

involving the Seabrook nuclear facility. Specifically, the Coalition disputed the Board's finding that the RG58 coaxial cable, used for data transmission in the facility's computer system, had been demonstrated to be "environmentally qualified" -- i.e., capable of continuing to perform its intended function for such period as might be necessary after a severe (e.g., loss-of-coolant) accident.³

Our review of the matter did not disclose a sufficient evidentiary foundation for that finding. Accordingly, ALAB-875 returned the issue to the Licensing Board with instructions either (1) to identify the portion of the existing record that provided such a foundation; or (2) to reopen the record for a further exploration of the environmental qualification of RG58 cable.⁴

In an October 16, 1987 memorandum (unpublished), the Licensing Board pointed to what it deemed to be adequate evidentiary support for the challenged finding. Given the cited evidence, the Board informed us that it had determined that there was no need to reopen the record.

The Coalition, the applicants, and the NRC staff each took advantage of our invitation to comment on the substance

³ The requirement that the RG58 cable meet this standard is rooted in General Design Criterion 4 in Appendix A to 10 CFR Part 50 and 10 CFR 50.49(b).

⁴ See 26 NRC at ____ (slip opinion at 35-39).

of the Licensing Board's memorandum. On the basis of those comments and our own independent evaluation of the Board's analysis, we conclude that the matter must be remanded once again. For reasons that will appear, we do not believe that the evidence cited by the Licensing Board provides sufficient support for its finding that the RG58 coaxial cable is environmentally qualified. Although the applicants have brought our attention to certain other evidence that they assert does supply a satisfactory basis for the finding, we believe that the Licensing Board should evaluate that claim in the first instance.

1. As noted in ALAB-875, unlike two other types of coaxial cable (identified as RG11 and RG59) similarly supplied by the International Telephone and Telegraph Corporation (ITT), the RG58 cable was not itself tested for the purpose of determining whether it is environmentally qualified. Rather, it appeared from the applicants' equipment qualification file (EQF) pertaining to that vendor's cables that the RG58 cable was deemed qualified solely on the basis of the tests performed on the RG59 cable.⁵ These two cables are indisputably similar in

⁵ This EQF, identified as Electrical Equipment Qualification File No. 113-19-01, was introduced into evidence as the Coalition's Exhibit 4. One of the purposes of EQFs is to record the manner in which particular equipment is determined to be environmentally qualified.

materials and construction. Nonetheless, because of what seemed to be significant differences in the dimensions of their conductors and insulation, it was not clear to us that the RG59 cable test results could serve as the foundation for the environmental qualification of the RG58 cable. The Licensing Board was therefore asked to refer us to disclosures in the existing record that established "that the differences in the two cables are unimportant for present purposes" or, failing that, to reopen the record to explore further the acceptability of using the RG59 cable test results to qualify the RG58 cable.⁶

In its October 16 responsive memorandum, the Licensing Board cited two segments of the EQF (not alluded to in the partial initial decision) as justifying the conclusion that the RG59 cable test results could be used to establish the environmental qualification of the RG58 cable. First, the Board pointed to the fact, revealed in Reference 1 of the EQF, that there are different operating requirements for the insulation resistance (IR) of the two cables. The requirement for the RG59 cable, which has an insulation thickness of 0.061 inches, is 10,000 megohms per 1000 feet of cable. For its part, the RG58 cable, with an insulation thickness of 0.040 inches, has an IR operating requirement

⁶ ALAB-875, 26 NRC at ____ (slip opinion at 39).

per 1000 feet of one-tenth of that amount (i.e., 1000 megohms). These data led the Board to conclude that "the predicted performance of the smaller RG58 cable under conditions of environmental qualification testing would be proportional to the lower required operating resistance of its insulation."⁷

Second, the Licensing Board noted that the RG59 cable had been subjected to a high-potential test during which it was required to withstand an alternating current (ac) voltage of 80 volts per mil (0.001 inches) of insulation thickness. Inasmuch as this specific environmental qualification requirement thus takes into account the thickness of the insulation (i.e., the greater the thickness, the higher the voltage that must be withstood, and vice versa), the Licensing Board reasoned that a high-potential test of the RG58 cable would have yielded results similar to the acceptable results obtained in the testing of the RG59 cable.⁸

⁷ Memorandum to the Appeal Board (October 16, 1987) at 3.

⁸ Id. at 3-4. Insofar as the difference in the dimensions of the conductors is concerned, the Board observed that it "could find no requirements in the environmental qualification acceptance criteria, or in the environmental qualification tests themselves, that depended upon the diameter or cross-sectional area of the conductors." Id. at 2-3.

2. We agree with the Coalition and the staff that there is evidence in the record that casts considerable doubt on the validity of a principal underpinning of the Licensing Board's thesis -- namely, that the performance of the RG58 cable could be predicted on the basis of the satisfactory test results obtained with regard to the RG59 cable. As seen, that thesis rests in large measure on the premise that, at least in the case of ITT coaxial cable, there is a fixed relationship between the thickness of the cable insulation and the specified operating insulation resistance. But that premise is torpedoed by the data in the EQF pertaining to RG11 coaxial cable.

That cable (which, according to the Licensing Board, possesses the same insulation material and construction details as the RG59 cable⁹) has an insulation thickness of 0.122 inches.¹⁰ Because that is twice the thickness of the RG59 cable insulation, under the Licensing Board's hypothesis one would have to assume that the specified operating insulation resistance for the RG11 cable would appreciably exceed the 10,000 megohm value assigned to the RG59 cable. The actuality is, however, that the same value

⁹ See LBP-87-10, 25 NRC at 210-11.

¹⁰ See Coalition Exhibit 4, Reference 1, Appendix A.

is specified for both cables.¹¹ In short, the presumed relationship between insulation thickness and operating insulation resistance simply has not been established.¹²

Turning to the second prong of the Licensing Board's analysis in its October 16 memorandum, no party appears to dispute that a high-potential test of the RG58 cable would likely have produced results similar to the acceptable results obtained in the testing of the RG59 cable. But, standing alone, that fact does not serve to justify the Board's ultimate conclusion that the RG58 cable can be considered environmentally qualified on the strength of the tests performed on the RG59 cable. In order to reach that conclusion, one would first have to determine that, of the tests utilized in probing the environmental qualification of electrical equipment, only the high-potential test has relevance in the case of the RG58 cable.

The applicants assert that the function of the RG58 cable is not the mitigation of the consequences of an

¹¹ Id. at Reference 1, Sections 2.6.1.1.b, 2.6.1.2B.b, and 2.6.1.2C.b.

¹² For their part, the applicants contend that operating insulation resistance values should not be considered as acceptance criteria for accident conditions. If this is so, it would appear that in no event could the relationship between the 10,000 and 1000 megohm values assigned to the RG59 and RG58 cables, respectively, be used to demonstrate environmental qualification.

accident. Rather, they insist, the EQF establishes that, should an accident occur, that cable need maintain its integrity only to the extent necessary to avoid compromising the fulfillment of the safety function of other components.¹³ It follows, we are told, that the high-potential test is all that need be satisfied to demonstrate the environmental qualification of the cable.

This well may be so. Insofar as we can ascertain, however, such a line of argument was never presented to the Licensing Board. Moreover, there is nothing in either its partial initial decision or its October 16 memorandum to suggest that the Board considered and placed reliance upon the proposition that the RG58 cable has a very limited post-accident function, which, in turn, drastically reduces the scope of the environmental qualification requirements it must satisfy.

As a general matter, claims that have an asserted evidentiary foundation should be first examined by the trial tribunal. In the circumstances, then, we believe it appropriate to leave it to the Licensing Board to pass initial judgment upon the applicants' new claim. If the Board finds the claim meritorious, it should issue another

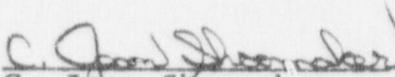
¹³ In this regard, the applicants cite Coalition Exhibit 4, Reference 1, Appendix A, at A1; Reference 7 at 2; Reference 6.

memorandum setting forth its reasons. On the other hand, if the claim is rejected, our disapproval of the analysis of the operating insulation resistance matter contained in the October 16 memorandum will necessitate a reopening of the record to pursue further the question whether the RG59 cable test results can serve as the foundation for the environmental qualification of the RG58 cable.

The issue concerning the environmental qualification of RG58 cable is remanded to the Licensing Board for additional proceedings consistent with this opinion.¹⁴

It is so ORDERED.

FOR THE APPEAL BOARD


C. Jean Shoemaker
Secretary to the
Appeal Board

¹⁴ Should it prove necessary, the Licensing Board is to decide whether low-power operation of the Seabrook facility must await the completion of this remand.

In its comments on the Licensing Board's October 16 memorandum, the Coalition attempted to raise the question whether the tests applied to the RG59 cable were sufficient even to qualify that cable. See New England Coalition on Nuclear Pollution's Supplemental Memorandum Regarding Environmental Qualification of RG58 Coaxial Cable (November 4, 1987) at 6. That question was not presented on the Coalition's appeal from the partial initial decision and we therefore do not consider it.