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RECIP.NAME RECIPIENT AFFILIATION
MILLER,J.R. Operating Reactors Branch 3

SUBJECT: Forwards addl info re reactor coolant pump trip,per NRC 850423 & 25 requests.Containment isolation actuation signals do not affect any reactor coolant pump essential svcs.

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L-85-209

Office of Nuclear Reactor Regulation
Attention: Mr. James R. Miller, Chief
Operating Reactors Branch No. 3
Division of Licensing
U. S. Nuclear Regulatory Commission
Washington, D.C. 20555

Dear Mr. Miller:

Re: St. Lucie Unit No. 1
Docket No. 50-335
Reactor Coolant Pump Trip

Attached is Florida Power and Light Company's response to your letters of April 23, 1985, and April 25, 1985, requesting additional information concerning reactor coolant pump trip.

Very truly yours,

for J. W. Williams, Jr.
Group Vice President
Nuclear Energy

JWW/RJS/cab

Attachment

A001
1/1

St. Lucie Unit No. 1

Reactor Coolant Pump Trip

Additional Information

NRC Item No. 1:

Does any containment isolation signal result in the termination of systems essential for continued operation of the reactor coolant pumps? If so, identify the signals and systems effected.

FPL Response:

Containment Isolation Actuation Signals (CIAS)do not affect any RCP essential services. However it should be noted that the Safety Injection Actuation Signal does isolate Component Cooling Water (CCW) and CCW does provide RCP Cooling including seal cooling.

NRC Item No. 2:

If essential water services are terminated, provide a description of the operator guidelines, training, and procedures in place (or to be implemented) which assure that these services are restored in a timely manner to prevent seal damage or failure, once a non-LOCA situation has been confirmed.

FPL Response:

Essential water services are terminated by SIAS as described above. Once a non-LOCA situation has been confirmed and the RCP's have not been without seal cooling for greater than ten (10) minutes, RCP's may be restarted if the following start criteria can be satisfied:

A. The RCS temperature is greater than 20°F subcooled.

B. Pressurizer level and pressure control is normal.

C. At least one steam generator is available to remove heat from the RCS.

D. There is no indication of voiding.

E. RCP permissive light is lit.

The non-LOCA procedures involved are EOP 0120041 (Steam Generator Tube Rupture) and EOP 0810040 (Main Steam Line Break).

If an inadvertant SIAS signal were to occur such that CCW was lost to the RCP's, the signal could be reset. "Appendix A" (Safety Injection Termination and Throttling Criteria) provides for this resetting and is contained in EOP's 0030140 (Blackout Operation), 0120040 (Natural Circulation/Cooldown), 0120041 (Steam Generator Tube Rupture), 0120042 (LOCA), and 0810040 (Main Steam Line Break). Once the SIAS was reset, the CCW containment isolation valves could be reopened to supply cooling water to the RCP's. These criteria are as follows.

A. RCS T-Hot and CET temperatures indicate at least 20°F subcooled for corresponding RCS pressure.

B. Pressurizer level is greater than 30% and not decreasing.

C. At least one steam generator is greater than 40% wide range level and capable of removing heat from the RCS.

D. Reactor vessel inventory level is greater than 50% level as indicated on the vessel plenum region QSPDS display.

The CCW to RCP containment isolation valves can be reopened in the event of an air supply failure or solenoid failure. This is done per off-normal operating procedure 1-0120034 (Reactor Coolant Pump-Off-Normal Operation). This method would prevent closure under SIAS conditions, and a note is in this procedure that technical specification action is required. This jumpering is administratively controlled by AP0010124 (Control and Use of Jumpers and Disconnected Leads in Safety Related Systems).

NRC Item No. 3:

Provide confirmation, including the technical basis, that containment isolation with continued RCP operation will not lead to seal or pump damage or failure.

FPL Response:

Seal injection can be placed in service remotely from the Control Room. However, initiating seal injection with the RCS temperature greater than 300°F is not recommended. If seal injection were not initiated within 10 minutes of loss of CCW, seal degradation would occur.

It must be noted that an identical RCP seal has been tested for St.Lucie Unit 2 for 50 hours without cooling and the maximum leak rate was 16.1 gph. Ref FP&L letter L-81-107 March 10, 1981.

NRC Item No. 4:

Since RCP trip will be required for LOCA events, assurance must be provided that RCP trip, when required, will occur. To address this concern, provide the following information.

(a) Identify the components required to trip the RCPs. Include relays, power supplies and breakers. Address reliability and alternate trip methods.

(b) If necessary, as a result of the location of any critical component, include the effects of adverse containment conditions on RCP trip reliability. Describe the basis for the adverse containment parameters selected.

FPL Response:

A. The critical components required to trip the RCP's are the switch on the RTGB, the 6.9 kv RCP Breaker and its associated Trip Coil. The trip coil can be energized manually to trip the breaker from two places, the control switch on the RTGB and the push button on the 6.9 kv breaker cubicle. 125 VDC Control power (125 VDC) is required to energize the trip coil. The RCP breaker can be tripped independent of Control power by depressing the trip plunger inside the breaker cabinet or by racking out the breaker. Power to the RCP's could also be interrupted by opening the feeder breaker to the startup or auxiliary transformers or by opening switchyard breakers. Automatic trips for the RCP breaker include trips for loss of 6.9 kv feed, overcurrent, and phase differential.

B. The critical components required to trip the RCP's are located outside containment.