SNUPPS
Standardized Nuclear Unit
Power Plant System

5 Choke Cherry Road
Rockville, Maryland 20850
(301) 869-8010

Nicholas A. Petrick
Executive Director

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SLNRC 82- 42 FILE: M-00BG
SUBJ: Centrifugal Charging Pump Operation Following Secondary Side High Energy Line Rupture; 50.55(e) Report 80-02

Mr. James G. Keppler
USNRC
Office of Inspection and Enforcement
799 Roosevelt Road
Glen Elyn, Illinois 60137

Mr. John T. Collins
USNRC
Office of Inspection and Enforcement
611 Ryan Plaza Drive
Arlington, Texas 76102

Docket Nos.: STN 50-482 and 50-483

Reference:
1. SLNRC 80-28, Same Subject,dated 6/6/80
2. Westinghouse Letter (T. M. Anderson), NS-TMA-2245, to USNRC (V. Stello), dated May 8, 1980, Same Subject
3. IE Bulletin No.80-18, dated 7/24/80
4. SLNRC 80-45, Same Subject, dated 9/15/80
5. SLNRC 81-22, Interim Reports on 10 CFR 50.55(e) Matters, dated 4/1/81

Gentlemen:

On May 8, 1980, SNUPPS informed the Nuclear Regulatory Commission, Region I Office of Inspection and Enforcement, of a potential deficiency involving centrifugal charging pump operation following a secondary side line rupture. Reference 1 reported this potential deficiency stating additional evaluation was required to determine if the potential problem was applicable to the SNUPPS plants. Reference 2 provided detailed information on the deficiency, described plant specific calculations that are required, and discussed possible corrective modifications. Subsequent to these submittals this same topic was addressed in Reference 3, but SNUPPS was not required to respond to the Bulletin. It was stated in Reference 4 that several potential design change alternatives were being evaluated and Reference 5 provided an interim report on this matter.

This letter provides the final SNUPPS response to this matter.

Extensive studies have been performed by Westinghouse and have shown that a change in the charging system design is necessary in order to satisfy the dual requirements of: (1) adequate minimum flow delivered by the centrifugal charging pumps to prevent pump damage and (2) adequate

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mininum flow delivered to the reactor coolant system (RCS) for small-break LOCA's. The problem is that the miniflow recirculation valves (BG-HV 8110 & 8111) must be open when the charging pumps are not delivering flow to the RCS and must be closed when the pumps are providing flow to the RCS. Existing flow transmitters in the boron injection tank (BIT) injection lines (EM-FT 917A & 917B) are to be used to sense flow delivered to the RCS and to provide open or close signals to valves HV 8110 and 8111. Because the discharge lines of the two centrifugal charging pumps and the positive displacement charging pump are all interconnected, many combinations of centrifugal charging pump (CCP) flows and boron injection tank path flows are possible. This makes it extremely difficult to define setpoints for FT 917A & B to open and close HV 8110 and 8111 as needed to meet the functional requirements of the system.

The simplest solution to this problem is to operate the plants with either one of the manual valves (BG 8483A & C) in the CCP discharge lines closed. These valves are downstream of their respective BIT flowpath connections. This serves to decouple the discharge lines of the two CCP's and enables unambiguous setpoints for FT 917A & B to be defined.

SNUPPS will implement this solution. Therefore, the Significant Deficiency Report No.80-2 regarding the centrifugal charging pumps is considered closed.

Very truly yours,

Nicholas A. Petrick

JOC/nld/la26

cc: G. L. Koester KGE
D. T. McPhee KCPL
D. F. Schnell UE
J. H. Neisler NRC/CAL
T. E. Vandel NRC/WC