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 FACIL: 50-335 St. Lucie Plant, Unit 1, Florida Power & Light Co. 05000335
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 CLARK, R. A. Operating Reactors Branch 3

SUBJECT: Forwards response to NRC 820412 ltr re evaluation of event postulated in Question 1 concerning overpressure mitigating sys. Existing design adequately addresses scenario postulated in Question 1.

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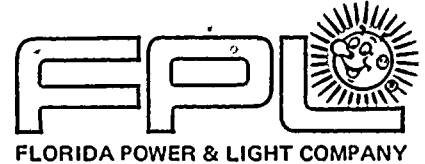


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July 28, 1982
L-82-314

Office of Nuclear Reactor Regulation
Attention: Mr. Robert A. Clark, Chief
Operating Reactors Branch #3
Division of Licensing
U. S. Nuclear Regulatory Commission
Washington, D.C. 20555

Dear Mr. Clark:

Re: St. Lucie Unit 1
Docket No. 50-335
Overpressure Mitigating System

We have completed our evaluation of the event postulated in Question 1 of your letter dated April 12, 1982. Our response is attached.

We previously provided responses to your other questions in our letter (L-82-238) dated June 7, 1982.

Very truly yours,

Robert E. Uhrig
Vice President
Advanced Systems & Technology.

REU/PLP/cab

cc: J. P. O'Reilly, Region II
Harold F. Reis, Esquire

Acc.

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Re: St. Lucie Unit 1
Docket No. 50-335
Overpressure Mitigating System

Question 1

Branch Technical Position, RSB 5-2, requires the Overpressure Mitigating System (OMS) to perform its function with a single failure when the initiating event is not considered as the single active failure. Please address the following postulated event:

Consider the initiating event to be the loss of a DC control bus that isolates letdown flow and also violates the operability of one PORV. Then consider the failure of the other PORV as your single OMS failure.

Response

Question 1 postulated that loss of one of the two redundant DC control buses is the initiating event. Since the overpressure mitigating system is designed with two redundant PORV's, the event postulated appears to go beyond the design bases for the facility; it postulates loss of one redundant DC bus and the dependent failure of a PORV as an initiating event, and a single failure in the redundant train. The design is based on loss of a single redundant PORV in accordance with the single failure criterion. The issue then is simply whether or not the single failure criterion constitutes an acceptable design basis for the repressurization event. For the reasons cited below we believe the existing design is proper.

The concern occurs when the unit is in solid pressure control, which may occur in the order of 100 hours per year. Thus the probability of solid state pressure control operation per year is $100/8760$ or 1×10^{-2} . WASH-1400 indicates a failure probability per demand of 1×10^{-3} for a solenoid operated valve. Thus the failure probability of one PORV in solid pressure control is about 1×10^{-5} per year.

NUREG-0666 indicates a probability from all causes of about 6×10^{-3} for loss of a single DC bus. Thus the probability of the event postulated in Question #1 is about 10^{-7} which is acceptably low.

The NUREG also indicates that operator and maintenance errors contribute significantly to the loss of DC bus operability. To minimize the likelihood of the postulated initiating event further we will restrict maintenance and testing activities involving the DC bus such that they do not take place when the unit is in solid pressure control.

The existing design reliability discussion provided supra, and the additional administrative controls proposed should adequately address the scenario postulated in Question #1.

