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Central Files

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September 23, 1980

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Region III
U S Nuclear Regulatory Commission
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DOCKET 50-255 - LICENSE DPR-20 - PALISADES
PLANT - RESPONSE TO IE BULLETIN 80-18

IE Bulletin 80-18 (Maintenance of Adequate Minimum Flow Thru Centrifugal Charging Pumps Following Secondary Side High Energy Line Rupture) dated July 24, 1980 requested the following information:

Item 1

In a quantitative manner similar to 1 above, determine whether or not minimum cooling is provided to centrifugal pumps used for high pressure injection, for all conditions requiring SI, prior to satisfying SI termination criteria. If a "minimum flow bypass" line is present which remains open during high pressure injection, and if that line guarantees that minimum cooling flow will be provided to the pumps under such conditions, then no further calculations are required if all safety related analyses (Item 2.d above) assumed presence of the open line.

Response to Item 1

The Palisades charging pumps consist of one variable capacity and two constant capacity positive displacement type pumps. The rated design pressures for the three pumps is 2735 psig as compared to the pressurizer safety valve setpoints which shows that all three safety valves are open by the 2545 psia pressure level. Each pump also is designed with a relief valve on the discharge side of the pump which is set at 2735 psig and presized to pass the maximum rated flow of the associated pump with maximum back pressure without exceeding the maximum rated total head for the pump.

The Palisades charging pumps ratings and physical system design guarantee that minimum cooling flow will be provided to the pumps under any operating conditions.

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The three Palisades high pressure safety injection pumps are centrifugal pumps. The pumps by design are provided with minimum flow orifices connected between the pump discharge and the safety injection and refueling water storage tank (SIRW tank) to insure that no damage results when operating against a closed system.

For the long term cooling case when the recirculation activation signal (RAS) is initiated, along with isolation of the SIRW tank, the pumps minimum flow return lines to the SIRW tank are also isolated. In this case, the Emergency Operating Procedures instruct the operator as to how to assure at least minimum flow of 30 gpm for each HPSI running.

The Palisades Plant administrative controls for RAS operating and HPSI pumps physical system minimum flow orifice design guarantees that minimum cooling flow will be provided under any operating conditions.

Item 2

If availability of minimum cooling flow for the CCPs is not assured for all conditions by the calculations in 1:

- a. Make modifications to equipment and/or procedures, such as those suggested in the enclosure, to insure availability of adequate minimum flow under all conditions. If modifications are made as described in the attachment for interim modification II, verify that the Volume Control Tank Relief Valve is operable and will actuate at its design setpoint.
- b. Justify that any manual actions necessary to assure adequate minimum flow for any transient or accident requiring SI can and will be accomplished in the time necessary.
- c. Verify that any manipulations required (valve opening or closing, along with the instrumentation necessary to indicate need for the action or accomplishment of the action, etc.) can be accomplished without offsite power available.
- d. Justify that flow available from the CCPs with the modifications in place will be sufficient to justify continued applicability of any safety related analyses which take credit for flow from the CCPs (LOCA, HELB, etc.).
- e. Justify that all Technical Specifications based on the Item 2.d analyses remain valid.

Response to Item 2

As stated in response to Item 1, we do have minimum cooling flow for the charging pumps. Therefore, this item is not applicable to the Palisades Plant.

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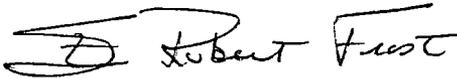
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Item 3

Provide the results of calculations performed under Item 1, and describe any modifications made as a result of Item 2 (include the justifications requested).

Response to Item 3

The Palisades Plant was in the category to perform in a quantitative evaluation to determine whether or not minimum cooling is provided to the centrifugal charging pumps. As a result of this evaluation, no modifications will be made as a result of Item 2 of this bulletin.



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Palisades Nuclear Licensing Engineer

CC Director of Nuclear Reactor Regulation
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