Reactor Facilities Branch

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FLORIDA POWER & LIGHT COMPANY

January 5, 1976
L-76-3

50-335

Mr. Donald F. Knuth, Director
Office of Inspection and Enforcement
U. S. Nuclear Regulatory Commission
Washington, D. C. 20555

Dear Mr. Knuth:

Re: 10 CFR 50.55(e) Final Report
Charging Pump 1C Restart Failure

On November 7, 1975, Region II personnel were notified of a potentially reportable incident at St. Lucie Plant, Unit No. 1 concerning the failure of charging pump 1C to restart following simulated loss of offsite power and initiation of SIAS during preoperational testing. An interim report of this incident was forwarded to you in accordance with 10 CFR 50.55(e) on December 1, 1975. (Reference Control No. HO 1057F2) A final report has been completed and is attached to this letter.

Yours very truly,

Robert E. Uhrig

Robert E. Uhrig
Vice President

REU:nch
Attachment

cc: M. S. Kidd
N. C. Moseley
J. R. Newman, Esq.

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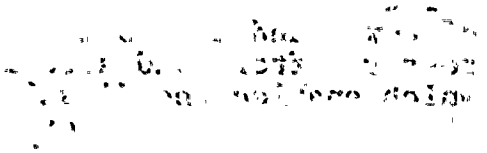
FLORIDA POWER & LIGHT COMPANY

ST. LUCIE PLANT - UNIT #1

10 CFR 50.55(e) FINAL REPORT

CHARGING PUMP 1C RESTART FAILURE



I. SUMMARY

1. SYNOPSIS OF OCCURRENCE

During preoperational testing of the emergency core cooling system (ECCS) on October 27, 1975, the 1C charging pump failed to restart during a simulated loss of offsite power.

2. RESOLUTION

Charging pump 1C moved to Diesel Loading 7th block (18 sec. time delay).

II. DESCRIPTION

During simulated loss-of-offsite power testing of the ECCS on the above date, the following pertinent sequence of events occurred:

- SIAS actuated
- Charging pump 1C started
  Diesel generator 1A started
- Simulated loss of offsite power
- Charging pump 1C stopped due to load shed
- Diesel generator 1A breaker closed
- Charging pump 1C failure to restart

It should be noted that if charging pump 1C had not been operating prior to initiation of SIAS and loss of offsite power, the circuitry logic would have started the pump.

All three charging pumps are supposed to start or restart after loss of power and initiation of SIAS. The failure of charging pump 1C to restart after load shed is attributed to the time sequence of events which enabled the diesel generator 1A breaker to close before the 480V switchgear breaker associated with charging pump 1C could rewind its closing springs. The time difference allowed the charging pump 1C "anti-pump" relay to energize. The "anti-pump" relay is designed to prevent the charging pump 1C breaker from cycling open/close when a breaker "trip" signal and a breaker "close" signal exist simultaneously.

III. CORRECTIVE ACTION

During automatic load sequencing of the diesel generator, charging pump 1C now loads on the 7th block which energizes 18 seconds after diesel generator breaker closure. Eighteen seconds provides more than sufficient time for the 480V switchgear breaker to rewind its closing springs (rewind time is approximately 3 seconds).

IV. SAFETY IMPLICATIONS

The problem is unique to the 1C pump due to the fact that the 1A and 1B pumps are not stripped from the bus on loss of offsite power. Any one of the three charging pumps is fully capable of performing the design charging function. Temporary loss of the 1C pump can occur only after SIAS followed by loss of offsite power, and manual restart of the 1C pump can be initiated immediately. Since design basis events initiating SIAS do not rely upon charging pump function, unacceptable consequences do not result from the above anomaly. Nonetheless, the modification undertaken obviates the need for any operator action following the unlikely event simulated during in-situ testing.