December 29, 1985

Docket No. 50-461

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MEMORANDUM FOR: Walter R. Butler, Director BWR Project Directorate #4 Division of BWR Licensing

FRCM:

Gus C. Lainas, Assistant Director for BWR Division of BWR Licensing

SUBJECT: CLINTON POWER STATION - STANDARD REVIEW PLAN DEVIATION FROM POSTULATING PIPE BREAK IN RHR HEAT EXCHANGER CUBICLES

Reference: Letter dated December 9, 1985 from F. A. Spangenberg, Illinois Power Co. (IP), to W. R. Butler, NRC, subject: Clinton Power Station - Flooding in the Auxiliary Building Main Steam Tunnel

The former Mechanical Engineering Branch staff has reviewed the applicant's submittal, in the above reference, seeking NRC approval for a plant-specific Standard Review Plan deviation from postulating a break at a specific location on the Residual Heat Removal (RHR) piping in each of the RHR Heat Exchanger cubicles. The staff finds that the applicant's request for the deviation at this specific location is reasonable and can be granted as discussed below.

At the RHR Piping penetration location in the wall which separates the Auxiliary Building Main Steam Tunnel from the RHR Heat Exchanger cubicle, an anchor plate is attached to the steam tunnel side. There are welds on either side of this anchor plate which attach the RHR piping to the plate. The partial penetration weldment of the RHR Pipe to anchor plate on the RHR Heat Exchanger cubicle side of the anchor plate is not included in the Inservice Inspection (ISI) program because of inaccessibility. However, the partial penetration weldment on the other (steam tunnel) side is accessible and is in the ISI program. The location of these welds is considered to be a terminal end of the piping and, in accordance with the guidelines of Standard Review Plan 3.6.2, a break should be postulated at this location.

The applicant has designed the steam tunnel side to withstand the jet impingement, pipe whip and environmental effects of this break. The RHR Heat Exchanger cubicle has been designed to withstand the jet impingement and pipe whip effects of the same break. The flooding effects of this break in one cubicle, combined with a single active failure in the other cubicle would result in the loss of both RHR loops. The applicant is only requesting a deviation from the flooding effects of this break in each cubicle. This request is based on the assumption that this break is unlikely to occur because of the following provisions in the design:

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- 1. The pipe stresses in the RHR Piping at the anchor plates in the steam tunnel wall are approximately 50% of the code allowable stresses.
- The RHR piping in the areas under discussion are stagnant lines 2. under normal plant operating conditions; therefore no flow induced vibration is expected here and also no rapid temperature change is expected during normal plant operations.
- 3. There are two independent types of leak detection instrumentation that can alert the control room operator if there is a pipe crack in the RHR Heat Exchanger cubicles as described in FSAR Section 7.6.1.4.3.4. Therefore in the unlikely event of a pipe crack, the operator could initiate corrective action to minimize the effects of this event.
- 4. Because of the design details of this anchor plate to piping weldment, a failure of the piping pressure boundary is unlikely to occur even if the partial penetration weld should fail.

Based on the considerations discussed above, the staff concludes that reasonable assurance has been provided that a pipe break at the location identified by the applicant is not likely to occur. Thus the staff recommends granting a Standard Review Plan deviation from postulating a break in each cubicle.

In response to staff concerns relative to postulation of a break at the branch connection of the RHR system to the Feedwater system, the applicant has stated that this area has been designed to withstand the effects of jet impingement and pipe whip as well as environmental effects of this break.

The applicant should be requested to provide an amendment to FSAR Section 3.6.2 to be consistent with applicable portions of the Reference.

Original signed by/

Gus C. Lainas, Assistant Director for BWR Division of BWR Licensing

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\*Please see previous concurrence page

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