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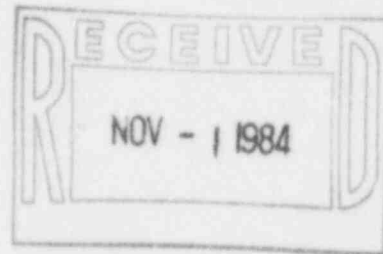
October 31, 1984

W3P84-2971
Q-3-A35.07.117
3-A1.01.04

Mr. John T. Collins
Regional Administrator, Region IV
U.S. Nuclear Regulatory Commission
611 Ryan Plaza Drive, Suite 1000
Arlington, Texas 76011

Dear Mr. Collins:

Subject: Waterford 3 SES
Docket No. 50-382
SIGNIFICANT CONSTRUCTION DEFICIENCY NO. 117
"Limitorque Limit Switch & Motor Space Heaters"
Final Report



Reference: LP&L letter W3P84-2927 dated October 19, 1984

The referenced letter stated that the final report on SCD-117 was rescheduled for submittal by October 24. In accordance with 10CFR50.55(a)(3), enclosed are two copies of the LP&L final report on SCD-117.

Very truly yours,

K.W. Cook
Nuclear Support & Licensing Manager

KWC:GEW:sms

Enclosure

cc: NRC, Director, Office of I&E (15 copies)
NRC, Director, Office of Management
G.W. Knighton, NRC-NRR
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INPO Records Center (D.L. Gillispie)
Limitorque Corp. (J.B. Drab/R. Dullaghan)

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FINAL REPORT

SIGNIFICANT CONSTRUCTION DEFICIENCY NO. 117

"LIMITORQUE LIMIT SWITCH AND MOTOR SPACE HEATERS"

INTRODUCTION

The report is submitted pursuant to 10CFR50.55(e). It describes the problem of Limitorque limit switch and motor space heaters are not fully qualified in accordance with IEEE-323 and 344, criteria, but energized from Class IE power supply.

To the best of our knowledge this has not been reported to the NRC pursuant to 10CFR Part 21.

DESCRIPTION OF PROBLEM

While inspecting Limitorque Motor Operated Valves for motor operation, it was discovered that documentation was not available which assured seismic qualification of the subject heaters. Further investigation revealed that the space heaters were non Class IE and energized from Class IE circuits. Since the functions of the heaters is not safety-related and the heaters are not qualified in accordance with IEEE-323 and 344 criteria, there is a potential concern that non-qualified heaters may adversely affect the Class IE power supply. Limitorque has also stated that the valves have been environmentally qualified without the space heaters.

Space heaters for Limitorque operators are intended to prevent condensation during long period of storage or non-use in an uncontrolled atmosphere. Separate heaters are provided for limit switch compartments and motor compartments. Heater function is not safety-related and heaters are not intended to replace periodic inspection or maintenance. However, in order to reduce maintenance, many heaters are energized during normal operation to minimize potential condensation within the compartments.

Limitorque has advised that limit switch compartment heaters consist of an inorganic ceramic core with a wire wound or film resistive element completely encapsulated by a ceramic glaze. This type of heater has been subjected to seismic acceleration up to 12g. with no structural damage to the heater. Limitorque has stated that the failure mode of this type of heater normally results in an open circuit and will not short its power supply. The degree of uncertainty in this statement does not provide a high confidence level for use of these heaters in Class IE applications without adequate isolation.

It is Limitorque opinion that the motor space heaters should have the capability of withstanding in excess of 6G acceleration without ill effects. It has also been determined by Ebasco that these heaters may fail in the short circuit mode thereby possibly adversely affecting the safety-related control circuit.

SAFETY EVALUATION

The failure of the space heaters could result in a short circuit adversely affecting the Class IE power supply to the Motor Operated valve. This could render the capability of the valve to perform the intended safety function indeterminate and compromise the integrity of the Class IE power supply. Therefore, if left uncorrected, this condition could adversely affect the safe operation of the plant.

(SCD-117 cont'd)

CORRECTIVE ACTION

Since the valves were environmentally qualified without the space heaters, the motor and limit switch space heaters were disconnected from the Class 1E power supply to ensure that safety-related circuits are not adversely affected by the failure of the space heaters. The motor and limit switch space heaters for four (4) valves are double isolation protected through the presence of a fuse and a circuit breaker; therefore, no corrective action was required. Engineering has indicated that the space heaters are adequately supported to sustain the accelerations of the design basis earthquake.

This is submitted as the final report to SCD-117.