

USNRC REGION II  
ATLANTA, GEORGIA

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May 10, 1982  
L-82-194

Mr. James P. O'Reilly, Director, Region II  
Office of Inspection and Enforcement  
U. S. Nuclear Regulatory Commission  
101 Marietta Street, Suite 3100  
Atlanta, GA 30303

Dear Mr. O'Reilly:

Re: St. Lucie Unit 2  
Docket No. 50-389/82-003  
Solenoid Valves in  
Safety Injection System

On February 10, 1982, Florida Power and Light Company (FPL) notified the Region II Office of Inspection and Enforcement, in accordance with the requirements of 10 CFR 50.55(e), of a potential deficiency regarding solenoid valves in the Safety Injection System. On March 10, 1982 Florida Power and Light Company notified Region II that a final report on this issue would be submitted by May 10, 1982. Attached please find our final resolution of this issue.

Very truly yours,

Robert E. Uhrig  
Vice President  
Advanced Systems & Technology

REU/GJK/ga

Attachment

cc: Director of Inspection and Enforcement  
U. S. Nuclear Regulatory Commission  
Washington, D.C. 20555 (w/attach)  
Harold F. Reis, Esquire

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## ATTACHMENT

### I. Summary

On February 10, 1982, a potentially reportable item was identified concerning minimum flow isolation valves in the safety injection system. These solenoid valves failed to isolate properly upon receipt of a closure signal. Florida Power and Light Company (FPL) believes that this condition by itself would not adversely affect the safe operation of St. Lucie Unit 2. A redundant isolation valve of a different type is provided upstream of the solenoid valve and the observed deficiency occurred only when the solenoid valve was operated by itself. However, this item is being reported in accordance with 10 CFR 50.55(e) because design modifications will be made to this component in a safety system to correct the deficiency.

### II. Description

During routine preoperational usage of the safety injection system, piping vibrations were observed when the subject minimum flow isolation valves were closed with the safety injection pumps running. The valve plug seemed to be bouncing off the valve seat inducing the vibrations. The valves were 6" Target Rock Solenoid valves. Two such valves are in the plant, one associated with each of two safety injection trains. A redundant motor valve is provided upstream of the solenoid valve. When the above condition was observed the upstream valve was intentionally open. When the system is performing its safety function both valves receive a simultaneous closure signal.

### III. Corrective Action

Additional site operations were conducted to confirm the original observations. The phenomena was repeated although not consistently. Offsite tests were conducted on similar components to better understand the problem. It was established that inducing air into the offsite test valve resulted in similar phenomena being observed. The valve at the site had no provisions for direct venting of the valve. As the system itself sees very little usage, self venting did not occur. Vents were provided for the site valves. The valves always closed properly with venting just prior to closure. Venting prior to closure is not consistent with the system function. It was found that with appropriate modifications to the offsite test valve it was possible to obtain correct valve action with or without air in the valve.

A wide range of test conditions were examined to cover expected service conditions. It was decided to modify the internals of the site valves to avoid the necessity of venting. These modifications are in progress. Installation and retesting are scheduled for June 1982.

### IV. Safety Implication

The problem involves valves in the minimum recirculation line between the safety injection system pumps and the refueling water storage tank (RWST). If the line remains open during a LOCA event after an RAS there is the potential of transferring containment sump water to the RWST. This could represent a potential path for radiation releases. The valve in question is one of two valves in series that receive RAS closure signals. The valves are of different types. The other valve is a motor operated valve and not subject to the problem. The closure of either valve provides the desired isolation.

Therefore, Florida Power & Light Company does not believe that the inability of the single valve to close properly would, by itself, adversely affect safe operation of the plant. However, it is expected that it will close properly.

V. Conclusion

Notification of successful completion of system tests following the component modification identified in section III will close out this issue with respect to the reporting requirements of 10 CFR 50.55(e).