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BUTLER,W.R. Project Directorate I-2

SUBJECT: Forwards pass/fail criteria for upper & lower relay room testing.

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December 18, 1989

Director of Nuclear Reactor Regulation
Attn: Dr. W. R. Butler, Project Director
Project Directorate I-2
Division of Reactor Projects
U.S. Nuclear Regulatory Commission
Washington DC 20555

SUSQUEHANNA STEAM ELECTRIC
FIRE PROTECTION-ALTERNATE CO_2 TESTING
PLA-3316 FILES A17-15, A20-1, R41-2

Docket No. 50-387
and 50-388

Dear Dr. Butler:

On October 25, 1989, we met with members of your staff to discuss unresolved Item 89-09-01 and the utilization of a fan test as an alternative to full discharge testing of plant automatic CO_2 systems covered by technical specifications. It was agreed that should we proceed with fan testing, we would provide a pass/fail criteria before testing. Enclosed is the pass/fail criteria for the Upper and Lower Relay Rooms which we will be testing. The pass/fail criteria for the North, Center and South Cable Chases have not been finalized.

H Keiser

H. W. Keiser

Attachment

cc: NRC Document Control Desk (original)
NRC Region I
Mr. G. S. Barber, NRC Sr. Resident Inspector
Mr. M. C. Thadani, NRC Project Manager

A006
1/1

2.0 CONCLUSIONS/RESULTS

2.1 ACCEPTABLE RETENTION TIME

2.1.1 The overall retention time equals the discharge time plus the Descending Interface leakage time.

2.1.2 The required retention time for the deep seated cable tray fire hazard in the Lower Relay Rooms and Cable Chases is 15 minutes.

2.1.3 The required retention time for the Upper Relay Rooms with 17 inch long cable trays is 10 minutes.

2.2 ACCEPTABLE PROBE HEIGHT

2.2.1 The following are acceptable probe heights (distance from ceiling):

Lower Relay Rooms	24 inches
Cable Chases	13.1 inches
Upper Relay Room	17 inches

2.3 ACCEPTANCE CRITERIA

2.3.1 The enclosure is acceptable if the gas concentration in the space between the floor and the acceptable probe height is maintained for the acceptable retention time. If the enclosure structure fails due to overpressure or if the quantity of CO_2 lost due to leakage is too large, the concentration will not be retained.

2.3.2 The test will demonstrate the enclosure is acceptable if the measured ELA is greater than the ELA (pressure) and is less than the ELA (retention). (These values are shown in Section 2.3.5.)

2.3.3 If the results of an enclosure test are not acceptable, the following solutions should be considered:

a. If ELA (pressure) is greater than ELA (measured) then,

1. additional venting at ceiling of room will be required; or,

2. additional structural reinforcement will be required.

b. If ELA (retention) is less than ELA (measured) one or more of the following will be required:

1. reseal openings,

2. determine actual distribution of openings and reanalyze,

3. provide venting at ceiling.

c. Perform additional development and analysis to determine the quantitative impact of a conservative assumption.

2.3.4 Test results will need to be reevaluated if they indicate actual conditions other than the assumed conditions.

2.3.5 Predicted ELA

System	Room	ELA (pressure) in^2	ELA (retention) in^2
1.13	Lower Relay Rm. Unit 1	115.4	159.5
1.14	Lower Relay Rm. Unit 2	116.7	163.1
	North Cable Chase		
1.21a.	El. 698'-0"		
b.	El. 714'-0"		
c.	El. 741'-1"	To be determined	
d.	El. 754'-0"		
e.	El. 771'-0"		
	Center Cable Chase		
1.22a.	El. 698'-0"		
b.	El. 714'-0"		
c.	El. 741'-1"	To be determined	
d.	El. 754'-0"		
e.	El. 771'-0"		
	South Cable Chase		
1.23a.	El. 698'-0"		
b.	El. 714'-0"		
c.	El. 741'-1"		
d.	El. 754'-0"	To be determined	
e.	El. 771'-0"		
1.27	Upper Relay Rm. Unit 1	69.7	243.8
1.28	Upper Relay Rm. Unit 2	67.7	246.7