



October 18, 1976
L-76-361

Office of Nuclear Reactor Regulation
Attention: Mr. Dennis L. Ziemann, Chief
Operating Reactors Branch #2
Division of Operating Reactors
U. S. Nuclear Regulatory Commission
Washington, D. C. 20555



Dear Mr. Ziemann:

Re: St. Lucie Unit 1
Docket No. 50-335
Reactor Vessel Overpressurization

Florida Power & Light Company was requested by your letter of August 13, 1976 to evaluate our reactor coolant system design for susceptibility to overpressurization events.

In our letter L-76-326 of September 3, 1976, we stated that a task group of utilities had been formed to evaluate this problem.

We also stated that, at the end of the 60-day period addressed in your letter, a progress report would be submitted. Our progress report is attached.

Very truly yours,

J. S. DeMestry
for

Robert E. Uhrig
Vice President

REU/MAS:mew

Attachment

cc: Mr. Norman C. Moseley
Jack R. Newman, Esq.

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ATTACHMENT

ST. LUCIE UNIT 1
OVERPRESSURIZATION ISSUE

A meeting was held on September 30, 1976 between Combustion Engineering (C-E) and a group of utilities with C-E plants. The purpose of the meeting was to:

- A. categorize postulated events which could initiate an overpressurization transient,
- B. discuss the development of an analytical model, and
- C. develop a schedule for identifying the worst-case postulated transient.

As a result of the meeting, the development of the worst-case transient for St. Lucie Unit 1 has been scheduled for completion by approximately January 1, 1977. When the preliminary work described above has been completed, we expect to be able to propose a means of resolving the overpressurization issue. If the resolution includes plant modifications, a schedule for the modification activity will be included in the proposal.

We have also reviewed the procedures and the administrative controls currently exercised at St. Lucie Unit 1 during periods in which the plant is in a solid water condition. It is felt that the following controls minimize the frequency of overpressurization incidents and minimize the severity of any incidents which could occur.

1. Normal heatup and cooldown procedures act to minimize the time the plant is in a water solid condition.
2. It is standard practice not to cool the plant down in excess of the amount required by the maintenance to be performed.
3. During plant heatup, a steam bubble is drawn in the pressurizer before the Shutdown Cooling System is removed from service.
4. During plant cooldown, the Shutdown Cooling System is placed in service prior to collapse of the pressurizer steam bubble.
5. Procedures are written to ensure that the applicable pressure-temperature limits of 10CFR50, Appendix G are not exceeded.

6. Initial pump runs for venting purposes have an air cushion in the steam generators. Subsequent pump starts are done after a bubble is drawn in the pressurizer. Thus, the incidents of overpressurization due to reactor coolant pump starts are minimized.

In addition to the analytical efforts and current procedural/administrative controls mentioned above, we have made the following significant changes to plant operating procedures:

1. All procedures concerned with water solid operation have been reviewed with particular attention paid to certain transitions, such as removing the shutdown cooling system from service and reactor coolant pump starts and stops. In some cases, procedural steps have been rearranged to provide additional assurance that conditions which may lead to an overpressurization transient are avoided.
2. Reactor coolant pump startup procedures have been revised to accommodate times during which the temperature distribution within the reactor coolant system is non-uniform. The revised procedures minimize positive temperature differentials between the steam generators and the reactor vessel prior to reactor coolant pump starts. This is to ensure that initiation of primary coolant flow will not cause uncontrolled reactor coolant system pressure increases.
3. Procedures have been revised to eliminate unnecessary reactor coolant system venting operations.
4. Procedures have been revised to eliminate initiation of charging pump flow without adequate letdown capability during solid plant operations.

It should be noted that, even with extensive design and procedural/administrative controls, it cannot be guaranteed that Appendix G limits will never be exceeded. However, with whatever modifications or controls established as a result of the efforts of the utility task group, the consequences of an overpressurization transient will be less significant. Since the remote possibility of exceeding Appendix G limits by a small amount will still exist following the institution of any mitigating systems or controls, an action plan has been developed to accommodate such events. The action taken would be to perform appropriate analyses to verify the acceptability of continued operation and to provide a report of the event and analyses to the NRC.

