

8/2/76

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Dockets Nos. 50-250
and 50-251

Florida Power and Light Company
 ATTN: Dr. Robert E. Uhrig
 Vice President
 P. O. Box 013100
 Miami, Florida 33101

Gentlemen:

By letter dated May 27, 1975, we requested an analysis which would confirm that the integrity of the main steam isolation valves (MSIV's) would be maintained under accident conditions at Turkey Point Nuclear Generating Station Units Nos. 3 and 4. By letter dated January 30, 1976, you responded to our request. In your letter you described valve modifications which you stated would be completed during the fall of 1976 for Unit No. 3 and during the spring of 1977 for Unit No. 4.

We have completed our review of your submittal and have concluded that your MSIV analysis is acceptable and demonstrates that your proposed valve modifications will add assurance that the MSIV's and check valves will fulfill their design function.

Sincerely,

George Lear, Chief
 Operating Reactors Branch #3
 Division of Operating Reactors

Enclosure:
 Safety Evaluation

OFFICE >	ORB#3 <i>DElliott</i>	ORB#1 <i>CTrammell</i>	ORB#3			
SURNAME >	DElliott:acr	CTrammell	GLear <i>62</i>			
DATE >	7/30/76	7/30/76	8/2/76			

cc:

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Lowenstein, Newman, Reis & Axelrad
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Suite 1214
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UNITED STATES
NUCLEAR REGULATORY COMMISSION
WASHINGTON, D. C. 20555

SAFETY EVALUATION BY THE OFFICE OF NUCLEAR REACTOR REGULATION

REGARDING THE INTEGRITY OF MAIN STEAM

ISOLATION VALVES DURING ACCIDENT CONDITIONS

FLORIDA POWER AND LIGHT COMPANY

TURKEY POINT NUCLEAR GENERATING UNITS 3 AND 4

DOCKETS NOS. 50-250 AND 50-251

Introduction

Adverse operating experience concerning main steam isolation valves (MSIVs) has been reported to the Office of Inspection and Enforcement (OI&E) following operational tests and spurious closures at various pressurized water reactor (PWR) stations over an extended period of time. In an effort to gain a better understanding of these events, Information Request No. 74-2 was sent to all PWR stations by OI&E. The information thus obtained was used as input to a generic study conducted by the Office of Nuclear Reactor Regulation. During our review, we had the benefit of discussions with personnel representing various valve manufacturers and also with utility representatives whose facilities were affected.

Our concern was the ability of the swing-check type MSIVs to withstand the dynamic forces associated with rapid closure in the event of a steam line rupture. As a result of this generic study, it was determined that in some cases there may be a need to upgrade both the materials and the design of the larger swing-check MSIVs in order to prevent degradation during normal service and to assure performance of all design safety functions.

Therefore, on May 27, 1975 the Nuclear Regulatory Commission (NRC) requested a number of licensees of pressurized water reactors (PWR's) to supply summary information on the analyses or tests performed to confirm the ability of the main steam isolation valves (MSIV's) to withstand the forces associated with rapid closure under postulated steam line break conditions.

By letter dated January 30, 1976, Florida Power and Light Company (FPL) responded to our request. Our evaluation of FPL's response relative to the concerns of MSIV performance under postulated main steam line break conditions, follows.

Evaluation

An MSIV is provided outside containment on each of the three steam generator main steam lines. Each MSIV consists of a swing disc valve with a pneumatic cylinder holding the disc open against flow. Located downstream of each MSIV is a check valve whose purpose is to prevent reverse steam flow in the event of a line break between the MSIV and the steam generator.

In their analysis, FPL utilized a dynamic plasticity model to determine the structural response of the disc and valve body under worst case impact closure. As a result of this analysis FPL plans to modify both the MSIV's and the check valves. The rockshaft, tail links and seats of the MSIV's and check valves will be modified to limit disc deflections and to allow a more uniform transfer of kinetic energy from the disc to the valve body during impact. In addition, the pneumatic cylinder for the MSIV will be replaced with a cylinder of larger diameter.

FPL's initial analysis of the unmodified valves indicated that some permanent deformation of the valve components may occur. However, the deformation would not be great enough to cause the MSIV or check valves to lose their capability to perform their design function. FPL plans to modify the MSIV's and check valves in order to limit potential valve component deflection and strain. Our evaluation has determined that the valve modifications will: (1) assure that the MSIV and check valves will perform satisfactorily under all accident conditions and (2) provide a significantly increased margin of safety.

Conclusion

Based on our review, we have concluded that the analysis of the MSIV's and check valves is acceptable and that the valves satisfy General Design Criterion 4 of Appendix A of 10 CFR Part 50. Your proposed modifications will add assurance that the MSIV's and check valves will fulfill their design function.

Dated: August 2, 1976

