

## ArevaEPRDCPEm Resource

---

**From:** BRYAN Martin (EXT) [Martin.Bryan.ext@areva.com]  
**Sent:** Thursday, May 27, 2010 12:43 PM  
**To:** Tesfaye, Getachew  
**Cc:** DELANO Karen V (AREVA NP INC); ROMINE Judy (AREVA NP INC); BENNETT Kathy A (OFR) (AREVA NP INC); KOWALSKI David J (AREVA NP INC)  
**Subject:** Response to U.S. EPR Design Certification Application RAI No. 390, FSAR Ch. 9  
**Attachments:** RAI 390 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 390 Response US EPR DC," provides a schedule since technically correct and complete responses to the seven questions are not provided.

The following table indicates the respective pages in the response document, "RAI 390 Response US EPR DC.pdf," that contain AREVA NP's response to the subject questions.

Question #	Start Page	End Page
RAI 390 — 09.01.02-39	2	2
RAI 390 — 09.02.02-106	3	4
RAI 390 — 09.05.04-21	5	5
RAI 390 — 09.05.04-22	6	6
RAI 390 — 09.05.04-23	7	7
RAI 390 — 09.05.04-24	8	8
RAI 390 — 09.05.04-25	9	9

The schedule for technically correct and complete responses to these questions is provided below.

Question #	Response Date
RAI 390 — 09.01.02-39	June 25, 2010
RAI 390 — 09.02.02-106	June 25, 2010
RAI 390 — 09.05.04-21	June 25, 2010
RAI 390 — 09.05.04-22	June 25, 2010
RAI 390 — 09.05.04-23	June 25, 2010
RAI 390 — 09.05.04-24	June 25, 2010
RAI 390 — 09.05.04-25	June 25, 2010

Sincerely,

Martin (Marty) C. Bryan  
U.S. EPR Design Certification Licensing Manager  
AREVA NP Inc.  
Tel: (434) 832-3016  
702 561-3528 cell  
[Martin.Bryan.ext@areva.com](mailto:Martin.Bryan.ext@areva.com)

---

**From:** Tesfaye, Getachew [mailto:Getachew.Tesfaye@nrc.gov]  
**Sent:** Tuesday, April 27, 2010 3:07 PM  
**To:** ZZ-DL-A-USEPR-DL

**Cc:** Bernal, Sara; Roach, Edward; Wheeler, Larry; Lee, Samuel; Radlinski, Robert; Segala, John; Hearn, Peter; Colaccino, Joseph; ArevaEPRDCPEm Resource

**Subject:** U.S. EPR Design Certification Application RAI No. 390(4614,4620,4616), FSAR Ch. 9

Attached please find the subject requests for additional information (RAI). A draft of the RAI was provided to you on April 20, 2010, and on April 27, 2010, 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 except to correct a typographical error you identified in Draft RAI Question 09.05.04-24. 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:** 1464

**Mail Envelope Properties** (BC417D9255991046A37DD56CF597DB71064ADBB1)

**Subject:** Response to U.S. EPR Design Certification Application RAI No. 390, FSAR Ch. 9  
**Sent Date:** 5/27/2010 12:43:20 PM  
**Received Date:** 5/27/2010 12:43:23 PM  
**From:** BRYAN Martin (EXT)

**Created By:** Martin.Bryan.ext@areva.com

**Recipients:**

"DELANO Karen V (AREVA NP INC)" <Karen.Delano@areva.com>

Tracking Status: None

"ROMINE Judy (AREVA NP INC)" <Judy.Romine@areva.com>

Tracking Status: None

"BENNETT Kathy A (OFR) (AREVA NP INC)" <Kathy.Bennett@areva.com>

Tracking Status: None

"KOWALSKI David J (AREVA NP INC)" <David.Kowalski@areva.com>

Tracking Status: None

"Tesfaye, Getachew" <Getachew.Tesfaye@nrc.gov>

Tracking Status: None

**Post Office:** AUSLYNCMX02.adom.ad.corp

<b>Files</b>	<b>Size</b>	<b>Date &amp; Time</b>
MESSAGE	2688	5/27/2010 12:43:23 PM
RAI 390 Response US EPR DC.pdf		79241

**Options**

**Priority:** Standard

**Return Notification:** No

**Reply Requested:** No

**Sensitivity:** Normal

**Expiration Date:**

**Recipients Received:**

**Response to**

**Request for Additional Information No. 390 (4614, 4620, 4616) Revision 1**

**4/27/2010**

**U.S. EPR Standard Design Certification**

**AREVA NP Inc.**

**Docket No. 52-020**

**SRP Section: 09.01.02 - New and Spent Fuel Storage**

**SRP Section: 09.02.02 - Reactor Auxiliary Cooling Water Systems**

**SRP Section: 09.05.04 - Emergency Diesel Engine Fuel Oil Storage and Transfer  
System**

**Application Section: 9.5.4**

**QUESTIONS for Balance of Plant Branch 1 (SBPA)**

**QUESTIONS for Health Physics Branch (CHPB)**

**Question 09.01.02-39:**

The following items appear to be errors in the FSAR:

- a. In FSAR Section 9.1.2.1, Design Basis, the statement "Gaseous radioactivity above the SFP is maintained below the limits as defined in 10 CFR 20, Appendix b, table 1, column 1," incorrectly references column 1. Column 1 refers to oral ingestion ALI, while Column 3 lists the applicable DAC for each radionuclide. Please correct the column number or justify an alternative.
- b. The last sentence in FSAR Section 12.3.4.2.1, Normal Operations, refers to Table 12.3-2, U.S. EPR Radiation Zone Designation, as including the normal operations airborne radioactivity monitoring instrumentation. This table reference is incorrect, please replace with correct reference.
- c. FSAR Table 12.3-2, Radiation Monitor Detector Parameters, lists the radioactive waste processing building monitors under the heading "post accident monitoring." Please confirm whether this is correct, or move the radwaste building monitors to another part of the table.

**Response to Question 09.01.02-39:**

A response to this question will be provided by June 25, 2010.

**Question 09.02.02-106:****Follow-up to RAI No. 337, Supplement 2 responses addressing the seal water system (SEWSS), FSAR Section 9.2.7.**

Question 9.2.2-79: In the applicant's response to item B.1, it was noted that check valves are installed on the upstream piping of each SEWSS user. Based on the staff's review of Figure 9.2.7-1, "Seal Water Supply System," all the users do not have check valves. Provide clarification in the RAI response that the check valves are located on the continuations of the FSAR figures and provide information on the figure numbers in the FSAR or add the required check valves to Figure 9.2.7-1 and associated FSAR tables.

Question 9.2.2-79: In the applicant's markup of Table 3.2.2-1, "Classification Summary," on sheet 110, valve 30GHW44 AA006 was added. The staff could not find this valve on any FSAR figures. Provide this valve on the FSAR figure.

Question 9.2.2-80: In the applicant's response to item B.2, it was noted that a relief valve is provided for each buffer tank. Since these relief valves are for the nitrogen side of the buffer tanks, describe the vent path for the nitrogen and explain in the RAI if this release path affects the occupations of the main control room or affects plant operators from performing any duties related to safe shutdown.

Question 9.2.2-81: In the applicant's response to item B.1, it was noted that the severe accident heat removal system (SAHRS) did not have a statement added to the FSAR related to the SAHRS pump trip on low seal water pressure similar to the text added for the charging pump (Section 9.3.4.5). Provide clarification in the RAI response and add this information to the appropriate sections in the FSAR for the SAHRS.

The staff noted that SAHRS is described in FSAR Tier 1, Section 2.3.3, "Severe Accident Heat Removal System;" however, it is not described in detail in Tier 2. The information in Section 19.2.3.3.3.2, "Severe Accident Heat Removal System," does not include the design information to support Tier 1. The support systems for SAHRS (dedicated component cooling and dedicated essential cooling) are described in detail in Sections 9.2. Since SAHRS is described in Tier 1, and the design descriptions, interface requirements, and site parameters are derived from Tier 2 information, the applicant should provide this information in Tier 2. In addition, Tier 1 FSAR Section 1.0, "Introduction," states that the "information in the Tier 1 portion of the FSAR is extracted from the detailed information contained in Tier 2".

This information is needed in Tier 2 in order for the staff to complete its review as noted below;

- SARHS as it relates to the GDC 2. Tier 1, Table 2.3.3-1 indicates that all of the SAHRS components are not built to either seismic category I or II.
- SARHS as it related to 10 CRF20.1406 which needs to be evaluated for the minimization of the spread of contamination during system testing.

Question 9.2.2-81: In the applicant's response to item B.2, it was noted there was no basis for the 40 gallon buffer tanks. Provide the basis for the 40 gallon in the RAI response and add information to the FSAR as required.

**Response to Question 09.02.02-106:**

A response to this question will be provided by June 25, 2010.

**Question 09.05.04-21:****Follow-up to RAI 152, Question 09.05.04-15**

Tier 1, Section 2.5.4, Subsection 3.1 of the U.S. EPR FSAR was revised in Revision 1 to state that "Equipment listed in Table 2.5.4-1 as ASME Code Section III is designed, welded, and hydrostatically tested in accordance with ASME Code Section III." ASME Section III specifies requirements for materials, design, fabrication, examination, testing, overpressure relief, marking, stamping and preparation of reports for equipment and for equipment supports. To clarify that the ASME Code Section III equipment and equipment supports provided for the DGFOSTS are in accordance with all of the applicable requirements of the Code, the applicant should revise this subsection either to state that the "construction" of the DGFOSTS equipment and equipment supports is in accordance with ASME Code Section III (ASME uses the word "construction" as an all-inclusive term comprising all of the aspects of the Code requirements) or to state that the materials, design, fabrication, examination, testing, overpressure relief, marking, stamping, and preparation of reports for ASME Code Section III DGFOSTS equipment and equipment supports are all in accordance with ASME Code Section III. Note that this RAI is applicable to all of the EDG support systems' equipment and equipment supports as described in FSAR Sections 9.5.4 through 9.5.8. The RAI will not be repeated for each section of the FSAR and the resolution will be tracked against Section 9.5.4 only.

**Response to Question 09.05.04-21:**

A response to this question will be provided by June 25, 2010.

**Question 09.05.04-22:****Follow-up to RAI 152, Question 09.05.04-15**

Tier 1, Section 2.5.4, Subsections 3.16 through 3.20 of the U.S. EPR FSAR were added for Revision 1 to describe the applicability of ASME Code Section III to all of the EDG support system piping. This revision to the FSAR also deleted Subsection 3.3 which stated that the design of piping supports is in accordance with ASME Code Section III. As noted in RAI 9.5.4-21 for DGFOSTS equipment, the revised FSAR commitments address some, but not all of the requirements of ASME Code Section III. The revised FSAR also does not include the Code commitment for piping supports. To clarify that the ASME Code Section III piping and piping supports provided for the DGFOSTS are in accordance with all of the applicable requirements of the Code, the applicant should revise these subsections either to state that the construction of the DGFOSTS piping and supports is in accordance with ASME Code Section III or to state that the materials, design, fabrication, examination, testing, overpressure relief, marking, stamping, and preparation of reports for ASME Code Section III DGFOSTS piping and piping supports are all in accordance with ASME Code Section III. Note that this RAI is applicable to all of the EDG support systems' piping and piping supports as described in FSAR Sections 9.5.4 through 9.5.8. The RAI will not be repeated for each section of the FSAR and the resolution will be tracked against Section 9.5.4 only.

**Response to Question 09.05.04-22:**

A response to this question will be provided by June 25, 2010.

**Question 09.05.04-23:****Follow-up to RAI 152, Question 09.05.04-15**

The revisions to Tier 1, Section 2.5.4, Subsections 3.1 and 3.16 through 3.20 of the U.S. EPR FSAR made in FSAR Revision 1 were also incorporated in Tier 1, Table 2.5.4-4 as revised ITAAC Item 3.1 and new ITAAC Items 3.16 through 3.20. Each of these ITAAC items should be revised as described above for the DGFOSTS equipment, piping and supports. In addition, the acceptance criteria such as "Equipment...has been welded..." and "Equipment...has been hydrostatically tested..." should be revised to require verification of the existence and certification of the appropriate ASME Code Section III documentation that should be provided for each equipment item that is in accordance with ASME Code Section III. This documentation includes, but is not necessarily limited to, design specifications, design reports, data reports and load capacity data sheets, as applicable. Therefore the applicant should revise Tier 1, Table 2.5.4-4, Items 3.1 and 3.16 through 3.20 to reflect the changes made in response to RAIs 9.5.4-21 and 9.5.4-22, as well as revise the acceptance criteria to require verification of the appropriate ASME Code Section III documentation. Note that this RAI is applicable to all of the EDG support systems as described in FSAR Sections 9.5.4 through 9.5.8. The RAI will not be repeated for each section of the FSAR and the resolution will be tracked against Section 9.5.4 only.

**Response to Question 09.05.04-23:**

A response to this question will be provided by June 25, 2010.

**Question 09.05.04-24:****Follow-up to RAI 152, Question 09.05.04-15**

Tier 1 Table 2.5.4-1 includes a column to indicate the required function of each of the system components listed. However, the function descriptions added for FSAR Revision 1 are too general to serve any purpose. For example, the function of the fuel oil storage tanks is indicated as "Storage Volume". The tank's function is to store a 7-day supply of oil volume and that should be included in the description of the function. Another example is the function indicated for the fuel oil transfer pumps which is "Run". The specific function is to run and supply oil at the required flow rate and pressure for continuous EDG operation at rated conditions. A final example is that of the check valves whose function is listed as "Open, Close". A check valve's function is to allow flow in only one direction through the system. These are some examples – the entire list should be revised as appropriate to more specifically describe the required functions of the components. As an alternative, the column could be deleted since the function of most components is apparent from the name of the component and/or the description in the FSAR text. If the column is deleted, Tier 1, Section 2.5.4, Subsection 3.13 and Subsection 9.5 of the FSAR would have to be revised accordingly. Note that this RAI is applicable to all of the EDG support systems as described in FSAR Sections 9.5.4 through 9.5.8. The RAI will not be repeated for each section of the FSAR and the resolution will be tracked against Section 9.5.4 only.

**Response to Question 09.05.04-24:**

A response to this question will be provided by June 25, 2010.

**Question 09.05.04-25:**

**Follow-up to RAI 152, Question 09.05.04-15**

In response to RAI 09.05.04-10, the applicant verified that the fuel oil storage tank capacity will be based on the fuel consumption of each diesel generator while operating at the continuous rating for seven days, plus an additional ten percent for surveillance testing. This is one acceptable method in ANSI/ANS 59.51 for determining tank capacity. However, Item 3.9 of Tier 1 Table 2.5.4-4 states the acceptance criteria for the fuel oil storage tanks as "greater than the volume of fuel oil consumed by the EDG operating at the continuous rating for seven days" without noting the additional 10 percent margin. The applicant should revise Item 3.9 to include the 10 percent margin.

**Response to Question 09.05.04-25:**

A response to this question will be provided by June 25, 2010.