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FROM: Florida Power & Light Co. Miami, Fla. 33101 R. E. Uhrig	DATE OF DOC 1-30-76	DATE REC'D 2-3-76	LTR XX	TWX	RPT	OTHER
TO: Mr. George Lear	ORIG 1 signed	CC	OTHER	SENT NRC PDR XX SENT LOCAL PDR XX		
CLASS	UNCLASS XXX	PROP INFO	INPUT	NO CYS REC'D 1	DOCKET NO: 50-250/251	

DESCRIPTION: Ltr re our 5-27-75 ltr.... furn infonmation on the integrity of the main steam isolation valves under the dynamic loads associated with postulated steam line breaks with attachment & Figures 1-4....

ENCLOSURES:

Do Not Remove

ACKNOWLEDGED

PLANT NAME: Turkey Pt. Units 3 & 4

SAFETY — FOR ACTION/INFORMATION — ENVIRO DHL 2-5-76

ASSIGNED AD

BRANCH CHIEF LEAR (6)

PROJECT MANAGER ELLIOT

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ASSIGNED BRANCH CHIEF

PROJECT MANAGER

LIC ASST. W/ ACRS

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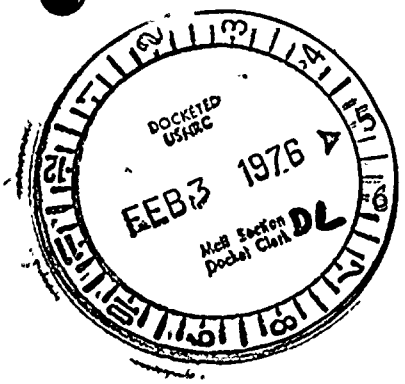
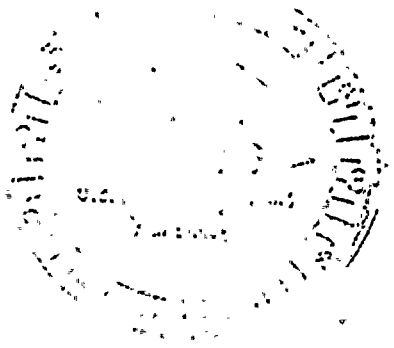


January 30, 1976
L-76-39

Director of Nuclear Reactor Regulation
ATTN: Mr. George Lear, Chief
Operating Reactors Branch No. 3
Division of Operating Reactors
U. S. Nuclear Regulatory Commission
Washington, D. C. 20555



Dear Mr. Lear:

Re: Turkey Point Units 3 and 4
Docket Nos. 50-250 and 50-251
Main Steam Isolation Valves

Your letter of May 27, 1975 requested information concerning the integrity of the Turkey Point Units 3 and 4 main steam isolation valves under the dynamic loads associated with postulated steam line breaks. Our letters L-75-237 of July 3, 1975 and L-75-524 of October 28, 1975, progressively reported the status of our investigations. The evaluation of the Turkey Point main steam isolation valves and main steam line check valves is now complete and the information requested is provided in an Attachment to this letter.

Analyses have been performed using the "worst case" approach. The trip valve analysis assumed a double-ended pipe break at the check valve outlet. The check valve analysis assumed a similar break at the trip valve inlet. Any other postulated pipe break would be further from the valves and would therefore result in a lower disc velocity and impact energy. The analyses also considered the use of the various steam pressures and steam flows which would be representative of different power levels. A power level of about 53% was finally used in the analyses because it yielded the most conservative results. In all cases, the values assumed for material physical properties were the most limiting. The actual physical properties can be expected to be less limiting.

Both pre-impact and post-impact analyses were performed.

Pre-impact

The pre-impact analysis considered the centrifugal forces acting on the tail link and rockshaft. It was found that

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these forces cause the tail link and rockshaft to deflect in the radial direction. In addition, there will be sufficient radial deflection to permit the valve disc to contact the valve body just before the disc impacts with the valve seat. Calculations indicate that the disc will rebound slightly after contact with the body and continue on to impact the seat and effect valve closure. Evaluation of the pre-impact analysis indicates that contact between the valve disc and valve body does not result in loss of function of the disc or body.

Post-impact

The post-impact analysis conservatively assumed that no energy loss occurs during pre-impact contact between the valve disc and valve body even though such contact can be expected to result in some loss of disc kinetic energy. The analysis dealt primarily with the forces and strains generated in the disc, seat, and tail link hub by the impact of the disc on the seat. The post-impact strains occurring in the valve are all less than the minimum ultimate strain capacity for the respective materials involved. The effect on the valve is that the disc and seat will undergo some plastic deformation in the impact areas but will still close to effectively shut off steam flow.

To provide an increased margin of safety, we plan to modify the valves as described in the Attachment. The modifications will be similar to those made on our St. Lucie Unit No. 1. With these modifications, the potential deflection in the rockshaft and tail link is reduced to .25 in. The maximum tail link strain occurs in the tail link hub and is less than 20% of the minimum ultimate strain capacity of the material. The strains in the modified disc and seat are greatly reduced with the maximum strain occurring in an element of the check valve disc. The maximum strain in the check valve is 60% of the strain capacity of the disc material. Also, the use of a larger operating air cylinder will greatly reduce the strains in the air operated trip valve because the velocity of the trip valve disc will be significantly reduced.

A cyclic fatigue analysis of the modified valve internals has been performed and has demonstrated that a satisfactory number of spurious closures during 100% power operation can be accommodated. The modified valves have been found to be satisfactory under all conditions analyzed, and will provide a significantly increased performance margin.

A discussion of the modification schedule is presented in the Attachment. In summary, Unit 3 modifications are planned for the Fall 1976 refueling outage and Unit 4 modifications are planned for no later than the Spring 1977 refueling outage.

Very truly yours,

Robert E. Uhrig
Vice President

MAS/cpc

cc: Jack R. Newman, Esquire