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SUBJECT: Part 21 rept re delta CPR transient analysis error for feedwater controller failure event performed by Siemens Nuclear Power Corp.Feedwater transient actually occurred on 911119.Fuel cladding failure not possible.

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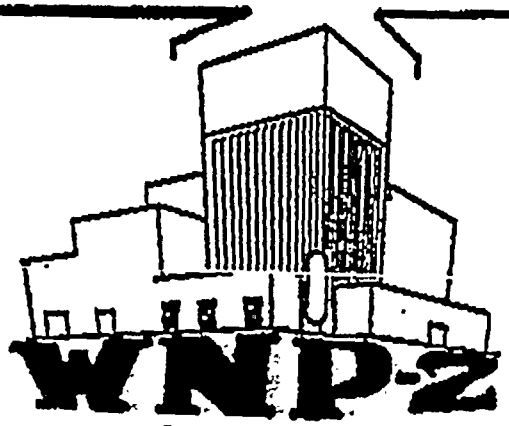

WNP-2 PLANT - TELECOPY NUMBER (509) 377-4175
CONFIRMATION NUMBER (509) 377-4728

DATE: JULY 9, 1992

TO: TOM ANDREWS, NRC OPERATIONS (301) EXT. 951-0550

FROM: CARL FIES, COMPLIANCE (509) EXT. 377-4147

NUMBER OF PAGES 4 (Does not include cover sheet)

REMARKS:

PART 21 - TWO DAY NOTIFICATION

ΔCPR TRANSIENT ANALYSIS ERROR

FEEDWATER CONTROLLER FAILURE EVENT

Confirmation Required: Yes:____ No:X

WASHINGTON PUBLIC POWER
SUPPLY SYSTEM

10CFR21 EVALUATION

PER 292-706

This PER describes the content of the letter received from Siemens Nuclear Power dated June 17, 1992. This letter provides notification of a discrepancy in the procedure used to analyze the Feedwater Controller Failure (FWCF) event using the COTRANSA2 code. This safety analysis code was used to support cycle 7 and 8 reload analysis and resulted in nonconservative predictions of the change in critical power ratio (Δ CPR) for this event.

The evaluation below was performed in accordance with the requirements of PPM 1.10.3, 10CFR21 Requirements and Reporting, Section 4.8.

Identification of a Problem With a Basic Component

Basic Component is defined in PPM 1.10.3 at paragraph 4.1. The transient analysis for the fuel is considered a basic component since it analyzes, "the capability to shut down the reactor and maintain it in a safe shutdown condition," as defined in paragraph 4.1.2. The safety analysis performed for the FWCF guarantees cladding integrity in response to transient conditions. It provides assurance that there is no fuel cladding failure due to lack of cooling caused by the onset of transition boiling. The cladding is one of the first barriers necessary to provide the capability to prevent or mitigate the consequences of accidents. The reactor fuel and its supporting analysis meet the definition of a Basic Component.

Determination that the Basic Component Contains a Potential Defect

Defect is defined in PPM 1.10.3 paragraph 4.3. Paragraph 4.3.3 describes one of the conditions as "A condition or circumstance involving a basic component that could contribute to the exceeding of a safety limit, as defined in the WNP-2 Technical Specifications." Technical Specification 2.1 defines the safety limits for WNP-2. Paragraph 2.1.2 defines the THERMAL POWER safety limit which reads in part, "The MINIMUM CRITICAL POWER RATIO (MCPR) shall not be less than 1.07 up to 4500 MWD/MTU cycle exposure....." As the Δ CPR is used to determine the MCPR the situation described by Siemens falls within this definition of a Defect.

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Determination that the Potential Defect Could Create a Substantial Safety Hazard

Substantial Safety Hazard (SSH) is defined in PPM 1.10.3 paragraph 4.4. A (SSH) exists if there is, "a loss of safety function to the extent that there is a major reduction in the degree of protection provided to public health and safety." This includes, "exceeding a safety limit as defined in the WNP-2 Technical Specifications." The determination of a SSH for this case is aided by the attached Figure 1. The fuel and its supporting analysis was delivered with the normal design/operating margin to allow for fuel burnup and flexible rod patterns. However, the plant was allowed to operate at the OLMCPR which forms the upper limit for the Δ CPR calculation. Plant operation is normally well above the OLMCPR. However, if WNP-2 had operated at OLMCPR near end of cycle conditions at power levels below approximately 80 percent and the FWCF transient had occurred the error in the analysis would have allowed the CPR to drop below the SLMCPR. This meets the definition of a Potential Defect that could create a SSH as defined above. This situation is highlighted by the fact that the FWCF transient actually occurred at WNP-2 during cycle 7 on November 19, 1991. Because of the design margin, low fuel burnup, and the fact that the transient occurred from 100 percent power the minimum CPR was well above the SLMCPR as shown in Figure 2.

It is concluded that this event is a 10CFR21 reportable item. Processing of this evaluation and preparation of the report to the NRC is to follow the guidance provided in PPM 1.10.3.

APPROVALS: Carl L Fies 6-25-92
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FIGURE 1

CRITICAL POWER RATIO (CPR)

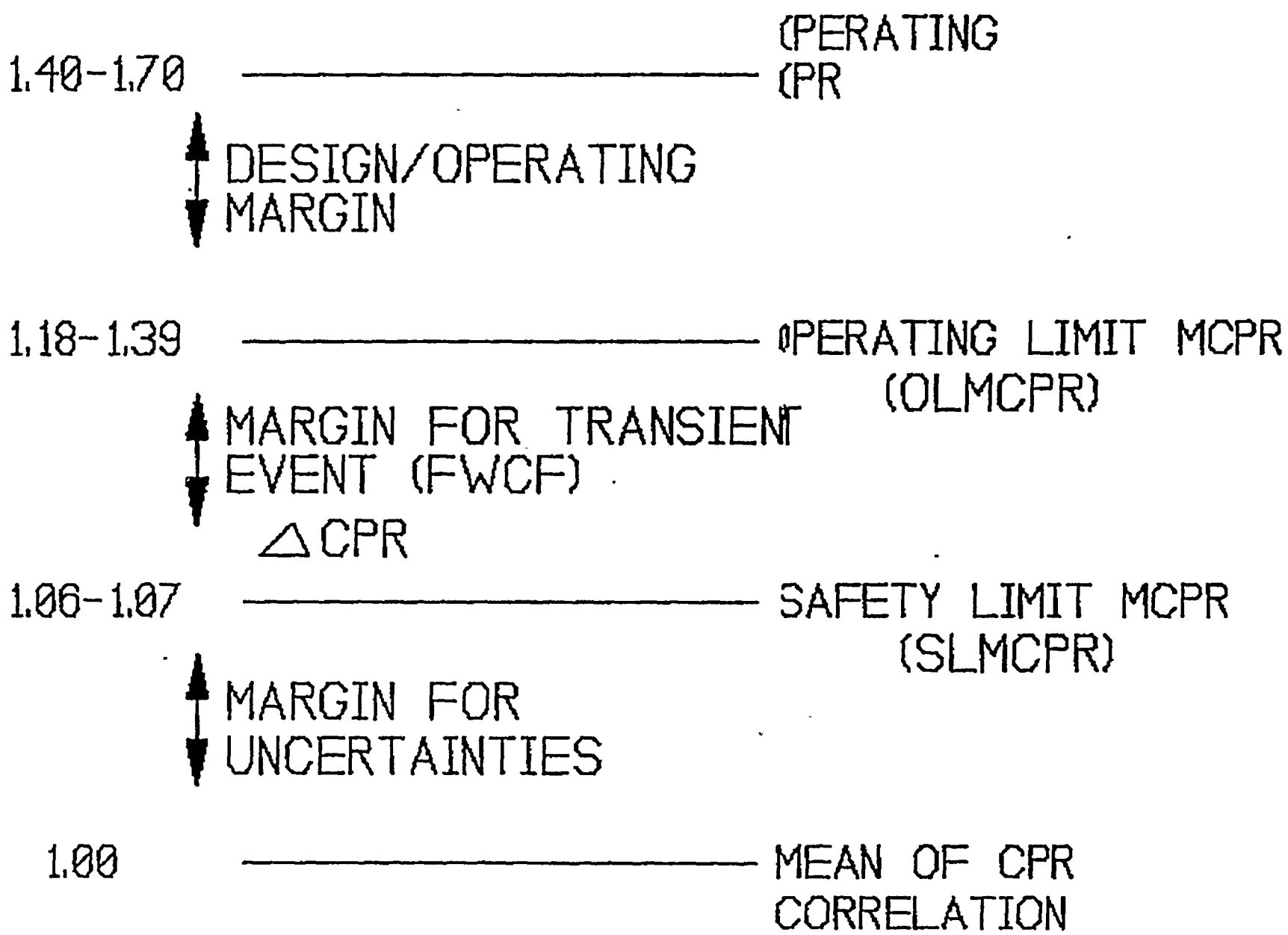

FIGURE 2

CRITICAL POWER RATIO (CPR)

DURING FWCF EVENT NOV 19, 1991