



Franklin Research Center
A Division of The Franklin Institute



DOCKET NUMBER
PROPOSED RULE

*PR-Minute
Reg Guide*

October 4, 1979

Secretary of the Commission
U.S. Nuclear Regulatory Commission
Washington, DC 20555

Attention: Docketing and Service Branch

Dear Sir:

Comments on Proposed Revision 1 of Regulatory Guide 1.131 are
attached for your consideration.

Very truly yours,

S. P. Carfagno, Manager
Performance Qualification

SPC/dlw

enclosure

1346 034

Acknowledged by card...

gf 10/22

7911160

097

October 3, 1979

COMMENTS ON
PROPOSED REVISION 1 TO REGULATORY GUIDE 1.131
QUALIFICATION TESTS OF ELECTRIC CABLES AND FIELD SPLICES
FOR LIGHT-WATER-COOLED NUCLEAR POWER PLANTS

Submitted by: S. P. Carfagno
Manager, Performance Qualification
Franklin Research Center

COMMENT NUMBER	REFERENCE	COMMENT
1	Page 4, Item 2	The testing of non-aged cables should not be required if it can be demonstrated that aged cables are more vulnerable than non-aged cables to failure during a type test.
2	Page 4, Item 3	A dissection of the second sentence reads, "Tests of the cable. . . shall then supplement the cable tests. . . to qualify the field splices. . ." The meaning is not clear. What are "the cable tests" to be supplemented? Does the sentence refer to supplementary tests for splice qualification only?
3	Page 5, Item 5	The statement that, "Investigation shall be performed to determine if there are synergistic effects. . ." could be interpreted to require that a long range research program be undertaken. An experimental investigation of the existence of all potential synergistic effects on even one material would probably take many years at a cost of hundreds of thousands of dollars. If we multiply this by the many variations in insulating materials and cable fabrication methods, the cost becomes astronomical. This is probably not what is intended, and it is therefore necessary to clarify what is meant by "investigation" and "consideration".
4	Page 5, Item 5, 2nd para.	The endpoint of accelerated aging should not be "end-of-life", which is the condition that may be reached after an accident and any post-accident period during which the cables must remain functional. The endpoint of accelerated aging should

COMMENT
NUMBER

REFERENCE

COMMENT

4
(cont.)

be the condition at the end of a period of service preceding the occurrence of a design basis accident. The term, "end-of-design-life", used in the third line from the bottom of page 5, is more appropriate than "end-of-life".

5
Page 6,
Item 5
Lines
13 & 14
from top

The reasons for requiring accelerated aging are not clear. Should this be the same as the accelerated aging, if any, used in the initial qualification? It would be helpful if the amount by which the procedure described "extends qualified life" were defined.

6
Page 7,
Item 8

How are fire tests to be conducted on field splices "to demonstrate that the fire-retardant properties of the cable are not altered unacceptably by the field splice"?

7
Page 7,
Item 9

The provision of 12-inch-high openings, leaving the top of the enclosure completely open, and adequate room ventilation is probably only one of several combinations of facility design and test conditions that meet the requirement that "oxygen depletion" be presented. What is the criterion of oxygen depletion? If a criterion can be specified, the ventilation requirement could then be one that satisfies the criterion. However, this is a difficult approach because the rate of production of combustion products varies with the type of cable. An alternate approach for a *standard* test is to specify the rate of air change in the enclosure.

8
Page 14,
Para.
2.2.2

Use of an accelerated aging temperature high enough to permit thermal aging to be completed in three days is not consistent with good practice, which requires that the aging temperature be low enough to exclude degradation mechanisms that do not apply in service and, consequently, that the aging time be relatively long. Thermal aging times are rarely less than seven days in duration, and they are usually longer; therefore, the cost for combined thermal/radiation aging will be substantially higher than \$30,000. Furthermore, this paragraph ignores the cost of "investigating" synergistic effects (see Comment Number 3). Also, the paragraph seems to imply that the combination of heat and radiation is the only potential source of synergistic effects, which is not true.



COMMENT NUMBER	REFERENCE	COMMENT
9	Page 16, Para. 2.5.1	See Comment Number 7. The ventilation parameter is not adequately defined to be considered standardized.
10	Page 16, Para. 2.5.2	The statement that, ". . . ventilation requirements, can be easily regulated with existing equipment. . . with little, if any, additional cost" is probably not true for most laboratories.

1346 037

