



Florida Power & Light Company, 6501 South Ocean Drive, Jensen Beach, FL 34957

February 9, 2001

L-2001-029  
10 CFR 50.90

U. S. Nuclear Regulatory Commission  
ATTN: Document Control Desk  
Washington, D. C. 20555

RE: St. Lucie Unit 1  
Docket No. 50-335  
FPL RAI Response for  
MSLB Reanalysis PLA

By FPL letter L-2000-236 dated December 4, 2000, Florida Power and Light Company (FPL) requested to amend Facility Operating License DPR-67 for St. Lucie Unit 1 by revising the Unit 1 inside containment main steam line break (MSLB) analysis to credit a non-safety trip of the main feedwater and condensate pumps as the backup for the safety related closure of the main feedwater isolation valves. A telephone conference was held on January 26, 2001 between FPL and Mr. Jabbour and Mr. Moroney of the NRC staff to discuss the submittal. Based on this telephone conference and follow up email, the NRC forwarded a request for additional information (RAI) regarding the submittal. Attached is FPL's response to the RAI.

Attachment 1 contains the FPL response. The original No Significant Hazards Determination bounds the information provided in the RAI response. In accordance with 10 CFR 50.91 (b) (1), a copy of the RAI response is being forwarded to the State Designee for the State of Florida.

Please contact us if there are any questions about this submittal.

Very truly yours,

Rajiv S. Kundalkar  
Vice President  
St. Lucie Plant

RSK/EJW/KWF

Attachments

cc: Regional Administrator, Region II, USNRC  
Senior Resident Inspector, USNRC, St. Lucie Plant  
Mr. W. A. Passetti, Florida Department of Health and Rehabilitative Services

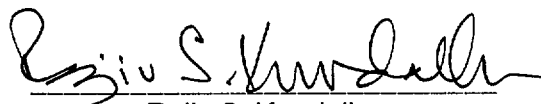
AD001

STATE OF FLORIDA        )  
                                  )    ss.  
COUNTY OF ST. LUCIE    )

Rajiv S. Kundalkar being first duly sworn, deposes and says:

That he is Vice President, St. Lucie Plant, for the Nuclear Division of Florida Power and Light Company, the Licensee herein;

That he has executed the foregoing document; that the statements made in this document are true and correct to the best of his knowledge, information and belief, and that he is authorized to execute the document on behalf of said Licensee.

  
Rajiv S. Kundalkar

STATE OF FLORIDA

COUNTY OF St. Lucie

Sworn to and subscribed before me

this 9 day of February, 2001

by Rajiv S. Kundalkar, who is personally known to me.



Signature of Notary Public-State of Florida



Leslie J. Whitwell  
MY COMMISSION # CG646183 EXPIRES  
May 12, 2001  
BONDED THRU TROY FAIN INSURANCE, INC.

Name of Notary Public (Print, Type, or Stamp)

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Attachment 1  
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FPL RAI Response  
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St. Lucie Unit 1  
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## Background

During a telephone conference and follow up email, the NRC forwarded a request for additional information (RAI) concerning the proposed license amendment submitted by FPL letter L-2000-236 dated December 4, 2000. This attachment contains the FPL response to the RAI. The conclusions of the original determination of No Significant Hazards Evaluation and Environmental Consideration statement are not affected by this response.

## FPL Responses

### Question 1

The licensee's submittal dated December 4, 2000, indicates that the design modification to address a potential MSLB will include one pneumatic-powered MFIV and one motor-operated MFW pump discharge valve in both feedwater lines. The pneumatic-powered MFIV will be capable of closing by means of a passive nitrogen accumulator with a closing time of 22.56 seconds after the break (according to Table 6.2-4D of the licensee's submittal). On pages 6 and 7 of Attachment 1, the licensee notes several design criteria for the modification to install pneumatic actuators on MV-09-7 and 09-8. In addition to these considerations, how will the licensee ensure that the pneumatic actuator can achieve the stroke time necessary to support the MSLB analysis under the loading conditions associated with the high differential pressure and flow determined as part of the licensee's MOV program in response to GL 89-10 for these particular valves?

### FPL Response:

The required closing thrust for the original motor operated valves on Unit 1, MV-09-7 and MV-09-8, was determined using the EPRI Motor Operated Valve Performance Prediction Program. The EPRI Motor Operated Valve Performance Prediction Program is a conservative computer model developed using valve data which inputs specific valve dimensional data as well as system information (piping, flow, differential pressure (DP)) to determine valve thrust requirements. The required closing thrust of 219,091 lbs was determined using an upstream pressure of 1774 psia, a differential pressure of 1729 psid, and a temperature of 432°F with flashing water. The system flow model was used in the determination to ensure conservative results. The system conditions are documented in the design basis differential pressure calculation and are not modified by the proposed design.

The valve pneumatic actuators currently being procured from Flowserve were specified to close in 10 to 15 seconds with a valve required closing thrust requirement of 219,091 lbs plus 10%, for a total of 241,100 lbs. The design and seismic analysis report inputs a value of 242,000 lbs for the calculation stem thrust, with acceptable results. The inherent conservatism of the EPRI MOV Performance Prediction Program, in conjunction with the additional 10% margin, will provide adequate design margins for the actuator.

The minimum closing time requirement was based on ensuring that valve damage did not occur and that unacceptable hydraulic loads were not generated. The maximum closing time requirement was based on meeting design analysis requirements. The required system conditions (flow, DP, temperature) were also specified in the design specification. Finally, the design specification requires that the closing time requirement be demonstrated with flow equivalent to two times the normal flow which will bound accident conditions. Therefore, compliance with the specification requirements will ensure the actuator is capable of meeting the design requirements for the valve under the accident loading conditions for the valve.

## **Question 2**

The non-safety grade pump trip is the backup for failure of an MFIV. The licensee's analysis assumes that this backup for MFIV failure will provide the same or less SG inventory as MFIV closure. How has the licensee addressed the remaining performance requirements for the motor-operated MFW pump discharge valves?

FPL Response:

MFW pump discharge valves MV-09-1 and -2 will remain the safety related redundant backup to the MFIVs for postulated breaks in the nonseismically qualified portions of the main steam system. Given the new MFIV design, the design basis DP calculation determined the highest DP for MV-09-1 and MV-09-2 based on the most limiting scenario. The most limiting scenario requires the valves to close to prevent steam generator overfill in the event the downstream MFIVs (MV-09-7 and MV-09-8) fail to close. For a MSLB outside containment, downstream of the MSIV in the non-safety piping, only safety related equipment can be credited (Reference. 1, Section 15.1.5.II.6). Since the non-safety backup feedwater and condensate pump trips can not be credited for the steam generator overfill scenario, MV-09-1 and MV-09-2 will be required to isolate feedwater flow against MFW pump discharge pressure. The DP calculation will be revised based on this limiting scenario and the actuator setpoints will be revised and adjusted in the field as required.

Based on the new MFIV design, the MFW pump discharge valves (MV-09-1 and MV-09-2) will remain in the GL 89-10 and GL 96-05 MOV Programs. The design basis DP for these valves will be reduced, such that the actuators will have adequate design margin available to overcome the required design closing thrust consistent with FPL commitments to the NRC regarding design margins.

The specific design details for this modification and the revised closing thrust requirements will be addressed as part of the MFIV actuator replacement design.

#### References

1. NUREG-0800, Standard Review Plan