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December 15, 1982

L. V. MAURIN
Vice President Nuclear Operations

W3I82-0125
Q-3-A35.07.44

Mr. John T. Collins, Regional Administrator, Region IV
U.S. Nuclear Regulatory Commission
611 Ryan Plaza Drive, Suite 1000
Arlington, Texas 76012

SUBJECT: Waterford SES Unit No. 3
Docket No. 50-382
Significant Construction Deficiency No. 44
"LPSI Pump Suction Valves"
Final Report

REFERENCE: LP&L Letter W3K82-0487 dated August 10, 1982

Dear Mr. Collins:

In accordance with the requirements of 10CFR50.55(e), we are hereby providing two copies of the Final Report of Significant Construction Deficiency No. 44, "LPSI Pump Suction Valves."

If you have any questions, please advise.

Very truly yours,

L. V. Maurin

LVM/WAC:keh

Attachment

cc: 1) Director
Office of Inspection & Enforcement
U. S. Nuclear Regulatory Commission
Washington, D. C. 20555
(with 15 copies of report)

3) E. Blake

2) Director
Office of Management
Information and Program Control
U. S. Nuclear Regulatory Commission
Washington, D. C. 20555
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4) W. Stevenson

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FINAL REPORT OF
SIGNIFICANT CONSTRUCTION DEFICIENCY NO. 44
"LPSI PUMP SUCTION VALVES"

INTRODUCTION

This report is submitted pursuant to 10CFR50.55(e). It describes a deficiency in the Low Pressure Safety Injection Pump Suction Valves. The existing valves are not designed for the high differential pressure they would be subjected to during shutdown cooling mode of operation. This problem is considered reportable under the requirements of 10CFR50.55(e).

To the best of our knowledge, this problem has not been identified to the Nuclear Regulatory Commission pursuant to 10CFR21.

DESCRIPTION

As a result of the TMI-2 accident, the NRC requires that the shutdown cooling system (SDCS) be designed for complete remote operation (the use of the manual TMI-2 system was hampered by high radiation levels). To accomplish remote manual operation, a number of SDCS valves were to be backfitted with motor operators, including the subject two valves. While quoting the motor operators, Fisher Controls, Co., the manufacturer, revealed that in the closed position, these valves are capable of taking only 150 PSI differential pressure. (LPSI pump suction valves CE Tag No. SI-431, and 444, Ebasco Tag No. 2SI-B301A and 2SI-B302B).

This condition is unacceptable since the LPSI pump is lined up for the shutdown cooling mode when the primary system pressure is about 370 PSIG at which time the LPSI pump suction valve is part of the primary coolant system pressure boundary. The ASME code requires double isolation of piping connection to the primary system. The suction valve together with one check valve is to serve this purpose.

In order to be able to put the SDCS in service at around 370 PSIG system pressure, as required by CE's operating instructions, the LPSI pump suction valves must be capable of withstanding 415 PSIA system pressure with only a few PSI pressure on the other side. For this, the present butterfly valves will have to be replaced with 300 lb. class motor operated gate valves.

SAFETY IMPLICATIONS

Failure of the subject valves allows only single valve isolation of primary coolant (approximately 400 PSIG) during shutdown cooling mode. Failure of a correspondent check valve subjects the balance of safety injection system piping to conditions beyond their design rating. This condition could lead to loss of primary coolant and loss of inventory in the refueling water storage pool (RWSP). A primary coolant leak would result in a significant radio-activity release; while the loss of the RWSP would jeopardize the ability to safely shut down the plant. Therefore, the present design of the LPSI pump suction valves, if left uncorrected, presents a safety hazard to the plant.

CORRECTIVE ACTION TAKEN

The following corrective action has been performed:

1. New 20" diameter check valves (Tag Numbers 2SI-V354A and 2SI-V355B) have been installed in lines 2SI20-4A and 2SI20-4B between RWSP/SIS suction line and existing Check Valves (2SI-V311A and V332B).
2. Butterfly Valves 2SI-B301A and 2SI-B302B will not be replaced by 300 lb. motor operated gate valves. The originally proposed Motor Operators on the butterfly valves have been deleted and the valves will be locked open for normal operation and used only for maintenance isolation of the pump.
3. The 300 lb. pressure class rating has been extended back to and will include the added check valves on the suction line.

The above three corrective action items are shown in Design Change Notification DCN-MP-589.

Nonconformance Report NCR-W3-3441 was issued to identify, disposition and track the corrective action to resolve this significant construction deficiency.

All corrective action has been completed, accepted and the Nonconformance Report closed.

This report is submitted as the Final Report.