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Document Control Desk U.S. Nuclear Regulatory Commission Washington, D.C. 20555-0001

# Response to U.S. EPR Design Certification Application RAI No. 47, Question 18-29, Request for Exemption from 10 CFR 50.34(f)(2)(iv)

- Ref. 1: Letter, Sandra M. Sloan (AREVA NP Inc.) to Document Control Desk (NRC), "Application for Standard Design Certification of the U.S. EPR (Project No. 733)," NRC:07:070, December 11, 2007.
- Ref. 2: E-mail, Getachew Tesfaye (NRC) to AREVA NP Inc., "U.S. EPR Design Certification Application RAI No. 47 (829, 842, 880), FSAR Ch 18," August 22, 2008.
- Ref. 3: E-mail, Russell D. Wells (AREVA NP Inc.) to Getachew Tesfaye (NRC), "Response to U.S. EPR Design Certification Application RAI No. 47, FSAR Ch 18," September 22, 2008.

In Reference 1, AREVA NP Inc. (AREVA NP) tendered an application for a standard design certification for the U.S. EPR. In Reference 2, the NRC provided a request for additional information (RAI) regarding the U.S. EPR design certification application which stated that an exemption must be processed because 10 CFR 50.34 specifies a safety parameter display console.

AREVA NP requests an exemption pursuant to 10 CFR 50.12(a)(2)(ii) from 10 CFR 50.34(f)(2)(iv) – Safety Parameter Display System (SPDS) Console. Information supporting the exemption request is contained in Attachment 1. This letter closes AREVA NP's commitment to seek an exemption, as stated in Reference 2, Response to RAI No. 48, Question 18-29.

AREVA NP has concluded that special circumstances defined in 10 CFR 50.12 exist to warrant the exemption. Granting the exemption request will not present undue risk to the public health and safety and is consistent with the common defense and security.

AREVA NP requests approval of the exemption concurrent with the approval of the application for design certification of the U.S. EPR. AREVA NP indicated in the U.S. EPR Final Safety Analysis Report (FSAR) that the SPDS function would be integrated into the U.S. EPR digital protection and control systems. Based on the NRC's review of the FSAR, a subsequent RAI regarding the Human Factors Engineering program as described in Chapter 18 of the FSAR was sent to AREVA NP. In the RAI related to the SPDS, the NRC stated that an exemption would be required based on current

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regulation 10 CFR 50.34(f)(2)(iv) in deference to the allowance for integration of the SPDS described in NUREG-0800, Standard Review Plan (SRP).

Sincerely,

Sandra M. Aloan

Sandra M. Sloan, Manager New Plants Regulatory Affairs AREVA NP Inc.

Enclosures

cc: J. Rycyna G. Tesfaye Docket No. 52-020

## Attachment 1

## 10CFR50.34(f)(2)(iv) Exemption Request

In accordance with 10 CFR 50.12, Specific Exemptions, AREVA NP Inc. requests an exemption from the requirements of 10 CFR 50.34(f)(2)(iv) with respect to providing a Safety Parameter Display System (SPDS) console.

Requirement: Provide a plant safety parameter display console that will display to operators a minimum set of parameters defining the safety status of the plant, important plant parameter and data trends on demand, and capable of indication when process limits are being approached or exceeded.

U.S. EPR FSAR, Tier 2, Section 18.7.1.3.3 describes the SPDS for the U.S EPR. The design addresses the regulatory requirements in accordance with NUREG-0800 by integrating the SPDS requirements into the design requirements for the Process Information and Control System (PICS) and the Safety Information and Control System (SICS), rather than use a standalone, add-on system as is used at most currently operating plants. In NUREG-0800, the staff indicated that for applicants who are in the early stages of the control room design, the "function of a separate SPDS may be integrated into the overall control room design."

However, because the 10 CFR 50.34 regulation specifies a safety parameter display console, it has been determined that an exemption must be processed. The exemption must conform to the special circumstances described in 10 CFR 50.12(a)(2)(ii).

10 CFR 50.12 states that the Commission may grant an exemption from requirements contained in 10 CFR 50 provided that: 1) the exemption is authorized by law, 2) the exemption will not present an undue risk to public health and safety, 3) the exemption is consistent with the common defense and security, and 4) special circumstances, as defined in 10 CFR 50.12(a)(2) are present. These requirements are satisfied as described below.

#### 1. The requested exemption is authorized by law.

The exemption is not precluded by law.

## 2. The requested exemption does not present an undue risk to the public health and safety.

The U.S. EPR design integrates the SPDS requirements into the design requirements for the PICS and the SICS rather than use a stand-alone, add-on system as is used at most currently operating plants.

The SPDS criteria contained in 50.34(f)(2)(iv) to display to operators a minimum set of parameters defining the safety status of the plant, a full range of important plant parameters and data trends on demand, and indicate when process limits are being approached or exceeded are provided as a specially designed display on the PICS and the SICS. The SPDS display can be viewed on the PICS and SICS workstations as well as on the Plant Overview Panel (POP) (driven by the PICS) in the Main Control Room (MCR). Additionally, the SPDS display can be viewed on the PICS workstations in the Technical Support Center and the Remote Shutdown Station.

The display navigation and hierarchy is designed such that the operator does not have to search through plant operating displays to find the SPDS display. By integrating the SPDS display into the PICS and SICS workstations, as well as the POP, a convenient location is provided for personnel to readily view the SPDS display. Having the SPDS implemented in this manner makes it an integral part of day to day plant safety oversight and operations. AREVA NP is confident that an integrated approach is more effective and is consistent with new digital technologies and human factors best practices.

The U.S. EPR human system interface provides the status of the SPDS functions. The SPDS functions include:

- Reactivity control
- Reactor core cooling and heat removal from the primary system
- Reactor coolant system integrity
- Radioactivity control
- Containment conditions

The integrated U.S. EPR alarm system provides overview alarms addressing the five SPDS functions.

In the MCR, the SPDS display is provided on both the PICS and SICS workstations, which provides redundancy and equal accuracy in both systems. The response time of both the PICS and the SICS are equal to or better than the response times recommended in NUREG-1342. The response times will be verified during equipment Factory Acceptance Testing, initial, and final Integrated System Validation (ISV).

## 3. The requested exemption will not endanger the common defense and security.

As described above, the U.S. EPR design integrates the SPDS requirements into the design requirements for the PICS and the SICS rather than use a stand-alone, add-on system as is used at most currently operating plants.

## 4. Special circumstances are present.

The purpose of the plant safety parameter display console is to display important plant variables in the main control room in order to assist in rapidly and reliably determining the safety status of the plant. As described above, the U.S. EPR design integrates the SPDS requirements into the design requirements for the PICS and the SICS rather than a stand-alone, add-on system as is used at most currently operating plants. This accomplishes the intent of 10 CFR 50.34(f)(2)(iv). Therefore, the application of the rule is not necessary to achieve the underlying purpose of the rule.