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Vice President

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December 17, 1982

Re: Indian Point Unit No. 2
Docket No. 50-247

Director of Nuclear Reactor Regulation
U. S. Nuclear Regulatory Commission
Washington, D. C. 20555

ATTN: Mr. Steven A. Varga, Chief
Operating Reactors Branch No. 1
Division of Licensing

Dear Mr. Varga:

By Attachment A to this letter, we are providing additional information on NUREG-0737 Item II.K.3.25 (Power to Pump Seals) as requested by your letter dated October 15, 1982. In particular the attachment provides supporting information regarding the design and operation of the Reactor Coolant Pump seal cooling system to demonstrate our conformance with the staff's stated position.

Should you or your staff have any questions, please contact us.

Very truly yours,



attach.

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ATTACHMENT A

RESPONSE TO NRC REQUEST
FOR ADDITIONAL INFORMATION
TMI ITEM II.K.3.25, POWER TO PUMP SEALS

Staff Position:

1. The cooling water supply should be adequate to provide seal cooling and prevent seal failure for a period of two hours during a loss of offsite power event.
2. RCP seals should be designed such that they are cooled by means of two independent supplies, e.g., seal injection (charging pumps) and thermal barrier heat exchangers (Reactor Building Closed Cooling Water (RBCCW) System). If plant design consists of only one cooling method, provide detailed design information to demonstrate that seal integrity is still maintained in the event of a loss-of-offsite power event.
3. It is currently our position that automatic loading of the cooling water pumps onto the emergency buses is desirable and should be incorporated. The cooling water pumps should be automatically (requiring no operator action) and sequentially loaded onto the diesel generators and automatically started.

Response:

The following Indian Point Unit No. 2 design and operation description regarding the reactor coolant pump (RCP) seal cooling system provides sufficient detail to demonstrate compliance with the above staff position.

RCP seal integrity can be maintained by either of two independent sources of cooling water: the seal injection flow from the Chemical and Volume Control System (CVCS) charging pumps or component cooling water flow through the RCP thermal barrier heat exchanger in the event that seal injection flow were lost. During normal operation, 8 gpm seal injection

enters the RCP in the thermal barrier region where the flow splits, with a portion, 3 gpm, flowing upward through the controlled leakage seal package and returning to the CVCS. The remaining portion, 5 gpm, passes through the thermal barrier heat exchanger and into the reactor coolant system where it constitutes a portion of the reactor coolant system water make-up. The component cooling water system provides flow to the thermal barrier heat exchanger to minimize heat transfer from the high temperature primary coolant to the seal area environment; to cool primary system water which could leak through the thermal barrier labyrinth seals; and to provide adequate seal cooling in the event that seal injection flow were lost.

In the event of loss of offsite power, the RCP motor is deenergized and both cooling water supplies (seal injection and component cooling flow) are terminated; however, the plant diesel generators are immediately started and the component cooling water pumps are automatically loaded (in sequence) onto the emergency buses and started (no operator action required). Component cooling water to the thermal barrier heat exchanger is thus automatically restored to provide seal cooling and prevent seal failure for at least a two hour period following a loss-of-offsite power event as required by the Staff Position. Furthermore, once the automatic loading of the emergency buses has been completed, the operator has the option of manually loading a charging pump onto one of the diesels and reestablishing normal seal injection flow.