



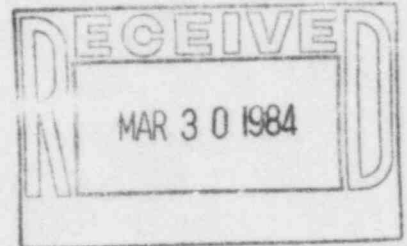
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March 23, 1984

W3K84-0693
Q-3-A35.07.92

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



REFERENCE: LP&L Letter W3K84-0398 dated February 24, 1984

Dear Mr. Collins:

SUBJECT: Waterford SES Unit No. 3
Docket No. 50-382
Significant Construction Deficiency No. 92
"High Pressure Safety Injection System Performance"
Final Report

In accordance with the requirement of 10CFR50.55(e), we are hereby providing two copies of the Final Report of Significant Construction Deficiency No. 92, High Pressure Safety Injection System Performance.

If you have any questions please advise.

Very truly yours,

T. F. Gerrets
T. F. Gerrets

Corporate Quality Assurance Manager

TFG:CNH:SSTG

cc: Director
Office of Inspection & Enforcement
U. S. Nuclear Regulatory Commission
Washington, D.C. 20555
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Mr. John T. Collins

March 23, 1984

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FINAL REPORT OF
SIGNIFICANT CONSTRUCTION DEFICIENCY NO. 92
"HIGH PRESSURE SAFETY INJECTION SYSTEM PERFORMANCE"

INTRODUCTION

This report is submitted pursuant to 10CFR50.55(e). It describes a deficiency where the performance of the High Pressure Safety Injection System did not meet required performance specifications. This problem is considered reportable under the requirements of 10CFR50.55(e).

DESCRIPTION OF PROBLEM

Combustion Engineering's evaluation of High Pressure Safety Injection (HPSI) pump flows measured during Emergency Core Cooling System (ECCS) testing indicated the flows were acceptable. The preoperational (pre-op) test for the HPSI system was erroneously evaluated against preliminary ECCS analysis flow assumptions and was judged acceptable.

A re-evaluation of HPSI pump delivery with the minimum delivery assumed in the small break LOCA analysis has been made. Using the pre-op test results, HPSI delivery falls short of the delivery assumed in the ECCS analysis.

SAFETY IMPLICATIONS

This problem, if left uncorrected, could possibly preclude the ability of the system to perform its safety related function in an accident situation.

CORRECTIVE ACTION

Subsequent to the submittal of SCD 92, a retest of HPSI pumps was performed with a CE representative present. The retest results indicated that HPSI pump "A/B" and "B" performed in accordance with the manufacturer's pump performance curves and were acceptable. However, the HPSI "A" pump delivery did not meet the manufacturer's curve. Testing indicated excessive internal flow past the pumps balancing drum and balancing drum sleeve. Subsequent pump internals disassembly and inspection showed excessive clearance between the balancing drum and balancing drum sleeve. The balancing drum and balancing drum sleeve were replaced and the drum/sleeve clearance reduced within limits. The Ingersoll-Rand Representative had difficulty in reinstalling the original rotor assembly. A spare rotor assembly was then installed in the "A" pump, but would not rotate. Following Ingersoll Rand recommendations, both rotors and the pump barrel were sent to their facility in Baton Rouge for pump barrel concentricity measurements and further inspections of the spare rotor. The investigation identified that the 5th, 7th, and 8th stage channel rings of the replacement rotor were out of specification. These were machined to specifications. The pump barrel and both rotors were then sent to the main Ingersoll-Rand plant in Phillipsburg, New Jersey to complete the barrel concentricity checks and reassemble the pump. These checks confirmed

concentricity was within specifications. The pump was reassembled with the spare rotor and the acceptability of the pump confirmed. Upon receipt of the "A" HPSI pump back at Waterford 3, the pump was reinstalled and tested. The test results showed a flow from the "A" HPSI above the manufacturer's pump curve and acceptable. The HPSI system is considered operational and reliable for intended safety functions.