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SUPERINTENDENT  
NUCLEAR OPERATIONS DEPARTMENT

July 24, 1979

BECO. Ltr. #79-154

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

License No. DPR-35  
Docket No. 50-293

Response to IE Bulletin No. 79-12

Dear Sir:

In a letter dated May 31, 1979, you transmitted IE Bulletin No. 79-12, titled, "Short Period Scrams at BWR Facilities". Boston Edison Company was requested to take the following actions in a review of this problem at Pilgrim Station:

1. Review and revise, as necessary, your operating procedures to ensure that an estimate of the critical rod pattern be made prior to each approach to critical. The method of estimating critical rod patterns should take into account all important reactivity variables (e.g., core xenon, moderator temperature, etc.).

Response

Boston Edison believes that an estimate of the critical rod pattern prior to each approach to critical is neither necessary nor feasible for the following reasons:

- a.) At present, it is technically impossible to make an accurate criticality prediction in the hot xenon recovery situation. Even the initial cold criticality prediction at the beginning of cycle differs by as many as 20 rods from the actual critical rod pattern. Therefore, an estimate of criticality is not the solution to short period scrams.
- b.) A criticality prediction would not guarantee prevention of short period scrams. The conditions that exist for high notch worth would still be present with or without a procedure for predicting criticality.

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Mr. Boyce H. Grier  
July 24, 1979  
Page 2

- c.) Short period scrams are of little or no safety significance since the rod notch worths encountered are significantly lower than those used in the safety analyses.

We feel that a more appropriate solution in eliminating short period scrams would be the following:

- d.) Prohibit extensive notch override during approaches to criticality.
- e.) Modify the control rod withdrawal sequences to reduce the relative rod worths for individual control rods which has already been done by our fuel vendor and is described in more detail in Item No. 3 below.

Both of these solutions will reduce the reactivity insertions for all startup conditions. We believe these solutions are the main reason we have not experienced the event described in IE Bulletin 79-12 at Pilgrim.

- 2. Where inaccuracies in critical rod pattern estimates are anticipated due to unusual conditions, such as high xenon, procedures should require that notch-step withdrawal be used well before the estimated critical position is reached and all SRM channel indicators are monitored so as to permit selection of the most significant data.

Response

Operating procedures will be reviewed and revised as necessary to require that notch-step withdrawal be used when SRM's indicate approaching critical and that SRM channel indicators are continuously monitored.

- 3. Review and evaluate your control rod withdrawal sequences to assure that they minimize the notch worth of individual control rods, especially those withdrawn immediately at the point of criticality. Your review should ensure that the following related criteria are also satisfied:
  - a. Special rod sequences should be considered for peak xenon conditions.
  - b. Provide cautions to the operators on situations which can result in high notch worth (e.g. first rod in a new group will usually exhibit high rod worth).

Response

- a. We have reviewed our control rod withdrawal sequences and found them adequate to reduce relative rod worths for individual control rods. Our control rod withdrawal sequences which are supplied by our fuel vendor were developed using the banked position withdrawal sequence. Our RWM rod withdrawal sequences, unlike the three BWRs mentioned in IE Bulletin 79-12, have control rod groups 3 and 4 programmed for bank withdrawal which prohibits extensive notch override. Our withdrawal sequences have also been developed by our fuel

Mr. Boyce H. Grier  
July 24, 1979  
Page 3

vendor using the Reduced High Notch Worth Procedure to account for peak xenon conditions. Deviation from complete adherence to the banking philosophy is not made until a wide bank of dispersed central rods has been achieved, minimizing the potential relative worth of individual rods and assuring greater response to incore instrumentation.

- b. Operating procedures will be reviewed and revised as necessary to provide caution to the operators on situations which can result in possible high notch worths during the approach to critical.
4. Review and evaluate the operability of your "emergency rod in" switch to perform its function under prolonged severe u . . .

Response

We have had good operability experience with our "emergency rod in" switch and believe that unnecessary inspection of the "emergency rod in" switch could lead to a degradation in its performance.

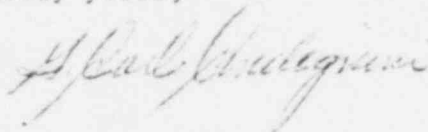
5. Provide a description of how your reactor operator training program covers the considerations above (i.e., items 1 thru 3).

Response

The Training Staff will include the events and their causes described in IE Bulletin 79-12 and the above corrective actions into our training program to re-emphasize the potential problems associated with high notch worth during approaches to criticality.

We trust this letter is complete and responsive to your concerns. However, should you require additional information, please contact us.

Very truly yours,



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