DCSMS-016

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Docket No. 50-335

Dr. Robert E. Uhrig
Vice President
Advanced Systems & Technology
Florida Power &.Light Company
P. O. Box 529100
Miami, Florida 33152

Dear Dr. Uhrig:

SUBJECT: ADDITIONAL QUESTIONS REGARDING UPPER HEAD VOIDING DURING NATURAL CIRCULATION COOLDOWN, ST. LUCIE 1

Reference: 1. Letter, Novak to Uhrig, "St. Lucie Unit 1 - Cooldown on Natural Circulation Information Request," dated July 8, 1980.

2. Letters, Uhrig to Novak, "St. Lucie Unit 1, Docket No. 50-335, Natural Circulation Cooldown," dated August 25, 1980, September 16, 1980, Ocotber 17, 1980, December 30, 1980, and February 9, 1981.

We are conducting a review of the St. Lucie Unit 1 responses (Ref. 2) to NRC questions concerning natural circulation cooldown (Ref. 1). In order to fully understand your earlier responses, we would appreciated your response to the enclosed questions. These questions were discussed with Mr. Ron Stevens of your staff on November 30, 1982.

Please provide us with a schedule for your response to these questions within 15 days of receipt of this letter.

The reporting and/or recordkeeping requirements contained in this letter affect fewer than ten respondents; therefore, OMB clearance is not required under P.L. 96-511.

Sincerely,

Original signed by
Robert A. Clark

Robert A. Clark, Chief
Operating Reactors Branch #3
Division of Licensing

Enclosure:
As stated

cc: See next page

OFFICE	ORB#3:DL	ORB#3:DL	ORB#3:DL			
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DATE	1/3/83	1/3/83	1/3/83			

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ENCLOSURE I

ADDITIONAL QUESTIONS FOR ST. LUCIE UNIT 1

ON NATURAL CIRCULATION COOLDOWN

1.A. In the enclosure to letter L-80-431, dated December 30, 1980, it was stated that very conservative assumptions regarding fluid mixing were used in the RETRAN analysis for a 50°F/hr cooldown to 325°F. What were these conservative assumptions?

B. What condensation coefficient was used in the RETRAN analysis and why was it chosen?

C. RETRAN cannot model metal heat transfer to steam. Justify why this can be neglected.

2. In letter L-80-431, December 30, 1980, when you say that the "drain and fill" method was successfully used twice. What was the basis for this conclusion? Was 50° subcooling maintained in the hot legs?

3. The following questions refer to the enclosure to letter L-80-277, dated August 25, 1980.

A. At the end of drain and fill simulation, why does charging cause a loss of subcooling in the RCS? What is the upper head volume doing during the period from 2.95 to 3.95 hrs?

B. Explain the mechanism of the "fill" cycle in more detail. Charging water acts as a piston on RCS. What fills the upper head? What causes draining out of the pressurizer?

C. What if T_{HOT} was used as the initial temperature rather than 520°F (considering that the minimum subcooling (54°) was reached at the end of the simulation).