## ArevaEPRDCPEm Resource

**From:** DUNCAN Leslie E (AREVA NP INC) [Leslie.Duncan@areva.com]
**Sent:** Thursday, February 04, 2010 3:14 PM
**To:** Tesfaye, Getachew
**Cc:** DELANO Karen V (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. 277, FSAR Ch. 9, Supplement 2
**Attachments:** RAI 277 Supplement 2 Response US EPR DC.pdf

Getachew,

AREVA NP Inc. provided responses to 5 of the 12 questions of RAI No. 277 on October 16, 2009. AREVA NP submitted Supplement 1 to the response on December 9, 2009 to provide a revised schedule. The attached file, "RAI 277 Supplement 2 Response US EPR DC.pdf" provides a technically correct and complete response to one of the remaining seven questions. The schedule for the remaining six questions has been revised.

Appended to this file are affected pages of the U.S. EPR Final Safety Analysis Report in redline-strikeout format which supports the response to RAI 277 Question 09.04.03-2.

The following table indicates the respective pages in the response document, "RAI 277 Supplement 2 Response US EPR DC.pdf," that contain AREVA NP's response to the subject question.

| Question # | Start Page | End Page |
|---|---|---|
| RAI 277 — 09.04.03-2 | 2 | 2 |

The schedule for technically correct and complete responses to the remaining questions has been changed and is provided below:

| Question # | Response Date |
|---|---|
| RAI 277 — 09.02.05-21 | March 12, 2010 |
| RAI 277 — 09.04.01-1 | April 14, 2010 |
| RAI 277 — 09.04.02-1 | April 14, 2010 |
| RAI 277 — 09.04.03-1 | April 14, 2010 |
| RAI 277 — 09.04.03-3 | April 14, 2010 |
| RAI 277 — 09.04.05-2 | April 14, 2010 |

Sincerely,

Les Duncan
Licensing Engineer
**AREVA NP Inc.**
An AREVA and Siemens Company
Tel: (434) 832-2849
Leslie.Duncan@areva.com

---

**From:** Pederson Ronda M (AREVA NP INC)
**Sent:** Wednesday, December 09, 2009 4:03 PM
**To:** 'Tesfaye, Getachew'

**Cc:** BENNETT Kathy A (OFR) (AREVA NP INC); DELANO Karen V (AREVA NP INC); KOWALSKI David J (AREVA NP INC)
**Subject:** Response to U.S. EPR Design Certification Application RAI No. 277, FSAR Ch. 9, Supplement 1

Getachew,

AREVA NP Inc. provided responses to 5 of the 12 questions of RAI No. 277 on October 16, 2009. AREVA NP also provided a schedule for technically correct and complete responses to the remaining 7 questions.

Since responses to the remaining questions remain in process, a revised schedule is provided in this email.

The schedule for technically correct and complete responses to the remaining questions has been changed as provided below:

| Question # | Response Date |
|---|---|
| RAI 277 — 09.02.05-21 | February 4, 2010 |
| RAI 277 — 09.04.01-1 | February 4, 2010 |
| RAI 277 — 09.04.02-1 | February 4, 2010 |
| RAI 277 — 09.04.03-1 | February 4, 2010 |
| RAI 277 — 09.04.03-2 | February 4, 2010 |
| RAI 277 — 09.04.03-3 | February 4, 2010 |
| RAI 277 — 09.04.05-2 | February 4, 2010 |

Sincerely,

*Ronda Pederson*
ronda.pederson@areva.com
Licensing Manager, U.S. EPR Design Certification
**AREVA NP Inc.**
An AREVA and Siemens company
3315 Old Forest Road
Lynchburg, VA 24506-0935
Phone: 434-832-3694
Cell: 434-841-8788

---

**From:** Pederson Ronda M (AREVA NP INC)
**Sent:** Friday, October 16, 2009 5:33 PM
**To:** 'Tesfaye, Getachew'
**Cc:** BENNETT Kathy A (OFR) (AREVA NP INC); DELANO Karen V (AREVA NP INC); KOWALSKI David J (AREVA NP INC)
**Subject:** Response to U.S. EPR Design Certification Application RAI No. 277, FSAR Ch. 9

Getachew,

Attached please find AREVA NP Inc.'s response to the subject request for additional information (RAI). The attached file, "RAI 277 Response US EPR DC.pdf" provides technically correct and complete responses to 5 of the 12 questions.

Appended to this file are affected pages of the U.S. EPR Final Safety Analysis Report in redline-strikeout format which supports the response to RAI 277 Questions 09.04.02-2, 09.04.04-1, and 09.05.01-71.

The following table indicates the respective page(s) in the response document, "RAI 277 Response US EPR DC.pdf," that contain AREVA NP's response to the subject questions.

| Question # | Start Page | End Page |
|---|---|---|
| RAI 277 — 09.02.05-21 | 2 | 2 |
| RAI 277 — 09.04.01-1 | 3 | 3 |
| RAI 277 — 09.04.02-1 | 4 | 4 |
| RAI 277 — 09.04.02-2 | 5 | 5 |
| RAI 277 — 09.04.03-1 | 6 | 6 |
| RAI 277 — 09.04.03-2 | 7 | 7 |
| RAI 277 — 09.04.03-3 | 8 | 8 |
| RAI 277 — 09.04.04-1 | 9 | 10 |
| RAI 277 — 09.04.04-2 | 11 | 11 |
| RAI 277 — 09.04.05-2 | 12 | 12 |
| RAI 277 — 09.05.01-71 | 13 | 13 |
| RAI 277 — 09.05.06-12 | 14 | 14 |

A complete answer is not provided for 7 of the 12 questions. The schedule for a technically correct and complete response to these questions is provided below.

| Question # | Response Date |
|---|---|
| RAI 277 — 09.02.05-21 | December 10, 2009 |
| RAI 277 — 09.04.01-1 | December 10, 2009 |
| RAI 277 — 09.04.02-1 | December 10, 2009 |
| RAI 277 — 09.04.03-1 | December 10, 2009 |
| RAI 277 — 09.04.03-2 | December 10, 2009 |
| RAI 277 — 09.04.03-3 | December 10, 2009 |
| RAI 277 — 09.04.05-2 | December 10, 2009 |

Sincerely,

*Ronda Pederson*
ronda.pederson@areva.com
Licensing Manager, U.S. EPR Design Certification
**AREVA NP Inc.**
An AREVA and Siemens company
3315 Old Forest Road
Lynchburg, VA 24506-0935
Phone: 434-832-3694
Cell: 434-841-8788

---

**From:** Tesfaye, Getachew [mailto:Getachew.Tesfaye@nrc.gov]
**Sent:** Wednesday, September 16, 2009 12:52 PM
**To:** ZZ-DL-A-USEPR-DL
**Cc:** Wheeler, Larry; Segala, John; ODriscoll, James; Jackson, Christopher; Snodderly, Michael; McCann, Edward; Radlinski, Robert; Wolfgang, Robert; Hearn, Peter; Colaccino, Joseph; ArevaEPRDCPEm Resource
**Subject:** U.S. EPR Design Certification Application RAI No. 277(3538,3371,3372,3376,3374,3375,3399,2995)), FSAR Ch. 9

Attached please find the subject requests for additional information (RAI). A draft of the RAI was provided to you on August 17, 2009, and discussed with your staff on August 31, 2009. Draft RAI Questions 09.05.01-70 was deleted as a result of that discussion. 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:** 1131

**Mail Envelope Properties** (F322AA625A7A7443A9C390B0567503A1018DCC98)

**Subject:** Response to U.S. EPR Design Certification Application RAI No. 277, FSAR Ch. 9, Supplement 2
**Sent Date:** 2/4/2010 3:14:18 PM
**Received Date:** 2/4/2010 3:19:10 PM
**From:** DUNCAN Leslie E (AREVA NP INC)

**Created By:** Leslie.Duncan@areva.com

**Recipients:**
"DELANO Karen V (AREVA NP INC)" <Karen.Delano@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:** AUSLYNCMX01.adom.ad.corp

| **Files** | **Size** | **Date & Time** |
|---|---|---|
| MESSAGE | 6467 | 2/4/2010 3:19:10 PM |
| RAI 277 Supplement 2 Response US EPR DC.pdf | 123881 | |

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

**Response to**

**Request for Additional Information No. 277, Supplement 2**

**9/16/2009**

**U.S. EPR Standard Design Certification**
**AREVA NP Inc.**
**Docket No. 52-020**
**SRP Section: 09.02.05 - Ultimate Heat Sink**
**SRP Section: 09.04.01 - Control Room Area Ventilation System**
**SRP Section: 09.04.02 - Spent Fuel Pool Area Ventilation System**
**SRP Section: 09.04.03 - Auxiliary and Radwaste Area Ventilation System**
**SRP Section: 09.04.04 - Turbine Area Ventilation System**
**SRP Section: 09.04.05 - Engineered Safety Feature Ventilation System**
**SRP Section: 09.05.01 - Fire Protection Program**
**SRP Section: 09.05.06 - Emergency Diesel Engine Starting System**

**Application Section: 9.2.9**

**QUESTIONS for Balance of Plant Branch 2 (ESBWR/ABWR) (SBPB)**
**QUESTIONS for Containment and Ventilation Branch 1 (AP1000/EPR Projects) (SPCV)**
**QUESTIONS for Balance of Plant Branch 1 (AP1000/EPR Projects) (SBPA)**

**Question 09.04.03-2:**

There is an inconsistency between figure 9.4.12-1 and FSAR section 9.4.12.1 regarding the Seismic classification of the Main Steam and Feedwater Valve Room Ventilation System (VRVS). Section 9.4.12.1 states VRVS is supplemented grade (NS-AQ), designed to Seismic Category II, the Figure 9.4.12-1 identifies the components as SSC Quality Group "E" (non safety related) and SSC Seismic class "NSC" (non-seismic). Please clarify. If non-seismic is selected, justify the non-seismic design.

**Response to Question 09.04.03-2:**

The main steam and feedwater valve room ventilation system (VRVS) is classified as non-safety-related and non-seismic. The VRVS does not perform any safety-related functions and the system is not required to operate during a design basis accident (DBA).

Justification for assigning this safety and seismic classification to the VRVS is provided below:

> The only purpose of the VRVS is to maintain an acceptable temperature in the main steam (MS) and feedwater (FW) valve rooms for personnel accessibility. This system is not required to cool any equipment in these rooms. The MS and FW piping, valves and other related components are insulated to maintain an outside insulation surface design temperature of $140^0$F. The VRVS equipment is sized to maintain the valve room temperature between $50^0$F and $104^0$F. All safety-related valves and related components in the valve rooms operate automatically; manual operation of the equipment is not required during normal plant operation or DBA events. Accessibility to the valve rooms is only required to perform normal maintenance or routine inspection. The design principals for routing the VRVS equipment will be followed to establish credible fall zones during a seismic event so that the safety function for MS and FW valves and other related components is not adversely affected.

U.S. EPR FSAR Tier 2, Section 9.4.12.1 will be revised to state that the safety and seismic classification of VRVS components is provided in Section 3.2. These classifications are consistent with those identified in U.S. EPR FSAR Tier 2, Figure 9.4.12-1—Main Steam and Feedwater Valve Room Ventilation System.

**FSAR Impact:**

U.S. EPR FSAR Tier 2, Section 9.4.12.1 will be revised as described in the response and indicated on the enclosed markup.

# U.S. EPR Final Safety Analysis Report Markups

## 9.4.12 Main Steam and Feedwater Valve Room Ventilation System

The main steam and feedwater valve room ventilation system (VRVS) is designed to maintain ventilation and ambient temperatures to allow personnel access for the following areas:

- Main steam valve rooms.
- Feedwater valve rooms.
- Steam generator blowdown valve room.

### 9.4.12.1 Design Bases

09.04.03-2 ~~All components of the VRVS are supplemented grade (NS-AQ), and designed to Seismic Category II requirements.~~ The VRVS performs no safety-related functions and the system is not required to operate during a design basis accident (DBA). The safety and seismic classification of VRVS components is provided in Section 3.2.

The VRVS is designed to maintain a minimum temperature of 50°F and a maximum temperature of 104°F in the valve rooms for personnel accessibility during normal plant operation and planned shutdowns.

### 9.4.12.2 System Description

#### 9.4.12.2.1 General Description

A simplified diagram of the VRVS for divisions 1, 2, 3 and 4, is shown in Figure 9.4.12-1—Main Steam and Feedwater Valve Room Ventilation System.

The room air flow rates are calculated based on the heat released by operating equipment, lighting, external loads, and heat loads from adjacent rooms.

The recirculation cooling unit for each valve room is comprised of the following components:

- Recirculation ductwork to supply and extract air to and from the rooms.
- Cooling coils connected to operational chilled water system.
- Moisture separator.
- Recirculation fan.

The room hot air is recirculated by the recirculation fan through the air inlet duct and cooling coils. The cool air is supplied back to the room through the air outlet duct. Electric heaters are located in each room to maintain the minimum room temperature during normal operations.