Mr. Thomas F. Plunkett
President, Nuclear Division
Florida Power and Light Company
Post Office Box 14000
Juno Beach, Florida 33408-0420

June 26, 1996

SUBJECT: REQUEST FOR ADDITIONAL INFORMATION - GENERIC LETTER 95-07, "PRESSURE LOCKING AND THERMAL BINDING OF SAFETY-RELATED POWER-OPERATED GATE VALVES," ST. LUCIE UNITS 1 AND 2 (TAC NOS. M93523 AND M93524)

Dear Mr. Plunkett:

On August 17, 1995, the NRC issued Generic Letter (GL) 95-07, "Pressure Locking and Thermal Binding of Safety-Related Power-Operated Gate Valves," to request that licensees take actions to ensure that safety-related power-operated gate valves that are susceptible to pressure locking or thermal binding are capable of performing their safety functions. The NRC staff is reviewing and evaluating your response to GL 95-07. Additional information, as discussed in the enclosure, is requested in order for the staff to complete its review. Your response is requested within 30 days of receipt of this letter.

The information requested by this letter is within the scope of the overall burden estimated in Generic Letter 95-07, "Pressure Locking and Thermal Binding of Safety-Related Power-Operated Gate Valves," which was a maximum of 75 hours per response. This request is covered by Office of Management and Budget Clearance Number 3150-0011, which expires July 31, 1997.

Sincerely,

Original signed by

Leonard A. Wiens, Senior Project Manager
Project Directorate II-3
Division of Reactor Projects-I/II
Office of Nuclear Reactor Regulation

Docket Nos. 50-335
and 50-389

Enclosure: Request for Additional Information

cc w/enclosure: See next page

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REQUEST FOR ADDITIONAL INFORMATION

ST. LUCIE UNITS 1 AND 2, RESPONSE TO GENERIC LETTER 95-07, "PRESSURE LOCKING AND THERMAL BINDING OF SAFETY-RELATED POWER-OPERATED GATE VALVES"

1. Regarding Unit 1 valves V-1403 and V-1405, Power Operated Relief Valve (PORV) Block Valves, the licensee's submittal states that these valves are 2.5" Velan solid wedge gate valves and discusses previous operating experience in which these valves were used to isolate a leaking PORV when the unit was at 100% power and subsequently successfully opened for low temperature overpressure (LTOP) protection. In addition, the licensee's submittal states that these valves have been modified to close on the limit switch. The staff agrees that (1) past operational experience provides valuable information in determining susceptibility to thermal binding and (2) prevention of excessive closing forces on the valve disk reduces susceptibility to thermal binding. For the purposes of closure of the NRC staff's GL 95-07 review, does the licensee have diagnostic test data which demonstrates the reduction in closing thrust following the completed modifications to change the seating logic from torque switch to limit switch? If so, please provide this information for NRC staff review.

2. Regarding Unit 2 valves V-1476 and V-1477, PORV Block Valves, the licensee's submittal states that these valves are 3" Westinghouse flex-wedge gate valves and discusses the potential susceptibility to pressure locking and thermal binding. The licensee's submittal states that these valves will receive only steam, which may be a pressure locking concern due to configurations that permit condensate to collect and drain into the valve bonnet with a subsequent temperature increase of the valve bonnet. Further, the licensee's submittal states that valves V-1476 and V-1477 are oriented in the "upright" position. The NRC staff agrees that valves which experience only steam service and are oriented such that steam condensate cannot become trapped in the valve are not susceptible to thermally induced pressure locking. However, the NRC staff believes that steam will maintain bonnet pressure during an RCS depressurization scenario. Please address this potential susceptibility to depressurization induced pressure locking. Has the licensee completed any calculations regarding (1) the thrust required to overcome pressure locking and (2) the actuator capability? If so, please provide these calculations for our review.

   Regarding the potential susceptibility of these valves to thermal binding, the licensee's submittal discusses past operational experience and states that the actuators have Limitorque SB operators which have compensating spring packs that absorb inertial closing forces and prevent excessive wedging of the disk into the seat. Does the licensee have diagnostic test data which demonstrates that the wedging of these valves is not excessive? If so, please provide this information for our review.

ENCLOSURE

3. In Attachment 1 to GL 95-07, the NRC staff requested that licensees include consideration of the potential for gate valves to undergo pressure locking or thermal binding during surveillance testing. During workshops on GL 95-07 in each Region, the NRC staff stated that, if closing a safety-related power-operated gate valve for test or surveillance defeats the capability of the safety system or train, the licensee should perform one of the following within the scope of GL 95-07:

   1. Verify that the valve is not susceptible to pressure locking or thermal binding while closed,

   2. Follow plant technical specifications for the train/system while the valve is closed,

   3. Demonstrate that the actuator has sufficient capacity to overcome these phenomena, or

   4. Make appropriate hardware and/or procedural modifications to prevent pressure locking and thermal binding.

   The staff stated that normally open, safety-related power-operated gate valves which are closed for test or surveillance but must return to the open position should be evaluated within the scope of GL 95-07. Please discuss if valves which meet this criterion were included in your review, and how potential pressure locking or thermal binding concerns were addressed.

4. Through review of operational experience feedback, the staff is aware of instances where licensees have completed design or procedural modifications to preclude pressure locking or thermal binding which may have had an adverse impact on plant safety due to incomplete or incorrect evaluation of the potential effects of these modifications. Please describe evaluations and training for plant personnel that have been conducted for each design or procedural modification completed to address potential pressure locking or thermal binding concerns.