will describe the relationship and interface between Maintenance Rule Program and the Reliability Assurance Program.	17.6.6	Y	
17.6-8	A COL applicant that references the U.S. EPR design certification will describe the plan or process for implementing the Maintenance Rule Program as described in the COL application, which includes establishing program elements through sequence and milestones and monitoring or tracking the performance and/or condition of SSC as they become operational. The Maintenance Rule Program will be implemented by the time that fuel load is authorized.	17.6.78	Y	
17.6-9	A COL applicant that references the U.S. EPR design certification will describe the program for Maintenance Rule implementation.	17.6	Y	
18.1-1	A COL applicant that references the U.S. EPR design certification will execute the NRC approved HFE program as described in this section	18.1		Y
18.1-2	A COL applicant that references the U.S. EPR design certification will be responsible for HFE design implementation for a new Emergency Operations Facility (EOF) or changes resulting from the addition of the U.S. EPR to an existing EOF.	18.1.1.3	Y	

17.04-17

17.6.78

Next File