

## ArevaEPRDCPEm Resource

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**From:** Tesfaye, Getachew  
**Sent:** Thursday, August 23, 2012 3:49 PM  
**To:** 'usepr@areva.com'  
**Cc:** Dehmel, Jean-Claude; McCoppin, Michael; Jaffe, David; Segala, John; ArevaEPRDCPEm Resource  
**Subject:** Draft - U.S. EPR Design Certification Application RAI No. 557 (6690), FSAR Ch. 14, New Phase 4 RAI  
**Attachments:** Draft RAI\_557\_RPAC\_6690.doc

Attached please find draft RAI No. 557 regarding your application for standard design certification of the U.S. EPR. If you have any question or need clarifications regarding this RAI, please let me know as soon as possible, I will have our technical Staff available to discuss them with you.

Please also review the RAI to ensure that we have not inadvertently included proprietary information. If there are any proprietary information, please let me know within the next ten days. If I do not hear from you within the next ten days, I will assume there are none and will make the draft RAI publicly available.

Thanks,  
Getachew Tesfaye  
Sr. Project Manager  
NRO/DNRL/LB1  
(301) 415-3361

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**From:** Tesfaye, Getachew

**Created By:** Getachew.Tesfaye@nrc.gov

**Recipients:**

"Dehmel, Jean-Claude" <Jean-Claude.Dehmel@nrc.gov>  
Tracking Status: None  
"McCoppin, Michael" <Michael.McCoppin@nrc.gov>  
Tracking Status: None  
"Jaffe, David" <David.Jaffe@nrc.gov>  
Tracking Status: None  
"Segala, John" <John.Segala@nrc.gov>  
Tracking Status: None  
"ArevaEPRDCPEm Resource" <ArevaEPRDCPEm.Resource@nrc.gov>  
Tracking Status: None  
"usepr@areva.com" <usepr@areva.com>  
Tracking Status: None

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Request for Additional Information 557 (6690), Revision 0

Issue Date: 8/23/2012

Application Title: U. S. EPR Standard Design Certification - Docket Number 52-020  
AREVA NP Inc.

Review Section: 14.03.07 - Plant Systems - Inspections, Tests, Analyses, and Acceptance Criteria  
Application Section: 14.3

## QUESTIONS

14.03.07-39

### OPEN ITEM

#### New Phase 4 RAI

In FSAR Tier 2, Rev. 3, Table 1.9-2, the applicant has endorsed the use of Regulatory Guide (RG) 1.143, "Design Guidance for Radioactive Waste Management Systems, Structures, and Components Installed in Light-Water-Cooled Nuclear Power Plants," Rev. 2, with no exceptions (heretofore simply referred as RG 1.143). FSAR Table 1.9-2 states that the guidance of RG 1.143 applies to structures, systems, and components (SSCs) described in FSAR Tier 2, Rev. 3, Sections 3.2.1, 3.7.2, 3.10, 10.4.8, 11.2, 11.3, and 11.4.

RG 1.143 lists applicable codes and standards that are acceptable to the NRC. The codes and standards address specifications on design and construction, materials, welding, and inspection and testing. The regulatory guide identifies natural and man-induced hazards, design loads, and design criteria and associated safety classifications. The safety classifications are RW-IIa (high hazard), RW-IIb (hazardous), and RW-IIc (non-safety), with radiological criteria assigned to each one. The evaluation process of SSCs is described in Regulatory Position C.5, which focuses on acceptable radiological criteria, while Regulatory Position C.6 addresses natural phenomena and man-induced events and combination of design loads and their applicability to the safety classification system.

As part of the review of the FSAR Tier 2, Rev. 3, Sections 3.2.1, 3.7.2, 3.10, 10.4.8, 11.2, 11.3, and 11.4, the staff (**Health physics and Structural**) has identified a number of inconsistencies that warrant clarification to ensure that RG 1.143 guidance is properly applied in FSAR Tier 1 and 2 and provide the necessary technical basis to support the related FSAR Tier 1 ITAAC commitments. The staff has issued a separate RAI on FSAR Tier 2 on the related SSCs.

The applicant is requested to review the following items and confirm and revise all appropriate Tier 1, sections, tables, and figures, accordingly. The applicant is requested to review and confirm the adequacy of ITAAC for the above SSCs given the commitment to apply the guidance of RG 1.143 (see Tables 2, 3, and 4) for natural phenomena and man-induced hazards, which include an earthquake, wind, tornado, tornado generated missiles, flood, precipitation, accidental explosions from a fixed facility and a transportation vehicle, vehicular assault, and crash of a small aircraft. The applicant should use these as examples of the staff's concern and review the FSAR beyond those sections identified by the staff in this RAI to ensure a consistent approach in assigning ITAAC consistent with the commitment to comply with the guidance of RG 1.143 and demonstrate compliance with GDC 2, 60 and 61 and Part 20 requirements. While this RAI is issued on FSAR Tier 1, Rev. 3, Section 2, it should be noted that its applicability extends to other SSCs (as noted below). The staff deems it more effective to issue a single RAI in avoiding unnecessary duplication and facilitate an integrated review and resolution of the staff's concerns across all relevant FSAR sections since RG 1.143 applies to the LWMS, GWMS, SWMS, and SG Blowdown systems with associated system descriptions given in FSAR Tier 2, Sections 10.4.8 and 11.2 to 11.4.

The applicant is requested to review and confirm the adequacy of ITAAC for the above SSCs given the commitment to apply the guidance of RG 1.143 for natural phenomena and man-induced hazards, as noted above:

- a. FSAR Tier 1, Rev. 3, Section 2.1.4 ITAAC assigns RG 1.143, RW-IIa classification to the key design features of the RWB. The design commits to ½ SSE, with deviations evaluated if found during construction. However, there are no ITAAC commitments identified for the other natural phenomena and man-induced hazards and design loads stipulated in RG 1.143, Tables 2, 3, and 4.
- b. A review of FSAR Tier 1, Rev. 3, Section 2.8.8 indicates that there are no ITAAC assigned to the SG blowdown treatment systems. FSAR Tier 1, Rev. 3, Section 2.8.7 describes specific commitments for the SG blowdown system, but no references are made to RG 1.143. Accordingly, it is unclear as to how would the applicant confirm that system components have been designed and built in compliance with these FSAR Tier 2 commitments as RW-IIc under RG 1.143 for natural phenomena and design loads stipulated in RG 1.143, Tables 2, 3, and 4.
- c. A review of FSAR Tier 1, Rev. 3, Section 2.1.3 describes specific commitments for the NAB, but no references are made to RG 1.143 given that NAB is assigned dual classification, Category II and Radwaste Seismic (RS). Accordingly, it is unclear as to how would the applicant confirm that the NAB is designed and built in compliance with these FSAR Tier 2 commitments under RG 1.143 for natural phenomena and man-induced hazards and design loads stipulated in RG 1.143, Tables 2, 3, and 4.
- d. A review of FSAR Tier 1, Rev. 3, Section 2.9.1 describes specific commitments for the LWMS, but no references are made to RG 1.143, given a RW-IIa classification. Accordingly, it is unclear as to how would the applicant confirm that the LWMS is designed and built in compliance with these FSAR Tier 2 commitments under RG 1.143 for natural phenomena and man-induced hazards and design loads stipulated in RG 1.143, Tables 2, 3, and 4.
- e. A review of FSAR Tier 1, Rev. 3, Section 2.9.2 describes specific commitments for the SWMS, but no references are made to RG 1.143, given a RW-IIa classification. Accordingly, it is unclear as to how would the applicant confirm that the SWMS is designed and built in compliance with these FSAR Tier 2 commitments under RG 1.143 for natural phenomena and man-induced hazards and design loads stipulated in RG 1.143, Tables 2, 3, and 4.
- f. A review of FSAR Tier 1, Rev. 3, Section 2.9.3 describes specific commitments for the GWMS, but no references are made to RG 1.143, given a RW-IIa and RW-IIc classification for portions of the CVCS tanks piping to the GWMS. Accordingly, it is unclear as to how would the applicant confirm that the GWMS (and interface to another system) are designed and built in compliance with these FSAR Tier 2 commitments under RG 1.143 for natural phenomena and man-induced hazards and design loads stipulated in RG 1.143, Tables 2, 3, and 4.