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FLORIDA POWER & LIGHT COMPANY

August 22, 1974

Mr. John F. O'Leary, Director
Directorate of Licensing
Office of Regulation
U. S. Atomic Energy Commission
Washington, D. C. 20545

RECEIVED
AUG 27 1974

Dear Mr. O'Leary:

ABNORMAL OCCURRENCE NO. 251-74-3
AUGUST 22, 1974
OCCURRENCE DATE: AUGUST 12, 1974
TURKEY POINT UNIT NO. 4
FAILURE OF 4-R-19 RADIATION DETECTION SYSTEM

A. CONDITION PRIOR TO OCCURRENCE

The reactor was in routine operation at 99% power.

B. DESCRIPTION OF OCCURRENCE

At 11:15 a.m. on August 12, 1974, counting of the daily composite steam generator secondary system water sample revealed a significant increase in radiation level. The gross concentration was 2.4×10^{-4} μCi/ml as compared to $< 1 \times 10^{-7}$ μCi/ml on the previous day (AO-251-74-2). This increase in concentration should have been detected by the 4-R-19 radiation detector which would have secured steam generator blowdown to the cooling canals, opened blowdown to the waste holdup tank, closed the sample isolation valves and sounded an alarm in the control room. None of these events occurred.

The daily counting of the secondary sample, while not required by Technical Specifications, serves as a backup to the R-19 radiation detector.

C. CAUSE OF OCCURRENCE

Investigation has revealed that the occurrence was caused by a plugged sample line to the 4-R-19 detector.

The sample water from each steam generator passes through a heat exchanger and is mixed before reaching the 4-R-19 radiation detector. To prevent the detector from overheating, the sample flow rate was reduced by throttling the flow downstream of the heat exchangers. It is believed that the line became plugged due to corrosion product buildup at the throttled valves.

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D. ANALYSIS OF THE OCCURRENCE

The maximum activity which could have been discharged to the cooling canals was calculated to be 10.4 mCi. This represents ~0.2% of the quarterly limit allowed by the Technical Specifications. Thus, the health and safety of the public was not jeopardized by this occurrence.

E. CORRECTIVE ACTION

The immediate corrective action consisted of manually securing the blowdown from each of the Unit No. 4 steam generators.

To verify that the 4-R-19 detector would have responded properly if flow had been established, the sample flow was initiated by opening the throttled valves. The detector responded immediately and at 1200 cpm, the required automatic functions were obtained.

As part of the permanent corrective action, the steam generator sampling system is being evaluated to correct the existing deficiencies. Proposed modifications include: 1) Installation of larger heat exchangers to lower the sample temperature, and 2) Installation of a flowmeter to indicate adequate flow.

Since the detector responded properly once flow to the detector was established, the daily test of the setpoint trip function of the detector and the monthly functional check are considered adequate. However, as an interim measure, the sample flow through the throttled valves will be verified periodically during steam generator blowdown.

F. FAILURE DATA

This is the first occurrence of this type at either Turkey Point Nuclear Unit.

Very truly yours,

A. D. Schmidt
Director of Power Resources

DWR/cpc

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