Part 21 (PAR) Event # 50172

Rep Org: AREVA INC		**Notification Date / Time:** 06/04/2014 15:22	(EDT)
Supplier: AREVA INC		**Event Date / Time:** 06/04/2014	(PDT)
		Last Modification: 06/04/2014	
Region: 4	**Docket #:**		
City: RICHLAND	**Agreement State:**	Yes	
County:	**License #:**		
State: WA			
NRC Notified by: ALAN B MEGINNIS	**Notifications:**	DEBORAH SEYMOUR	R2DO
HQ Ops Officer: CHARLES TEAL		NICK TAYLOR	R4DO
Emergency Class: NON EMERGENCY		PART 21 GROUP	EMAIL
10 CFR Section:			
21.21(d)(3)(i) DEFECTS AND NONCOMPLIANCE			

PART 21 - DEFECT IDENTIFIED IN SINGLE LOOP OPERATION MINIMUM CRITICAL POWER RATIO

The following is a synopsis of information received via facsimile from AREVA:

AREVA identified a defect is in the calculation of the single loop operation (SLO) minimum critical power ratio (MCPR) operating limits for Browns Ferry Units 1, 2, and 3. Specifically, the defect is associated with the usage of non-conservative inputs in the SLO pump seizure analyses for the three plants, which results in non-conservative limits for SLO.

Individual informing the Commission:

Alan B. Meginnis, AREVA Inc., 2101 Horn Rapids Road, Richland, WA 99354.

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IE19
NRR

AREVA Inc.

FAX

To: NRC Operations Center	Date: 6/4/2014 Time in: 3:22 PM
	Pages to follow: 2
Company: U.S. NRC	From: Alan B. Meginnis
	Telephone: 509-375-8266 MB: 36
	☐ Original to be mailed ☒ Via fax only
Receiving fax: 301-816-5151	Sending fax: 434-382-5541
Telephone: 301-816-5100	Fax verification: 509-375-8266
Extra Distribution to:	

Message:
Please see attached defect notice

AREVA Inc.
2101 Horn Rapids Road
Richland, WA 99354-5102
Telephone: (509) 375-8100

Operator: _____

Log No.: _____ Time Sent: _____

Reportable Defect

(i) Name and address of the individual or individuals informing the Commission.

Alan B. Meginnis, AREVA Inc., 2101 Horn Rapids Road, Richland, WA99354.

(ii) Identification of the facility, the activity, or the basic component supplied for such facility or such activity within the United States which fails to comply or contains a defect.

The defect is in the calculation of the single loop operation (SLO) minimum critical power ratio (MCPR) operating limits for Browns Ferry Units 1, 2, and 3. Specifically, the defect is associated with the usage of non-conservative inputs in the SLO pump seizure analyses for the three plants, which resulted in non-conservative limits for SLO.

(iii) Identification of the firm constructing the facility or supplying the basic component which fails to comply or contains a defect.

AREVA Inc.

(iv) Nature of the defect or failure to comply and the safety hazard which is created or could be created by such defect or failure to comply.

This issue is a defect as defined in 10 CFR 21.3. The calculated MCPR is used to confirm that the core is operated within the required Operating Limit MCPR (OLMCPR). The OLMCPR is established to ensure that the Technical Specification Safety Limit MCPR (SLMCPR) is not violated during anticipated operational occurrences (AOOs). The defect in the SLO pump seizure analyses produced a non-conservative prediction of MCPR. If a SLO pump seizure occurred in any of the three Browns Ferry Units, and that reactor was operating on the specified OLMCPR, the technical specification MCPR safety limit could have been violated. Therefore, the issue is considered a defect.

(v) The date on which the information of such defect or failure to comply was obtained.

The issue was first documented in the AREVA Inc. Corrective Action Program on April 15, 2014.

(vi) In the case of a basic component which contains a defect or fails to comply, the number and location of these components in use at, supplied for, being supplied for, or may be supplied for, manufactured, or being manufactured for one or more facilities or activities subject to the regulations in this part.

The defect exists in the calculation of SLO MCPR for the following reactors:

Browns Ferry Unit 1
Browns Ferry Unit 2
Browns Ferry Unit 3

(vii) The corrective action which has been, is being, or will be taken; the name of the individual or organization responsible for the action; and the length of time that has been or will be taken to complete the action.

As the responsible organization, AREVA Inc. has provided recommended compensatory actions to all affected plants. The compensatory actions involve restricting the range of core power, core flow, and margin to thermal limits during single loop operation to compensate for the non-conservative prediction of SLO OLMCPR. The operability analyses used as a basis for the compensatory operating restrictions will be formally reviewed per AREVA's approved quality assurance process which complies with the criteria set forth in 10 CFR 50 Appendix B. AREVA Inc. will provide TVA the formal operating restrictions on core power, core flow, and margin to thermal limits applicable to Browns Ferry Unit 1 Cycle 10, Browns Ferry Unit 2 Cycle 18 and Browns Ferry Unit 3 Cycle 17. The schedule for completion of the formal documentation is July 31, 2014. Analyses and documentation for future operating cycles for the three units which are licensed by AREVA Inc. will occur on the normal reload schedules for cycle specific milestones.

(viii) Any advice related to the defect or failure to comply about the facility, activity, or basic component that has been, is being, or will be given to purchasers or licensees.

This defect only had the potential to violate the SLMCPR during SLO. The Browns Ferry plants never operated in SLO while they were supported by the supplied limits. Therefore, the plants never operated where SLMCPR could have been violated. Additionally, the current licensing methodology used by AREVA Inc. is believed to be overly conservative in determining thermal margins specific to the SLO pump seizure event. AREVA Inc. currently has a new high fidelity transient methodology under review by the USNRC referred to as AURORA-B. Scoping and preliminary SLO pump seizure analyses with this new method have demonstrated that thermal limits would not have had the potential to be violated if AURORA-B had been used for the licensing calculation. AURORA-B is not yet approved for licensing calculations, but does provide support that the current method is overly conservative.