September 9, 1988

UNITED STATES OF AMERICA

NUCLEAR REGULATORY COMMISSION

before the

ATOMIC SAFETY AND LICENSING BOARD

In the Matter of	
PUBLIC SERVICE COMPANY OF NEW HAMPSHIRE, et al.	Docket Nos. 50-443-OL-1 50-444-OL-1
(Seabrook Station, Units 1 and 2)	On-site Emergency Planning and Safety Issues

MEMORANDUM IN SUPPORT OF APPLICANTS' MOTION FOR SUMMARY DISPOSITION OF NECNP CONTENTION I.B.2 (RG-58 COAXIAL CABLE)

Applicants submit this memorandum, their Statement of Material Facts Not in Dispute, and the affidavits of Newell K. Woodward, Gerald A. Kotkowski, Richard Bergeron, and the attachments thereto, in support of their motion for summary disposition of all issues pending before the Board with respect to New England Coalition on Nuclear Pollution's ("NECNP") Contention I.B.2. A review of the issues before the Board, the accompanying affidavits, and the evidence contained within the record of these proceedings show that no

material fact is in dispute. Therefore, summary disposition in Applicants' favor should be granted as to NECNP's Contention I.B.2. 10 C.F.R. 2.749(d).

THE ISSUE BEFORE THE BOARD

On April 21, 1982, NECNP filed its Contention I.B.2, which in its entirety asserted that "[t]he Applicant has not satisfied the requirements of GDC 4 that all equipment important to safety be environmentally qualified because it has not specified the time duration over which the equipment is qualified." Public Service Company of New Hampshire (Seabrook Station, Units 1 and 2), LBP-82-76, 16 NRC 1029, 1050 (1982). By 1988, the issue posed by the contention had evolved into the sole question of whether Applicants had adequately documented their conclusion that tests of RG-59 coaxial cable demonstrated that RG-58 coaxial cable is environmentally qualified to the extent required by 10 C.F.R. § 50.49. On April 25, 1988, the Atomic Safety and Licensing Appeal Board ("Appeal Board") remanded to this Board the question of whether "the environmental qualification of the RG-58 coaxial cable had been established". Public Service Company of New Hampshire (Seabrook Station, Units 1 and 2), ALAB-891, 27 NRC 341, 352 (1988) [hereinafter "ALAB-891"].[1]

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[1] The prior procedural history of the issue is summarized in that decision, 27 NRC at 342-348.

The Appeal Board identified two questions as crucial to resolving the issue of whether RG-58's environmental qualification had been adequately demonstrated:

> First, does the RG-58 cable have an accident mitigation function in its intended use as part of the facility's computer system? Second, if the RG-58 cable has no such function, does it follow that the RG-59 cable high potential test results establish that the cable is environmentally qualified so long as it is used exclusively for data transmission in the computer system?

Id. at 352.

In an effort to address these questions and simplify further adjudication of the RG-58 issue, Applicants undertook to remove from Seabrook Station all RG-58 cable that might arguably need to comply with 10 C.F.R. § 50.49, and replace it with RG-59 cable, the environmental qualification of which is not at issue.[2] Applicants' Suggestion of Mootness (May 19, 1988). However, in a telephonic conference with the parties on June 23, 1988, this Board rejected Applicants' argument that replacement of the RG-58 cable mooted the issue. Instead, the Board indicated that it regarded the issue remanded to it now to include, in addition to the two specific queries of the Appeal Board, five additional questions:

> [I]t must be established by the applicants that a total of 126 RG-58 cables have been installed at Seabrook, and

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[2] Public Service Company of New Hampshire (Seabrook Station, Units 1 and 2), ALAB-886, 27 NRC 74 (1988).

> it also must be established by the applicants how it was determined that a particular RG-58 cable belonged in one of the five groupings or categories . . . . And further . . . applicants . . . must prove that the RG-59 cable is a technically acceptable replacement for the RG-58 coaxial cable . . . . [Additional issues are] the application of the RG-58, which included the circuits, that is, what's attached to each end of it, and . . . why the operability code that was assigned did not seem to apply to the use for which the cable was being made.

Tr. at 1178-1179.

In sum, the issue before this Board is whether the RG-58 coaxial cable has been shown to be environmentally qualified to the extent required by 10 C.F.R. § 50.49. The Appeal Board and this Board have identified seven sub-issues to be addressed in resolving this larger issue:

(1) does RG-58 have an accident-mitigation function;

(2) does the RG-59 test demonstrate the environmental qualification of RG-58;

(3) how many RG-58 cables are in Seabrook Station;

(4) have Applicants categorized the cables correctly;

(5) is RG-59 a technically adequate substitute for RG-58 for those applications where it has replaced RG-58;

(6) what are the applications of the RG-58 cables in Seabrook Station; and

(7) why was RG-58 designated as Operability Code A if it did not perform an accident-mitigation function.

As discussed below, because these sub-issues overlap and address different approaches to the underlying issue -- i.e., the environmental qualification of RG-58 -- it is not necessary for Applicants to resolve on every sub-issue in order to prevail on the main issue. Nonetheless, as also discussed below, Applicants do address each sub-issue, because no dispute of material fact exists as to any of them.

DISCUSSION

This Board should enter summary disposition in Applicants' favor if it finds, on the record as it now has been supplemented by the parties' affidavits and discovery, that RG-58 coaxial cable has been shown to be environmentally qualified to the extent required by 10 C.F.R. § 50.49.[3] There are three different ways in which the Board could make this finding.

First, the Board could rule that the tests of RG-58 cable which Applicants have recently had conducted now demonstrate conclusively that RG-58 is environmentally qualified. This approach would required the Board to resolve only sub-issue 5 in Applicants' favor.

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[3] In addition, the Board must in each case also find that RG-59 is a technically adequate substitute for the 12 specific cables where Applicants have replaced RG-58 with RG-59. But see infra note 6 (Applicants are able to switch back to RG-58, if necessary).

Second, the Board could find that the record now adequately documents that testing of RG-59 cable demonstrated the environmental qualification of RG-58. This approach would require the Board to resolve sub-issues 1, 2, 5 and 7 in Applicants' favor.[4]

Third, the Board could find that Applicants have replaced all RG-58 cable that might otherwise need to be environmentally qualified with RG-59 coaxial cable. This approach would require the Board to resolve sub-issues 3, 4 and 5 in Applicants' favor.

If the Board, following any one of these lines of analysis, found that RG-58 cable was environmentally qualified, then summary disposition in Applicants' favor should be granted. In point of fact, each of these routes leads to the same result -- that RG-58 has been shown to be environmentally qualified.

1. The 1988 Environmental Qualification Test of RG-58

On July 22, 1988, independent contractors hired by Applicants completed an environmental qualification test

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[4] As Applicants read it, sub-issue 6 is subsumed into sub-issue 1. That is to say, in showing that RG-58 does not have an accident-mitigation function, Applicants' necessarily must show what the applications of RG-58 cable are. Thus Applicants will discuss sub-issue 6 in the context of sub-issue 1.

program for the RG-58 coaxial cable used by Applicants at Seabrook Station. Affidavit of Newell K. Woodward at ¶3 (September 9, 1988) [hereinafter "Woodward Aff."]. The affidavit of the independent consultant who personally supervised and evaluated the tests for Applicants, and the attached test results themselves, demonstrate that RG-58 is environmentally qualified. Woodward Aff. at ¶¶2, 9. The program involved "[t]esting an identical item of equipment under identical conditions or under similar conditions with a supporting analysis to show that the equipment to be qualified is acceptable", in accordance with 10 C.F.R. § 50.49(f)(1). Woodward Aff. at ¶¶4-8 and Attachment B. The cable passed the test, which was even more severe than that to which similar cable in Seabrook Station has been subjected.[5] Woodward Aff. at ¶¶8-10. RG-58 thus has been

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[5] NECNP received and reviewed a copy of the Test Report from this testing program. See New England Coalition on Nuclear Pollution's Answers to Applicants' First Set of Interrogatories and First Request for Production of Documents Regarding New England Coalition on Nuclear Pollution's Contentions Concerning RG-58 Cable at 4 (August 19, 1988) [hereinafter "NECNP Answers"]. In response to an interrogatory asking it to state "all the facts underlying" NECNP's assertion that RG-58 is not environmentally qualified, NECNP argued that the test of RG-58 did not show the cable to be qualified. NECNP based that argument solely on drops in insulation resistance during the test and on the "repeated blowing of the in-line 1-amp fuse". Id.

In reality, however, the incidents upon which NECNP rely do not demonstrate any failure on the part of RG-58 cable. Instead, they resulted from routine adjustments in test procedures, and when adjusted the RG-58 cable performed

shown to be environmentally qualified, in compliance with the requirements of 10 C.F.R. § 50.49(a).

Since Applicants have replaced 12 RG-58 cables with RG-59 cable, the Board has asked Applicants to demonstrate that, for those 12 applications, RG-59 is a technically adequate substitute for RG-58 cable.[6] As this Board has conclusively determined, the question of the technical adequacy of RG-59 does not involve any inquiry into the environmental qualification of RG-59. Order (Denying NECNP Motion of July 13, 1988) (August 1, 1988), slip op. at 4 ("Our June 23 ruling made it clear that, for the reasons

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exactly as required. Woodward Aff. at ¶¶ 9(c) - (d). Thus NECNP has no factual basis whatsoever for asserting that the test of RG-58 did not demonstrate the cable to be environmentally qualified.

[6] Applicants "replaced" the 12 RG-58 cables by disconnecting them, sealing the ends, and running RG-59 cable between their prior connections. See Applicants' Response to "New England Coalition on Nuclear Pollution's First Set of Interrogatories and Request for the Production of Documents to Applicants on NECNP Contention I.B.2" at 8-9, 16 (July 13, 1988). The RG-58 cables thus have not been physically removed; they are still in place, as spares. Affidavit of Richard Bergeron at ¶16 (September 9, 1988) [hereinafter "Bergeron Aff."]. Applicants thus would be able, with relatively little trouble, to replace the 12 RG-59 cables with RG-58 cables. As discussed in the text that follows, Applicants believe that the record conclusively establishes that RG-59 is a technically adequate substitute for RG-58 in these applications. If, however, the Board entertains any doubt as to the technical suitability of RG-59, Applicants respectfully suggest that the Board summarily resolve the issue by ordering Applicants to switch back to RG-58, under the supervision of the NRC Staff. In that way, proceedings on the issue could finally be brought to a close.

state. in the transcript at pp. 1179-80, we would not allow any litigation upon the question of the environmental qualification of the RG-59 cable."). If RG-59 will adequately perform the function of the 12 cables in question, during normal plant operation, then it is a technically adequate substitute.

The record amply demonstrates that RG-59 will adequately perform these 12 cable functions. These 12 cables transmit high frequency electrical signals for several plant computer and level measuring functions. Affidavit of Gerald A. Kotkowski at ¶3 (September 9, 1988) [hereinafter "Kotkowski Aff."]. An evaluation of RG-59 cable for insertion loss and velocity of propagation in these functions revealed that RG-59 was in fact superior to RG-58 in avoiding insertion loss, and had only an infinitesimally lower velocity of propagation than RG-58. Id. at ¶¶ 5-6. RG-59 cable connects properly to the instruments and devices joined by the 12 cables, and the vendors of each such instrument and device have confirmed that RG-59 is suitable for such connections. Id. at ¶ 7. Finally, NECNP has conceded, and the NRC Staff agrees, that under normal operating conditions, RG-59 is "technically qualified to perform the functions required by the 12 RG-58 cables that were replaced." New England Coalition on Nuclear Pollution's Supplemental Answer to Applicants' First Set of Interrogatories and First Request

for Production of Documents Regarding New England Coalition on Nuclear Pollution's Contentions Concerning RG-58 Cable at 2 (September 1, 1988); NRC Staff Response to Licensing Board Order of July 1, 1988, at 10-11 n. 5 and Walker Affidavit at 7 (July 27, 1988).

RG-58 has been tested and proven to be environmentally qualified. RG-59 has been evaluated and, as NECNP concedes, shown to be technically adequate to replace RG-58. On these grounds alone, the Board can and should find that no material question of fact remains as to NECNP Contention I.B.2.

2. Similarity of RG-58 to Tested RG-59 Cable

Applicants have previously argued that environmental qualification tests performed on RG-59 coaxial cable demonstrated by similarity, in accordance with 10 C.F.R. § 50.49(f)(2), that RG-58 is environmentally qualified. ALAB-891, 27 NRC at 342-343. The Appeal Board rejected that argument on the grounds that the memorandum upon which Applicants relied to make the comparison was not "sponsored by a witness in a position both to attest that RG-58 cable is within its scope and to explain the basis for the representation in the memorandum regarding the color-coding

scheme." Id. at 351.[7] In connection with that holding, the Boards have asked whether RG-58 performs an accident-mitigation function (sub-issue 1) and, if not, why it was originally classified as Operability Code A (sub-issue 7).

The record has now been supplemented to address these concerns. The affidavit of Newell K. Woodward, who supervised the recent test of RG-58 as well as the preparation of the Environmental Qualification File upon which Applicants previously had relied, establishes by actual test comparisons of RG-58 and RG-59 that the two cables are

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[7] In so ruling, the Appeal Board failed to address Applicants' argument that, since it was NECNP that had submitted the document in question into evidence, "for the truth of the matter asserted therein", Applicants were under no obligation to provide a sponsor for NECNP's own evidence. See Applicants' Appeal and Petition for Directed Certification of an Order of the Atomic Safety and Licensing Board Rejecting Applicants' Suggestion of Mootness with Respect to the Issue of Environmental Qualification of RG-58 Cable at 2-5 (June 28, 1988). Neither Board has yet addressed, let alone ruled upon, the question of how NECNP can be heard to question the foundation for evidence which it itself offered for the truth of the matters contained. See, e.g., Neibert v. Stone, 247 Iowa 366, 370, 73 N.W.2d 763, 765 (1955) (rejecting defendant's attack on competency of his own document; "[t]he general rule is 'when a document is offered in evidence, it must be taken in its entirety; the parts operating against the interests of the party offering it, as well as the parts in his favor.'"). After the long and torturous history of this issue, after having been subjected to exhaustive discovery by NECNP, and after having assembled a comprehensive factual record and analysis, Applicants feel that the RG-58 issue should be resolved, once and for all, on the merits. Nonetheless, Applicants respectfully suggest that the Board rule, as an alternative ground for granting summary disposition in Applicants' favor, that NECNP cannot now be heard to question the foundation for its own proffered evidence.

similar for environmental qualification purposes. Woodward Aff. at ¶ 9(a). The color-coding system alluded to in Applicants' original documentation is now explained in detail, and demonstrates -- independently of the test comparison -- that RG-58 and RG-59 are comparable for environmental qualification purposes. Bergeron Aff., supra note 6, at ¶¶ 3-4; Woodward Aff. at ¶ 3. The record is now clear, and NECNP in fact concedes, that none of the RG-58 cable is used for accident-mitigation functions, and so none is safety-related within the meaning of 10 C.F.R. § 50.49(b)(1). Bergeron Aff. at ¶¶ 17-19, and Attachments G and H; NECNP Answers at 8 ("NECNP now believes that the 126 identified applications of RG-58 cable are not safety-related.")[8] It is now also clear that RG-58 was initially designated as Operability Code A not because it would be used for safety-related applications but as an extremely conservative approach to cable review. Bergeron Aff. at ¶ 5.

RG-58 has thus been shown to be similar to RG-59 cable, within the meaning of 10 C.F.R. § 50.49(f)(2), both by comparing tests of the two cable types and by elucidating the basis for Applicants' original comparison of the two. RG-58

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[8] Since RG-58 cable has been shown to be environmentally qualified, both by testing RG-58 itself and by comparing it to RG-59 cable, it would not matter if there were applications of RG-58 other than those 126 identified by Applicants.

has been shown not to perform any accident-mitigating function. The reason for assigning RG-58 a conservative operability code has been explained. And, as discussed above, RG-59 has been shown to be a technically adequate substitute for RG-58 in those 12 functions where Applicants have switched the cables. On these grounds too, therefore, the Board can and should find that no material issue of fact remains as to NECNP Contention I.B.2, and should grant summary disposition in favor of Applicants.

3. Replacement of RG-58 with RG-59 Cable

As noted above, Applicants replaced 12 RG-58 cables with RG-59 in an effort to moot NECNP Contention I.B.2. The Board has called upon Applicants, however, to document that it in fact removed the correct cables. Applicants provide this documentation in the Affidavit of Richard Bergeron and the Attachments thereto.

Applicants reviewed both their Cable Schedule Program (CASP) and the electrical schematic drawing packages for Seabrook Station in order to identify every use of RG-58 coaxial cable. Both reviews identified the same 126, nonsafety-related runs as the only applications of RG-58 at Seabrook Station. Bergeron Aff. at ¶¶ 7-12. The routes of the cables were then traced, and the cables categorized by function and environment. Id. at ¶¶ 13-18 and Attachments D-H.

Since none of the cables identified performs safety-related functions, none needs be environmentally qualified pursuant to 10 C.F.R. § 50.49(b)(1). Id. at ¶ 19; NECNP Answers at 8. The spare cables, those in mild environments, and those routed only with other nonsafety-related cables need not be qualified pursuant to § 50.49(b)(2). Bergeron Aff. at ¶¶ 19-23. Thus, the only cables which arguably need to be qualified are the 12 routed at least partially through a harsh environment within the nuclear island. Id. at ¶ 24. As NECNP concedes, Applicants have replaced these 12 cables with RG-59 cable. Id.; NECNP Answers at 6 ("We do not contend that Applicants failed to replace any cable that they assert to have replaced.").

Applicants thus have shown that they have replaced, with RG-59 cable, all RG-58 cables which arguably would have to be environmentally qualified. As discussed above, Applicants have also shown that RG-59 is a technically adequate substitute for RG-58. For these reasons as well, therefore, the Board can and should find that no material issue of fact remains as to NECNP Contention I.B.2.

CONCLUSION

For the reasons stated above, Applicants ask the Board to enter summary disposition in Applicants' favor with respect to NECNP Contention 1.B.2.

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STATEMENT OF MATERIAL FACTS NOT IN ISSUE '88 SEP 12 P1:46

Does RG-58 cable have an accident mitigation function? How many RG-58 cables are in Seabrook Station?

1. The Cable Schedule Program (CASP) is the primary design document for configuration control for electrical cable at Seabrook Station. (Bergeron ¶8)

2. A review was conducted by NHY using CASP to identify all RG-58 coaxial cable applications. (Bergeron ¶7) This review identified 126 RG-58 coaxial cable runs, all nonsafety-related. (Bergeron ¶9)

3. At Seabrook Station, the electrical schematic drawing packages contain the electrical schematic drawings and other information that enables one to identify RG-58 coaxial cable applications. (Bergeron ¶10)

4. A review was conducted by NHY of the electrical schematic drawing packages to identify all RG-58 coaxial cable applications. (Bergeron ¶9) This review identified 126 RG-58 coaxial cable runs, all nonsafety-related. These 126 cable runs identified were the same as the 126 cable runs identified using CASP. (Bergeron ¶12)

Have Applicants categorized the cables correctly?

5. The routes of each of the 126 identified RG-58 coaxial cables were determined from the Seabrook Station cable raceway drawings. The environmental zones through which each of these 126 cables passed were then determined using

Environment Zone Maps. (Bergeron ¶13, 14) By this means, the 126 RG-58 cables were correctly grouped into 5 categories. (Bergeron ¶16)

6. This process determined that 12 RG-58 cables were routed at least partially through a harsh environment within the nuclear island and, therefore, may have required environmental qualification in accordance with 10 C.F.R. 50.49. (Bergeron ¶16, 24) All other RG-58 cables are either spares, located in mild environments within the nuclear island or routed with other nonsafety-related cables outside the nuclear island and do not need to comply with 10 C.F.R. 50.49. (Bergeron ¶¶20, 21, 22 and 23)

7. The 12 RG-58 cables that were determined to be routed at least partially through a harsh environment have been completely disconnected from their terminations and designated as spares. (See Applicants' Response to "New England Coalition on Nuclear Pollution's First Set of Interrogatories and Request for the Production of Documents to Applicants on NECNP Contention I.B.2" at 8-9, 16 (July 13, 1988))

8. The 12 RG-58 cables have been replaced with RG-59 cables.

Is RG-59 cable a technically adequate substitute for RG-58 cable for those applications where it has replaced RG-58 cable?

9. The primary specifications that determine the wave propagation characteristics of transmission lines are attenuation and variation in response time due to the change in velocity of propagation. (Kotkowski ¶4)

10. Factory test results show that attenuation for the RG-59 cable is less than that for the RG-58 cable. (Kotkowski ¶6)

11. A review of the typical factory test results for RG-58 and RG-59 cable in conjunction with a comparison of the actual field cable lengths for the 12 applications in question shows that the difference in the velocity of propagation between the RG-58 and RG-59 cable is insignificant and will not noticeably affect the rate of signal transmission. (Kotkowski ¶5)

12. The compatibility of an RG-59 cable with the device or instrument to which it was connected when it replaced the 12 RG-58 cables was evaluated. In both applications, characteristic impedance of the RG-59 cable is compatible. (Kotkowski ¶3 and ¶7)

13. The vendors of the equipment connected to the RG-59 cable that replaced the 12 RG-58 cables in question confirmed that the use of RG-59 cable was acceptable. (Kotkowski ¶7)

Why was RG-58 cable designated as Operability Code A if it did not perform an accident-mitigation function?

14. Components that meet the requirements of Operability Code A may be used in safety-related applications. (Bergeron ¶5)

15. During the initial development of the Environmental Qualification program at Seabrook Station, the RG-58 coaxial cable was assigned Operability Code A in order that it might be used in the most restrictive plant applications. This approach was taken to eliminate the necessity for implementation of special programmatic controls restricting cable usage. (Bergeron ¶5)

16. The RG-58 coaxial cable was conservatively assigned Operability Code A. The RG-58 cable, however, does not perform any safety functions (see paragraphs 2 and 4 above). (Bergeron ¶5) The actual performance specifications to which the RG-58 cable must be qualified were originally specified in EQ File 113-19-01 (NECNP Exhibit 4) (Woodward ¶4) and are now specified in EQ File 113-19-02 (Attachment B to the Newell K. Woodward Affidavit of September 9, 1988). (Woodward ¶7)

Does the RG-59 cable test demonstrate the environmental qualification of RG-58 cable?

17. An environmental qualification test was conducted of the RG-58 coaxial cable for NHY by NTS/Acton. The test was completed on July 22, 1988. (Woodward ¶7) The cable tested was manufactured by ITT Suprenat and is the same cable supplied to Seabrook Station under Purchase Order No. 9763-006-113-19 and were cut from a reel of cable stored in the Seabrook Station warehouse. (Woodward ¶3)

18. The performance specification for the tested cable was the same as had been previously defined in EQ File No. 113-19-01 (NECNP Exhibit 4) which included documentation on the environmental qualification of RG-59 coaxial cable and on the environmental qualification of RG-58 cable by similarity with RG-59 cable. (Woodward ¶4)

19. The environmental parameters to which the RG-59, and by similarity, the RG-58 cable had been subjected in the original test were more severe than those both the RG-59 and RG-58 cable would experience under worst case accident conditions. (NECNP Exhibit 4)

20. The environmental parameters to which the RG-58 cable has been recently tested as reported in Attachment B of the Affidavit of Newell K. Woodward dated September 9, 1988 are the same or more severe than those applied in the original test. (NECNP Exhibit 4, Reference 2)

21. The RG-58 cable passed all tests, met established performance specifications and will perform its function as required and not fail in a manner detrimental to plant safety when exposed to the environmental conditions occurring subsequent to design basis accidents. (Woodward ¶10)