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SUBJECT: Provides status of plant mods,per NRC Bulletin 88-004 re potential safety-related pump loss.

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July 24, 1989

U.S. Nuclear Regulatory Commission
Document Control Desk
Attn: Allen R. Johnson
Project Directorate I-3
Washington, D.C. 20555

Subject: Status Report of Plant Modifications Pursuant to NRC Bulletin 88-04, Potential Safety-Related Pump Loss
R.E. Ginna Nuclear Power Plant
Docket No. 50-244

References: a) Letter from Bruce A. Snow (RG&E) to Carl Stahle (NRC), Subject: Response to Bulletin 88-04, dated July 7, 1988
b) Letter from Roger W. Kober (RG&E) to Dr. Thomas E. Murley (NRC Region I), Subject: IE Compliance Bulletin 86-03, Potential Failure of Multiple ECCS Pumps Due to Single Failure of Air Operated Valve in Minimum Flow Recirculation Line, dated January 8, 1987

Dear Mr. Johnson:

The purpose of this letter is to provide the status of two plant modifications which RG&E committed to perform as a result of NRC Bulletin 88-04, dated May 5, 1988. The plant modifications involved redesign of the minimum flow recirculation systems for the Residual Heat Removal (RHR) and High Head Safety Injection (SI) systems. Our letter, Reference (a), described our proposed long term actions involving redesign of these two recirculation systems and implementation schedule. RG&E had originally planned to install the remaining portions of the RHR recirculation modification following startup from the 1989 Refueling Shutdown. During previous discussions with the staff, it was decided to install the remaining portions of the modification during the 1990 Refueling Shutdown, thereby precluding the entering of an LCO during system modification. The modification and functional testing for the High Head Safety Injection System was completed as established by the Design Criteria on June 24, 1989.

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Residual Heat Removal System

Redesign of the recirculation system involves new piping, valves, and flow, pressure and temperature instruments in order to provide an independent recirculation system for each pump train. The modification in part involves installation of a fixed orifice in parallel with a control valve for each train such that approximately 25% of Best Efficiency Point (BEP) of flow (450 gpm) would recirculate when the system pressure exceeded the pump's maximum developed pressure. The previous system provided a total recirculation flow of 200 gpm, with one recirculation line serving both pump trains. The design of the fixed orifice would provide sufficient (minimum required) flow in the event of failure of the control valve. The value of approximately 450 gpm is desirable for long term operation but is not required to protect the pump from damage. The control valves are long lead items and are scheduled to be received and installed during the 1990 Refueling Shutdown. A fixed orifice sized for 200 gpm for each train was installed as an interim measure during our recently completed 1989 Outage, as well as a new recirculation line and flow indication for each train. Completion of the modification in this manner removed the concern expressed in Bulletin 88-04 of deadheading one pump due to strong/weak pump interactions prior to the control valve installation. Installation of the control valves and associated piping will provide an increase in the recirculation flow capability from the present 200 gpm per pump to approximately 450 gpm per pump. In the interim, prior to control valve installation and functional testing, monthly periodic testing will be conducted at 200 gpm in accordance with the Technical Specification Section 4.5.2.1. The test point will shift to 450 gpm following completion of control valve installation and functional testing. Consequently, completion of the full scope of the modification is anticipated by 7/1/90 following our 1990 Refueling Outage. This schedule supersedes our earlier scheduled completion of December 1989 as stated in our letter, Reference (a), page B-7.

High Head Safety Injection System

The redesign of the recirculation system consisted of installation of larger diameter piping sized for a recirculation flow of 100 gpm per pump or approximately 25% of BEP flow. The previous system provided 30 gpm per pump. The desired flow is achieved with the use of a fixed orifice in each of the three pumps' recirculation lines. The concern of deadheading due to a strong/weak pump interaction did not exist with the previous system nor with the new system. The piping and orifice redesign for 100 gpm was based upon reducing the effects of long term internal pump wear due to

monthly periodic testing. Additionally, the modification involved removal of two series air operated valves in the common line leading back to refueling water storage tank (RWST) from the recirculation system and replacement with two series motor operated valves. This valve replacement modification completes our planned actions committed under our response to IE Bulletin 86-03, Reference (b).

The new recirculation system is designed to provide margin over the UFSAR delivery curve assuming a 3% degraded pump curve and a recirculation flow of 100 gpm. Post modification tests confirmed that flow delivery to the RCS cold legs using each of the corresponding SI pumps was satisfied with the design recirculation flow of 100 gpm per pump. The flow delivery achieved was consistent with the values which were predicted during the design of the modification. Consequently, design objectives of the modification were satisfied.

Monthly periodic testing will be performed to satisfy the 150 gpm flow condition as required by Amendment No. 33 of Technical Specification 4.5.2.1. During the testing each pump will deliver a combined flow of 150 gpm, approximately 100 gpm through its recirculation line and the remainder through the test line (adjusted to achieve the total of 150 gpm). As outlined in Reference (a), the increased flow capability is expected to reduce the potential for pump internal accelerated wear as the result of low flow operation during monthly periodic testing. The acceptance limit for developed pressure in the Technical Specifications ensures that the UFSAR delivery requirements continue to be satisfied.

This response completes the "Requested Action 5" of Bulletin 88-04 for the High Head Safety Injection System modification, which required that "within 30 days of completion of the long term resolution actions, provide a written response describing the actions taken."

Very truly yours,

Robert C. Mecredy
General Manager
Nuclear Production

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xc: U.S. Nuclear Regulatory Commission
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Ginna Senior Resident Inspector