



UNITED STATES
ATOMIC ENERGY COMMISSION

WASHINGTON, D.C. 20545

April 3, 1972

D.R. Central File

Docket No. 50-261

Carolina Power and Light Company
ATTN: Mr. Shearon Harris
President
336 Fayetteville Street
Raleigh, North Carolina 27602

Gentlemen:

Thank you for your letter of February 7, 1972, in reply to our notice dated January 18, 1972.

Your response to Item No. 14 of our list of items of noncompliance with Regulatory requirements stated that the basis for this violation was not understood by your staff. The specific citation relates to the failure of Carolina Power and Light Company (CP&L) to submit to the Director, Division of Reactor Licensing (DRL), a written report within thirty days of a substantial variance in the performance of your primary system leak detection systems from performance specifications contained in the Technical Specifications or in the Final Safety Analysis Report (FSAR) for the H. B. Robinson No. 2 facility. Based on our review of Abnormal Procedure CPL-AP-16, results of your daily primary system leakage evaluations, minutes of your Company Nuclear Safety Committee meetings held on May 15, 1970, and August 27, 1970, and your resulting letter to Westinghouse titled, "Primary System Leak Detection," and interviews with plant personnel by our inspectors, we concluded that the performance of your primary system leak detection systems was at substantial variance with the performance specifications discussed in Section 6.5 of the FSAR and with the basis for Paragraph 3.1.5 of the Technical Specifications. A summary of our inspection findings in this regard is provided as an enclosure. For this reason it is requested that a report be submitted to the Division of Reactor Licensing (DRL) in accordance with Paragraph 6.6.3 of the Technical Specifications.

In view of the AEC's concerns regarding the sensitivity and reliability of installed primary system leak rate monitoring systems, it is requested that your report to DRL include the following additional information for each of your leak detection systems:

- a. A comparison of actual measurements and operational data with corresponding design specifications or FSAR commitments for sensitivities (gpm) and response times of installed systems.

see jacket for encls.

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- b. Plans for establishing action limits for primary system leakage rates in facility operating procedures. These plans should include instructions for when visual inspections within containment are necessary.
- c. Based on operating history, discuss (1) the adequacy of the installed leak detection systems to differentiate between identified and unidentified leaks from components within the primary reactor containment, and (2) the minimum sensitivity of each installed system that has been routinely available to the operator.

We will review the corrective action taken by you regarding the other items discussed in our January 18, 1972 notice during our next inspection.

Very truly yours,

Original signed by
L. D. Low
Lawrence D. Low, Director
Division of Compliance

Enclosure:
Summary of Inspection
Findings

bcc:w/copy of Licensee's Reply
dtd. February 7, 1972

P. A. Morris, DRL
D. J. Skovholt, DRL
R. J. Schemel, DRL
DR Reading File
DR Central File
PDR
R. L. Shannon, OR
NSIC

bcc:w/o Enclosure 3 to Licensee's
Reply dtd. February 7, 1972

R. F. Fraley, ACRS (3)
J. P. O'Reilly, CO:I
J. G. Davis, CO:II
B. H. Grier, CO:III
J. W. Flora, CO:IV
R. W. Smith, CO:V

*SEE ATTACHED YELLOW FOR CONCURRENCES

OFFICE ▶	CO	CO	CO	CO	DRL	CO
SURNAME ▶	FJNolan:nw *	MSHildreth *	JGKeppler*	RHEngelker*	DJSkovholt*	LDLow
DATE ▶	3/29/72	3/29/72	3/29/72	3/29/72	3/31/72	

SUMMARY OF INSPECTION FINDINGS OF SELECTED
PRIMARY SYSTEM LEAK DETECTION SYSTEMS AT
H. B. ROBINSON NO. 2

A. Summary of Performance Specifications Contained in Section 6.5 of FSAR and Basis for Paragraph 3.1.5 of CP&L Technical Specifications

1. Containment Air Particulate Monitor

Section 6.5 of the FSAR states that the air particulate monitor is capable of detecting leaks as small as approximately 0.013 gpm within 20 minutes after they occur assuming a low background of containment air particulate radioactivity.

The basis for Paragraph 3.1.5 of the Technical Specifications states the rates of leakage for which the instrument is sensitive are 0.01 gpm to greater than 10 gpm, assuming corrosion product activity, and little or no fuel cladding leakage.

2. Containment Radioactive Gas Monitor

Section 6.5 of the FSAR states that the occurrence of a leak of two to four gpm would double the zero leakage background in less than one hour, assuming a reactor coolant activity of 0.3 uCi/cc.

The basis for Paragraph 3.1.5 of the Technical Specifications states that, with equilibrium fission product gaseous activity, a 1 gpm leak would double the background activity in less than two hours.

3. Humidity Detector

Section 6.5 of the FSAR states that plots of containment air dew point variations above a baseline maximum established by the cooling water temperature to the air coolers should be sensitive to incremental leakage equivalent to 2.0 to 10 gpm.

The basis for Paragraph 3.1.5 of the Technical Specifications states that this instrumentation will be sensitive to incremental increases of leakage to the containment atmosphere on the order of 0.40 gpm per °F of dew point temperature increase.

4. Condensate Measuring System

Section 6.5 of the FSAR states that, should a leak occur, the condensation rate will increase above the previous steady state rate due to the increased vapor content of the fan-cooler

air intake. A new equilibrium rate will be approached within approximately 30 minutes after the start of the leak. Detection of the increasing condensation rate is possible, however, within 5 to 10 minutes for condensation rates on the order of 0.5 gpm and larger.

The basis for Paragraph 3.1.5 of the Technical Specifications states condensate flows from approximately 0.5 gpm to greater than 10 gpm can be detected and measured by this system. Condensate flow corresponding to coolant leakage of approximately 1 gpm can be detected within 10 minutes.

5. Condensate Collection System

The basis for Paragraph 3.1.5 of the Technical Specifications states that leaks less than 1 gpm can be measured by periodic observation of the level changes in the condensate collection system.

B. Summary of Our Inspection Findings

1. Based on our review of selected records since initial startup, results of your daily primary system leakage evaluations indicate unidentified leakage in the range of 0.1 to 0.4 gpm. Our review of selected facility records indicates that changes within this range have not been identified routinely using any of the methods discussed above. This observation was confirmed by discussions with your staff.
2. Backup information to the minutes for your Nuclear Safety Committee meeting of August 27, 1970 (CP&L letter to Westinghouse), states that the containment air particulate monitor was the only method of primary system leak detection which had a sensitivity of less than 1 gpm.
3. The operating staff did not have necessary instructions for correlating activity measured by the containment air particulate monitor with primary system leakage. In this regard, the plant staff and your staff acknowledged that, in general, operating personnel would not be able to detect a 0.5 gpm change in primary system leakage within one hour using the containment air particulate monitor.