FROM:
Carolina Power & Light Company
Raleigh, N.C. 27602
E.E. Utley

DATE OF DOCUMENT: Mar. 20, 1972
DATE RECEIVED: Mar. 22, 1972
NO.:

LTR. X MEMO: REPORT: OTHER:

TO:
Dr. Peter A. Morris

ORIG.: 1 CC: OTHER:

ACTION NECESSARY ☐ NO ACTION NECESSARY ☐
CONCURRENCE ☐ COMMENT ☐
DATE ANSWERED: BY:

CLASSIF: U POST OFFICE REG. NO:

FILE CODE: 50-261

DESCRIPTION: (Must Be Unclassified)
Ltr re our 2-4-72 ltr..furnishing info on ECCS & on how hot leg safety injection was to be defeated & req explanation of inconsistencies in various analyses...

ENCLOSURES:

REFERRED TO	DATE	RECEIVED BY	DATE
Schemel w/9 cys for ACTION	3-23-72		
DISTRIBUTION:		Ross	
Reg File Cy		Dr. Hanauer	
AEC PDR		Lauben	
OGC-Rm-P-506-A		B. Colmar	
Compliance (2)			
Muntzing & Staff			
D. Thompson			
Morris/Schroeder		DO NOT REMOVE	
Skovholt			
DTIE(Laughlin)		ACKNOWLEDGED	
NSIC(Buchanan)			
DeYoung			
E.G. Case			
Novak			DL

REMARKS:
1 CY LOCAL PDR HOLD
HOLDING 16 CYS FOR ACRS

U.S. ATOMIC ENERGY COMMISSION
MAIL CONTROL FORM FORM AEC-326S (8-60)

☆ U.S. GOVERNMENT PRINTING OFFICE: 1971—424-862

50-261

Carolina Power & Light Company

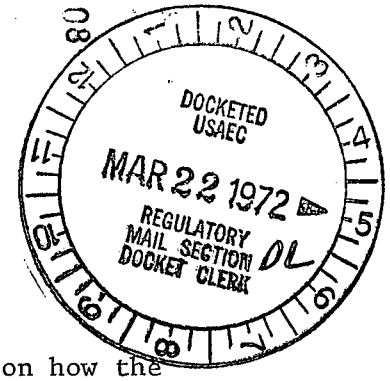
Raleigh, North Carolina 27602

March 20, 1972

RECEIVED
1972 MAR 22 PM 4 08
U.S. ATOMIC ENERGY COMM.
REGULATORY
MAIL & RECORDS SECTION

Regulatory File Cy.

Dr. Peter A. Morris, Director
Division of Reactor Licensing
United States Atomic Energy Commission
Washington, D. C. 20545



H. B. ROBINSON UNIT NO. 2
LICENSE DPR 23
EMERGENCY CORE COOLING SYSTEM

Dear Dr. Morris:

Your letter of February 4, 1972, requested details on how the hot leg safety injection was to be defeated and requested an explanation of the inconsistencies in various analyses.

The automatic hot leg injection will be defeated by circuitry modification to remove the SI signal to the hot leg injection valves SI 866A and SI 866B. This modification will defeat all automatic actuation of these valves. Also, the valve status lights located on the RTGB will be changed to indicate that valves SI 866A and SI 866B must be closed during the safety injection actuation period. The valve status lights are checked by the operator immediately following an SI signal to ensure that all SI valves are in the proper position. These changes will ensure that the hot leg injection valves remain closed during the early phase of safety injection. The operator will have the ability to operate the valves manually from the RTGB. Written instructions will be provided for the operator directing him not to open the valves (SI 866A and SI 866B) until a minimum of 10 minutes following an SI signal and then only if there is indication that additional core flooding is desirable. This instruction will be provided in the follow-up section of the emergency instruction on loss of reactor coolant.

The apparent inconsistencies in previous analyses have been evaluated. To ensure that the record reflects a complete and correct evaluation of the anticipated performance of the emergency core cooling system, the following explanation is submitted:

The "bottom of core" and "top of core" positions in relation to the reactor vessel shown on the December 8, 1971, submittal are improperly located above the actual core position by an amount equivalent to 100 ft^3 of reactor volume. The analysis presented in the December 8, 1971, submittal

shows top of core uncovery at 2050 ft^3. Since the actual top of core position is about 100 ft^3 lower, the uncovery should have been delayed until the quiet water level reached the lower position. The effect of this small error is a slightly earlier core uncovery. Use of the correct core position is slightly more conservative (about 25 seconds for the 3" break) in that the decay heat level is higher at the earlier uncovery time.

The fraction of core uncovered is set initially by the depth of the loop seal and subsequently by the amount of safety injection flow. In the small break analysis, it is conservatively assumed that full steam blowdown does not begin until all the liquid is discharged from the reactor coolant piping. In order to raise the liquid located in the cross over leg (between the steam generator and pump), the level in the core must decrease to the same elevation as the cross over leg. A review indicates that this loop seal elevation measured in terms of fraction of the core has been properly set in the analyses. This is not unexpected since this quantity is measured from the top and hence is independent of the small lower plenum volume error. Since the loop seal is properly set, it follows that the subsequent loss of liquid level correctly represents the performance of the safety injection system.

In light of the considerations above, the actual calculated transients presented in the submittals December 8, 1971, January 25, 1971 and August 12, 1970 have been compared. The December 8, 1971 submittal shows a larger uncovery fraction than the January 25, 1971 submittal. This is as would be expected since the latest analysis has somewhat less injection flow than the prior one. The January 25, 1971 submittal includes a direct comparison with the August 12, 1970 submittal. As discussed therein, the prior injection curve was reanalyzed with the applicable analytical model and these changes are evaluated.

In conclusion, the inconsistency in the December 8, 1971 submittal is that the bottom of core line is 100 ft^3 too high. The effect of this inconsistency is negligible. The water level traces, measured in terms of fraction of core uncovered, are as expected.

Yours very truly,

E. E. Utley
Manager
Bulk Power Supply

NBB/lcf

cc: Mr. C. D. Barham
Mr. G. P. Beatty
Mr. N. B. Bessac