ArevaEPRDCPEm Resource

From: Getachew Tesfaye
Sent: Monday, January 19, 2009 9:02 AM
To: 'usepr@areva.com'
Cc: Anne-Marie Grady; Edward Fuller; Theresa Clark; Hanh Phan; Christopher Jackson; Lynn Mrowca; John Rycyna; Joseph Colaccino; Meena Khanna; ArevaEPRDCPEm Resource
Subject: Draft - U.S. EPR Design Certification Application RAI No. 181 (1980), FSAR Ch. 19
Attachments: Draft RAI_181_SPCV_1980.doc

Attached please find draft RAI No. 181 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/NARP
(301) 415-3361

Hearing Identifier: AREVA_EPR_DC_RAIs
Email Number: 128

Mail Envelope Properties (C56E360E9D804F4B95BC673F886381E71D232C3015)

Subject: Draft - U.S. EPR Design Certification Application RAI No. 181 (1980), FSAR Ch. 19
Sent Date: 1/19/2009 9:01:53 AM
Received Date: 1/19/2009 9:01:54 AM
From: Getachew Tesfaye

Created By: Getachew.Tesfaye@nrc.gov

Recipients:
"Anne-Marie Grady" <Anne-Marie.Grady@nrc.gov>
Tracking Status: None
"Edward Fuller" <Edward.Fuller@nrc.gov>
Tracking Status: None
"Theresa Clark" <Theresa.Clark@nrc.gov>
Tracking Status: None
"Hanh Phan" <Hanh.Phan@nrc.gov>
Tracking Status: None
"Christopher Jackson" <Christopher.Jackson@nrc.gov>
Tracking Status: None
"Lynn Mrowca" <Lynn.Mrowca@nrc.gov>
Tracking Status: None
"John Rycyna" <John.Rycyna@nrc.gov>
Tracking Status: None
"Joseph Colaccino" <Joseph.Colaccino@nrc.gov>
Tracking Status: None
"Meena Khanna" <Meena.Khanna@nrc.gov>
Tracking Status: None
"ArevaEPRDCPEm Resource" <ArevaEPRDCPEm.Resource@nrc.gov>
Tracking Status: None
"'usepr@areva.com'" <usepr@areva.com>
Tracking Status: None

Post Office: HQCLSTR02.nrc.gov

Files	**Size**	**Date & Time**
MESSAGE	722	1/19/2009 9:01:54 AM
Draft RAI_181_SPCV_1980.doc	33786	

Options
Priority: Standard
Return Notification: No
Reply Requested: No
Sensitivity: Normal
Expiration Date:
Recipients Received:

Draft

Request for Additional Information No. 181 (1980), Revision 0

1/19/2009

U. S. EPR Standard Design Certification
AREVA NP Inc.
Docket No. 52-020
SRP Section: 19 - Probabilistic Risk Assessment and Severe Accident Evaluation
Application Section: 19.0

QUESTIONS for Containment and Ventilation Branch 1 (AP1000/EPR Projects) (SPCV)

19-271

The purpose of the regulation, 10 CFR 50.34(f)(3)(iv) – Dedicated Containment Penetration, is to protect the integrity of the containment should containment pressure continue to rise, for any reason, during the course of a severe accident.

FSAR section 19.2.3.3.8 states that the U. S. EPR has not been designed with a dedicated severe accident containment vent system, and that specific containment overpressure protection is provided in part through the availability of 47 passive autocatalytic recombiners (PARs) and the severe accident heat removal system (SAHRS). The former would remove hydrogen and the latter would remove steam, both principal contributors to high containment pressure during a severe accident.

Avoiding containment failure due to overpressure is dependent on the successful operation of the SAHRS. In one AREVA MAAP U. S. EPR Severe Accident calculation of the containment pressurization due to the failure of the containment spray function of the SAHRS, containment pressure would continue to increase for at least 80 hours and would exceed the ultimate containment pressure of 119 psig. The containment would be vulnerable to failure and an uncontrolled release of fission products to the environment. If the U. S. EPR design includes any other systems or components that could accomplish the function of the dedicated containment penetration, then the system and components should be identified and their capabilities should be described in the FSAR.

19-272

The purpose of the regulation, 10 CFR 50.34(f)(3)(iv) – Dedicated Containment Penetration, is to protect the integrity of the containment should containment pressure continue to rise, for any reason, during the course of a severe accident.

FSAR section 19.2.3.3.8 states that the U. S. EPR has not been designed with a dedicated severe accident containment vent system, and that specific containment overpressure protection is provided, in part, through its large size and strength. Provide the following additional information regarding the U. S. EPR containment size and strength:

1. Compare/contrast the size of the U.S. EPR's containment with consideration of free volume and stored energy to existing PWR's and other new reactor designs.

Provide additional discussion as to how this feature constitutes a design margin not shared by other reactors subject to the rule.

2. Discuss how the U.S. EPR's strength is different from existing containment designs or other proposed new designs such that its strength is considered a special circumstance. Comparison to existing designs is recommended.

19-273

By AREVA letter NRC-07-075, dated 11 December 2007, Request for Two Exemptions for the U.S. EPR Standard Design Certification, AREVA NP requested an exemption from the requirements of 10 CFR 50.34(f)(3)(iv) with respect to providing a dedicated containment penetration. AREVA states that the U.S. EPR design does not utilize a dedicated containment penetration because a dedicated containment penetration is not required for containment overpressure protection.

Provide additional discussion in support of the statement "application of the rule is not necessary to achieve the underlying purpose of the rule" and AREVA's understanding of the purpose of the rule.