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April 23, 1980

Mr. Boyce H. Grier, Director  
Office of Inspection and Enforcement  
Region I  
United States Nuclear Regulatory Commission  
631 Park Avenue  
King of Prussia, PA 19406

SUBJECT: Reactor Protection System (RPS) Delay Time

Dear Mr. Grier:

Philadelphia Electric Company has been informed by General Electric that the Peach Bottom 2 Reload 4 and the Peach Bottom 3 Reload 3 safety analyses were performed using a 50 millisecond scram circuit delay time, i.e., the time between the opening of the sensor contact up to and including the opening of the trip actuator. Peach Bottom Technical Specification 3.1 (Limiting Condition of Operation) specifies this delay time not to exceed 100 milliseconds. Accordingly, the associated surveillance tests use 100 milliseconds as the test acceptance value. Peach Bottom Technical Specification Bases 2.1 (paragraph 3) indicates that for safety analyses purposes the scram delay time allowed by analyses is conservatively set equal to the longest delay acceptable by the Technical Specifications which would be the Limiting Condition of Operation 100 millisecond value.

The discrepancy between the analysis value (50 millisecond) and the limiting condition of operation value (100 millisecond) was identified by the recently instituted Philadelphia Electric/General Electric Operating Plant Licensing review program. When discovered, an immediate review of the Peach Bottom 2/3 reload safety analyses was conducted for the purpose of adjusting plant operating MCPR limits if use of the 100 milliseconds for RPS delay in the analyses resulted in more limiting MCPR values. This review also addressed vessel

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overpressurization and spring safety valve lift margin considerations.

On March 3, 1980, an amendment application for the Peach Bottom License with respect to Reload 4 was filed and is presently undergoing review. By separate letter, additional information for that amendment request is being submitted to correct the errors identified herein.

With respect to Peach Bottom 3 Reload 3, Tables 9 and 10 of NEDO-24204A indicate that the limiting transient, over the exposure range BOC 4 to EOC 4 - 2000 MWD/t for 8X8R, P8X8R, and the PTA fuel types, is the "Rod Withdrawal Error". According to General Electric analyses, the  $\Delta$ CPR resulting from the use of 100 milliseconds in the transient analyses is increased no more than 0.03 for both the Turbine and Generator Trip events. Applying a 0.03  $\Delta$ CPR correction to the affected transients for these fuel types, to account for a 100 millisecond delay rather than 50 milliseconds as assumed in the transient analyses, does not result in a more limiting transient event. Therefore, the MCPR limits for the above fuel types shown in Table 11 of NEDO-24204A over this exposure range remain unchanged. For the 7X7 and 8X8 fuel types, the "Loss of 100°F Feedwater Heating" transient is limiting. Because the "Loss of 100°F Feedwater Heating" has a rate of power increase which is much slower compared to the RPS delay time, the resultant MCPR calculations are unaffected. Therefore, no modifications are required to the operating MCPR limits for the 7X7 and 8X8 fuel types over this exposure range.

Applying a 0.03  $\Delta$ CPR correction to the affected transients over the exposure range EOC 4 - 2000 MWD/t to EOC 4 results in the "Generator Load Rejection with No Bypass" transient becoming the limiting event. Therefore, the operating MCPR limits given in Table 11 of NEDO-24204A over this exposure range should be modified to:

<u>Fuel Type</u>	<u>Before</u>	<u>After</u>
7X7	1.23	1.26
8X8	1.30	1.33
8X8R	1.30	1.33
P8X8R	1.32	1.35
PTA	1.32	1.35

A Technical Specification amendment request will be submitted expeditiously to allow sufficient NRC review for licensing action prior to Unit 3 reaching EOC 4 - 2000 MWD/t. Peach Bottom 3 Reload 3 is currently operating in the BOC 4 to EOC 4 - 2000 MWD/t exposure range and will not reach the EOC 4 - 2000 MWD/t to EOC 4 exposure range until the end of 1980.

Overpressurization

The overpressurization analyses summary presented in Table 12 of NEDO-24204A is based on 50 milliseconds rather than 100 milliseconds time delay. According to General Electric analyses, the effect of the increased delay is to increase the peak steam line pressure and vessel pressure by less than 5 psi. Since this increases the peak vessel pressure from 1301 to 1306 psig, considerable margin (69 psi) exists to the allowable limit of 1375 psig.

Margin to Safety Valve Setpoints

With regard to the "Generator Load Rejection with No Bypass" transient presented in Table 9 of NEDO-24204A at EOC 4, General Electric has advised Philadelphia Electric that this analysis, based on 100 millisecond RPS delay, results in a peak steam line pressure of less than 1205 psig if initiated from 100% power. Therefore, 25 psi margin is maintained to the safety valve setpoints.

Over the exposure range BOC 4 to EOC 4 - 2000 MWD/t, the peak steam line pressure resulting from the use of 100 millisecond RPS delay in the "Generator Load Rejection with No Bypass" (limiting transient), results in increasing the peak steam line pressure presented in Table 9 of NEDO-24204A from 1189 to 1194 psig; therefore, margin requirements to setpoints are met.

Based on the above information, there is no immediate safety concern since the MCPR operating limits currently in effect remain unchanged.

Very truly yours,



M. J. Cooney  
Superintendent  
Generation Division/Nuclear

cc: Director, NRC - Office of Inspection & Enforcement  
Mr. Norman M. Haller, NRC - Office of Management  
and Program Analysis