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 UHRIG,R.E. Florida Power & Light Co.
 RECIP.NAME RECIPIENT AFFILIATION
 NOVAK,T.M. Assistant Director for Operating Reactors

SUBJECT: Forwards updated response re natural circulation cooldown.
 Emergency Operating Procedure 0120040 revised to address
 recognition of potential for upper head steam formation &
 cooldown rate necessary to prevent void formation.

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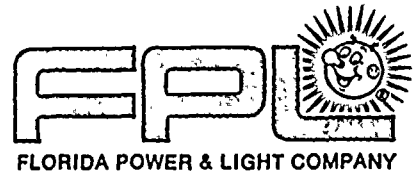
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September 16, 1980
L-80-306

Office of Nuclear Reactor Regulation
Attention: Mr. Thomas M. Novak
Assistant Director for Operating Reactors
Division of Licensing
U. S. Nuclear Regulatory Commission
Washington, D. C. 20555

Dear Mr. Novak:

Re: St. Lucie Unit 1
Docket No. 50-335
Natural Circulation Cooldown

This letter is an update of our letter (L-80-277) dated August 25, 1980, concerning the above subject. We said in that letter that we would provide an update of our response to Question 1, concerning the drain and fill method, and that we would provide a schedule for answering the remaining questions.

We anticipate receiving the additional engineering work on the drain and fill method from our NSSS vendor by early October, along with the answers to questions 2a and 2b. We will review this information and submit our response by October 15, 1980.

The analysis required to fully answer Question 3 will take about four months. It is our intention to submit the results of this evaluation by February 1, 1981.

The answer to Questions 4 and 5 are attached.

Very truly yours,

Robert E. Uhrig
Vice President
Advanced Systems & Technology

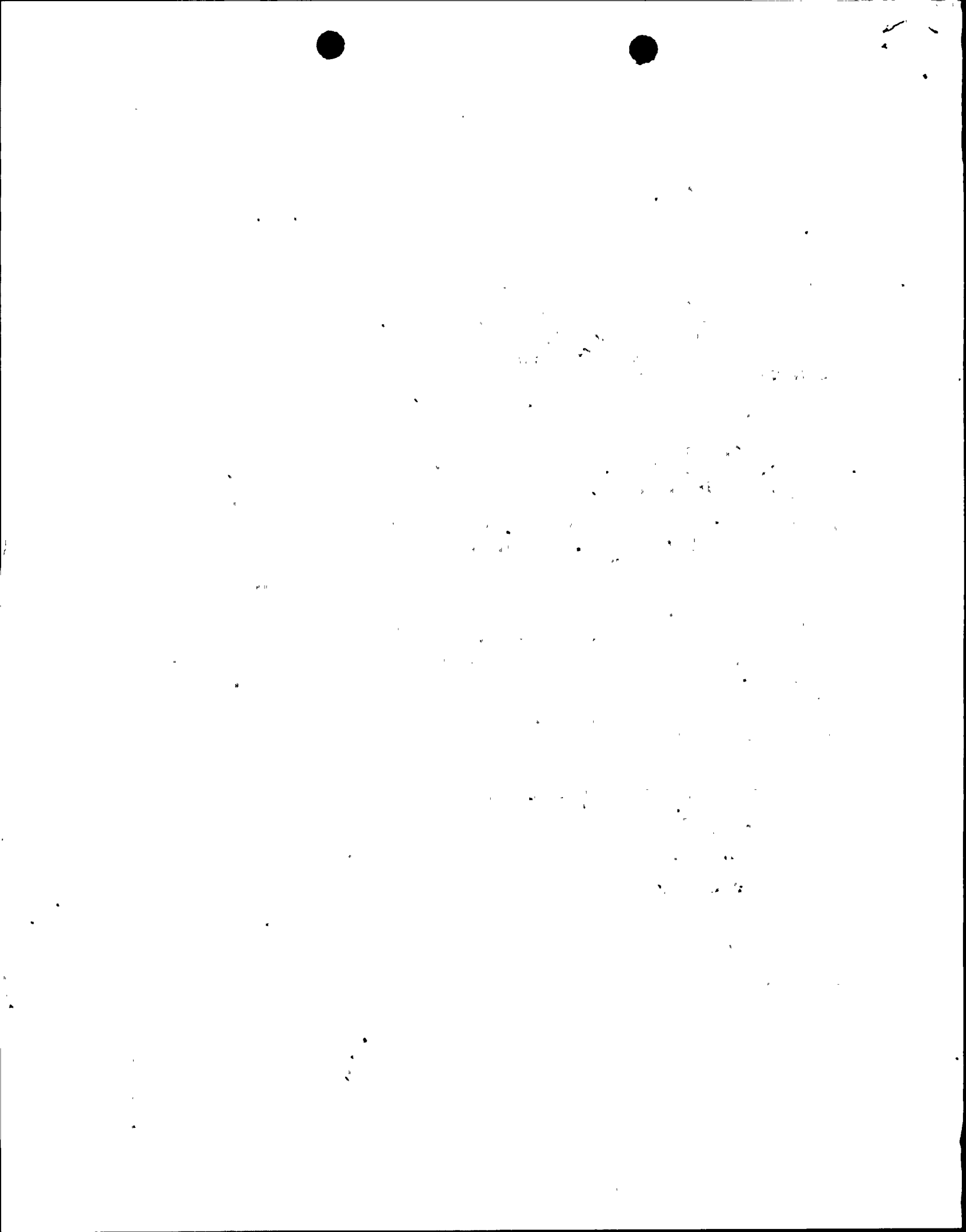
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cc: Mr. J. P. O'Reilly, Region II
Harold F. Reis, Esquire

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ATTACHMENT

Re: St. Lucie Unit 1
Docket No. 50-335
Natural Circulation Cooldown

Question 4 Response

St. Lucie Plant Emergency Operating Procedure 0120040, "Loss of Reactor Coolant Pump Flow/Natural Circulation" has been revised (Revision 5) to address each of the below concerns.

1. Recognition of potential for upper head steam formation.

A discussion in Steps 5.3.2.3 (h) (3) and 5.3.2.3 (j) addresses the problem of uneven cooling in the reactor head area and alerts the operator to the potential for steam void formation.

2. Cooldown rate necessary to keep from void formation.

The procedure states that a 25-30°F/hour cooldown rate should be established and that the cooldown should be stopped at approximately 350° F RCS temperature for four (4) hours. This soak period will allow the reactor head temperature to catch up with RCS cooldown. A cautionary note will be added to the procedure to ensure that a sufficient water volume is available in the condensate storage tank.

3. Recognition of upper head steam formation.

The procedure lists the following as indications of RCS voiding:

- a. RCS temperature $> T_{sat}$ for the corresponding RCS pressure.
- b. Rapid increase in pressurizer level when charging through auxiliary sprays.
- c. Rapid decrease in pressurizer level when charging to RCS loops.

4. Action to be taken in the event of upper head steam formation.

The procedure recommends consideration of the following alternatives:

- a. Reviewing and selecting one RCP in each loop for restarting.
- b. Elevation of RCS pressure by use of HPSI, LPSI, or use of pressurizer heaters.
- c. Stopping the cooldown and reduction of void size by sequentially spraying through auxiliary sprays and RCS loops with letdown secured and pressurizer heaters on.

Question 5 Response

The experience gained in the St. Lucie Unit 1 natural circulation cooldown event has been factored into the St. Lucie site operator training and requalification program. However, since Florida Power & Light Company does not operate its own training simulator, we cannot respond directly to this question. Since natural circulation cooldown is a generic issue, this question should be addressed to the owners of simulators used for operator training.

