

## SNUPPS

Standardized Nuclear Unit  
Power Plant System

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September 15, 1980  
SLNRC 80-45 FILE: 0491.10.2  
SUBJ: Centrifugal Charging Pump  
Operation Following Secondary  
Side High Energy Line Rupture

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

Docket Nos.: STN 50-482, STN 50-483, STN 50-486

Ref.: 1. SLNRC 80-28, dated June 6, 1980, Same Subject  
2. IE Bulletin No. 80-18, dated July 24, 1980

Dear Mr. Grier:

Reference 1 reported a potential deficiency involving the subject postulated transient. The letter also stated additional evaluation was required to determine if the potential problem was applicable to the SNUPPS plants. Reference 2 addressed this same topic, but SNUPPS was not required to respond to the Bulletin.

The analysis of this transient, using the calculational method provided by Westinghouse, has been completed for SNUPPS. The results indicate that the maximum and minimum developed heads for the centrifugal charging pumps are 2640 psi and 2516 psi, respectively. For both pumps to attain minimum flow by discharging into the reactor coolant system, the maximum system pressure is 2288 psig. The set pressure of the power-operated relief valves (PORVs) is 2350 psig. Therefore, even though the SNUPPS plants will have qualified PORVs, the problem described by the references is applicable to the SNUPPS plants.

Design changes that would correct this situation are being evaluated. It is estimated that any such changes will not be completed until at least the first quarter of 1981. In addition, the following matters will be evaluated:

- 1) Transient analysis assuming charging pump operation with wear to the Technical Specification limit for discharge pressure,
- 2) Operator action to reduce system pressure by PORV operation in order to assure minimum pump flow,

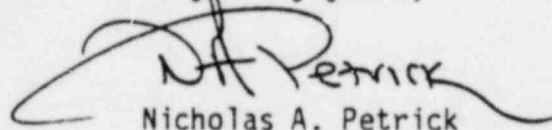
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- 3) Use of safety injection pumps in combination with the PORVs to provide backup capability in case of centrifugal charging pump degradation,
- 4) Loss of one centrifugal charging pump following a system re-pressurization transient,
- 5) Capability of the pumps with short term operation below the continuous duty minimum flow rate, and
- 6) Transient analysis assuming operation of the positive displacement charging pump.

Since any necessary design changes and evaluations of the above matters will be completed prior to operation of the SNUPPS plants, the interim procedural changes discussed in Reference 2 will not be implemented.

A final report on this matter will be provided for the SNUPPS plants when the necessary information is available. It is expected that this will occur in the first quarter of 1981.

Very truly yours,



Nicholas A. Petrick

RLS:dck:1a21

cc: Mr. James G. Keppier, Director, Region III, USNRC  
Mr. Karl V. Seyfrit, Director, Region IV, USNRC  
Mr. Victor Stello, Jr., Office of I&E, USNRC, Washington, D.C.