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AUTH.NAME AUTHOR AFFILIATION
PAPAY,L.T. Southern California Edison Co.
RECIP.NAME RECIPIENT AFFILIATION
ENGELKEN,R.H. Region 5, San Francisco, Office of the Director

SUBJECT: Final deficiency rept,originally reported on 801125,re qualification failure of Westinghouse motor operated gate valves.Caused by insufficient actuator output.Manufacturer will replace motor actuator & yoke prior to fuel loading.

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VICE PRESIDENT

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January 28, 1981

Mr. R. H. Engelken, Director
Office of Inspection and Enforcement
U. S. Nuclear Regulatory Commission
Region V
Suite 202, Walnut Creek Plaza
1990 North California Boulevard
Walnut Creek, California 94506

Dear Mr. Engelken:

Subject: Docket Nos. 50-361 and 50-362
San Onofre Nuclear Generating Station, Units 2 and 3

In a letter to your office dated November 25, 1980 we identified a condition which we considered to be potentially reportable in accordance with 10CFR50.55(e). An interim report was submitted on December 23, 1980. The condition involves 3-inch motor operated gate valves supplied by Westinghouse Electric Corporation of Cheswick, Pennsylvania and used for containment isolation. Westinghouse had advised that valves of this type did not close completely when tested under conditions of high flow and pressure differential.

The investigation by Westinghouse of this condition has resulted in a decision to replace the motor actuators. Enclosed are twenty-five (25) copies of a final report entitled, "Final Report on Qualification Failure of Westinghouse Motor Operated Gate Valves, San Onofre Nuclear Generating Station, Units 2 and 3."

If you have any questions regarding this report, we would be pleased to discuss them with you at your convenience.

Very truly yours,

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Enclosures
cc: Victor Stello (NRC, Director I&E)
R. J. Pate (NRC, San Onofre Units 2 and 3)

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FINAL REPORT ON QUALIFICATION FAILURE OF WESTINGHOUSE MOTOR OPERATED GATE VALVES

San Onofre Nuclear Generating Station, Units 2 and 3

INTRODUCTION

This report is submitted pursuant to 10CFR50.55(e)(3). It describes a condition involving failure of 3-inch motor operated gate valves which were manufactured by Westinghouse Electric Corporation, Electro Mechanical Division, of Cheswick, Pennsylvania. One of those valves is utilized in each Unit of this Project. This report includes a description of the deficiency, an analysis of the safety implications of the condition, and a summary of the corrective actions taken to date. By letter dated November 25, 1980, Edison confirmed notification to the NRC and on December 23, 1980, Edison submitted an interim report on this condition.

BACKGROUND

The condition which is reported here was discovered during preoperational testing at the Virgil C. Summer Station and at a foreign station. The tested valves failed to completely close under preoperational test conditions which were less severe than the equipment specification design conditions. The valves stroked to significantly restrict flow but the full stroke was not accomplished to trip the "closed" position indication contacts in the motor operator or to seat the valve discs within the valve body. The valves were 3-inch motor operated gate valves, Model 3GM55. The later redesign version 3GM99, which was supplied to this Project, is considered to be subject to the same problem.

DISCUSSION

The following is responsive to 10CFR50.55(e).

Description of Deficiency

An evaluation performed by the manufacturer, Westinghouse, Electro Mechanical Division, has determined that the deficiency is the result of insufficient actuator output. Through testing and analysis, Westinghouse has concluded that the peak closing loads exceed those anticipated in the design. Further testing and analysis is being conducted to verify the cause of the deficiency.

Analysis of Safety Implications

The containment penetration (number 2) for the primary coolant letdown line is provided with redundant containment isolation valves with diverse valve actuators, an air operated valve on the outside and the subject motor operated valve on the inside. The safety function of the valve is to isolate the primary coolant system in the case of a break outside containment concurrent with the failure of the air operated containment isolation valve. The inside containment isolation valve would be required to close against full letdown line pressure resulting in a shutoff differential pressure of 2,250 psid. Failure of the valve to close completely would result in leakage of reactor coolant outside of the containment. The primary safety implication is failure to isolate the containment as the leakage is enveloped by the analysis of a letdown line break as presented in the FSAR Section 15.6.3.

Corrective Action

The valve manufacturer will replace the motor actuator and yoke prior to fuel load with an assembly which has been analyzed to assure that sufficient actuator output will be available to meet San Onofre Units 2 and 3 requirements.