

July 27, 1988

DOCKETED
USNRC

UNITED STATES NUCLEAR REGULATORY COMMISSION
BEFORE THE ATOMIC SAFETY AND LICENSING BOARD

'88 JUL 29 A10:10

In the Matter of _____)
Public Service Company of _____)
New Hampshire, et al. _____)
(Seabrook Station, Units 1 & 2) _____)
_____)

OFFICE OF SECRETARY
DOCKETING & SERVICE
BRANCH

Docket Nos. 50-443 OL-1
50-444 OL-1
ONSITE EMERGENCY
PLANNING & TECHNICAL
ISSUES

NEW ENGLAND COALITION ON NUCLEAR POLLUTION'S
REPLY TO NRC STAFF RESPONSE TO BOARD REQUEST OF
JULY 20, 1988, AND AFFIDAVIT OF NEWELL K. WOODWARD

On July 20, 1988, the Licensing Board convened a telephone conference in which it directed Applicants and the NRC Staff to respond to two questions: first, whether performance specifications must be included in equipment qualification files pursuant to 10 CFR § 50.49; and second, whether NECNP Exhibit 4 contains such performance specifications for RG-58 and RG-59 coaxial cable. Both Applicants and the NRC Staff agree with NECNP that the regulations require that equipment qualification files must include performance specifications. They also assert that the equipment qualification file for RG-58 and RG-59 coaxial cable (NECNP Exhibit 4) contains such specifications. As discussed below, the information provided by Applicants and Staff is both contradictory and insufficient; moreover their claims are not supported by the record.

Applicants state that "the only performance specification that RG-58 and RG-59 cable, with a black with red trace jacket, must meet in the Seabrook Plant is to remain intact." Woodward

Affidavit, par. 5. The NRC Staff states that the performance specification for the RG-58 and RG-59 cable is "a total leakage/charging current rate [not to] exceed approximately 1.0 amp."

At the outset, it should be observed that Applicants and the NRC Staff have offered two different descriptions of what the performance specifications for this cable are. The discrepancy reflects the confusion and lack of information in the equipment qualification file. Moreover, neither party presents an adequate description of the performance specifications for this cable. The Applicants' characterization of the performance requirements, for example, is incomplete. Even for cable with non-safety applications, NRC regulations and regulatory guidance require more than a mere showing that the cable remains "intact."¹ To say that the cable must remain "intact" is meaningless unless Applicants specify the values of cable characteristics which define what constitutes remaining "intact" (e.g. insulation resistance). No such characteristics have been provided by Applicants, either in the equipment qualification file or Mr. Woodward's affidavit.

¹ Moreover, the reference given for the specification that cable in non-safety applications remain "intact" is a brief telephone memorandum written by Mr. Woodward, dated October 8, 1985, Ref. 6 to NECNP Exh. 4. Neither the memorandum nor any other document in the equipment qualification file contains any explanation of the basis for this statement.

Second, the acceptance criterion of 1.0 A leakage/charging current rate, cited by the NRC Staff, was one that was assumed by the tester, Franklin Research Center, because Applicants had failed to specify "potential and current" that were required for an acceptable performance.² See NECNP Exh. 4, Ref. 2. The assumption of 1.0 amp leakage-charging current rate was made for each and every application of RG-58, RG-59, and RG-11 cable, regardless of whether the application of the cable was safety-related or non-safety-related. FRC does not say what the basis was for its assumption, nor can it be derived from the equipment qualification file. Thus, neither the recent filings of Applicants and Staff nor the equipment qualification file itself demonstrates that 1 ampere leakage/charging current rate was the actual performance standard for this cable. Rather, it was a generic standard set by the tester in the absence of plant-specific performance criteria.

2 The exact language of the FRC test report was as follows:

The test specimens were considered to have met the requirements of IEEE Std 383-1974, Section 2.4, if they (a) remained energized with client-specified potential and current during the steam, chemical-spray, and high-humidity exposure, and (b) passed a final bend test at a diameter 40 times the cable diameter and an ac high-potential-withstand test at 80 V per mil (3150 V per mm) of insulation thickness. It was assumed that the first criterion was met if the total leakage/charging current of the specimens connected to an energizing source for potential did not exceed approximately 1.0 A.

NECNP Exh. 4, Ref. 2 at 2 (footnotes omitted)

Moreover, contrary to the NRC's assertion at page 8 of the Gill/Walker affidavit, the test report did not demonstrate that the acceptance criteria assumed by the tester "were met throughout the test." The NRC affiants cite the test report, NECNP Exh. 4, Ref. 2 at 17, for this proposition. The test report states that the cable met the acceptance criteria

by maintaining an electrical load during a 100-day simulated SLB/LOCA exposure, which included two transients to a peak temperature of 390° F, and by passing a final 40-times-diameter bend and high-potential withstand test of 80 V/mil for 5 minutes.

Id. However, due to the nature of the test, the fact that the cable maintained an electrical load during a 100-day simulated LOCA does not demonstrate that the leakage charging current rate did not exceed 1.0 A. As described in the test report, a 600 V potential was applied to the cable conductor with the cable shield at ground potential. The circuit included a circuit breaker that would disconnect if the leakage-charging current rate exceeded approximately 1.0 A. Ref. 2 at 5. There is no indication in the test report that leakage-charging current was measured, nor is there any indication that the circuit breaker was tested to determine what magnitude of current persisting over what period of time would actually cause the circuit breaker to open. Because charging current typically occurs over a brief period of time, it might not open the circuit breakers even if it exceeded 1.0 A.

The high-potential test is also inadequate to measure the performance of the cable during an accident because it was not

done under accident conditions, but rather after the simulated LOCA. Ref. 2 at 10, § 5.5. While leakage-charging current was measured, the measurement told the tester nothing about how the cable would perform under accident conditions.³

Finally, to the extent that Applicants' affidavit and the equipment qualification provide any performance specifications for the cable included in that file, they address only the non-safety uses of the cable (i.e. cable whose jackets are color-coded black with a red tracer). For the safety applications of the cable (solid color jackets), Mr. Woodward correctly observed in his 1985 memorandum that "performance requirements such as I.R. [insulation resistance] and accuracy must be met during environmental qualification." NECNP Exh. 4, Ref. 6. See also Woodward Affidavit, par. 5. However, other than the criteria assumed by the tester in the absence of plant-specific criteria from Applicants, acceptance criteria for the safety applications

³ In fact, the insulation resistance measurements taken during the LOCA simulation demonstrate that the cable did degrade under accident conditions. See Ref. 2 at 14, Table 2.

It is worth noting that while Applicants concede in Ref. 6 that insulation resistance is a significant acceptance criterion for safety applications of cable, and while the qualification test performed by FRC measured insulation resistance, neither Applicants nor the NRC Staff identify any acceptance criteria for insulation resistance.

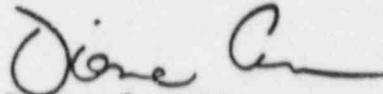
of RG-59 cable are nowhere described in Mr. Woodward's affidavit⁴ or the equipment qualification file. It is also notable that the performance criteria which were assumed by FRC make no distinction between safety and non-safety applications of the cable; nor do they distinguish the applications of RG-59 and RG-11 cable, which were both subjected to the test.

4 In paragraph 6 of his affidavit, Mr. Woodward states that "Once the cable color code was known, NECNP Ex. 4 Reference 6 provided the engineer with the tools to define the electrical characteristics of importance necessary to environmentally qualify the cable." Reference 6 provides no characteristics of safety-related applications, other than a general reference to insulation resistance and accuracy. Paragraph 8 of Mr. Woodward's affidavit, which specifically discusses the evaluation of cable in safety-related applications, states only that Applicants' engineers evaluated the environmental qualification test results "for any impact on the attached equipment." Applicants provide no indication of what standards these impacts were evaluated against.

CONCLUSION

What Applicants' and the NRC Staff's filings show is a state of confusion over what constitute the actual performance criteria for cable included in Equipment Qualification File No. 113-19-01. In fact, the file contains, at best, some partial and unexplained criteria for limited non-safety applications, and other partial criteria based on the tester's best guess. This is not adequate to meet the regulations.

Respectfully submitted,

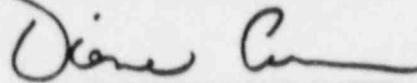


Diane Curran
HARMON & WEISS
2001 "S" Street N.W. Suite 430
Washington, D.C. 20009
(202) 328-3500

July 27, 1988

CERTIFICATE OF SERVICE

I certify that on July 27, 1988, copies of the foregoing pleading were served by hand, overnight mail, or first-class mail on all parties to this proceeding, as designated on the attached service list.



Diane Curran
Diane Curran

SEABROOK SERVICE LIST
Onsite Appeal Board

Alan S. Rosenthal, Esq, Chairman
Atomic Safety and Licensing
Appeal Board
U.S. NRC
Washington, D.C. 20555

Howard A. Wilber
Atomic Safety and Licensing
Appeal Board
U.S. NRC
Washington, D.C. 20555

*Sheldon J. Wolfe, Chairman
Atomic Safety and Licensing Board
U.S. Nuclear Regulatory Commission
Washington, D.C. 20555

*Dr. Emmeth A. Luebke
Atomic Safety and Licensing Board
5500 Friendship Boulevard
Apartment 1923N
Chevy Chase, MD 20815

*Dr. Jerry Harbour
Atomic Safety and Licensing Board
U.S. Nuclear Regulatory Commission
Washington, D.C. 20555

Atomic Safety and Licensing
Appeal Board Panel
U.S. Nuclear Regulatory Commission
Washington, D.C. 20555

Atomic Safety and Licensing
Board Panel
U.S. Nuclear Regulatory Commission
Washington, D.C. 20555

Docketing and Service Branch
U.S. Nuclear Regulatory Commission
Washington, D.C. 20555

Stanley W. Knowles
Board of Selectmen
P.O. Box 710
North Hampton, NH 03826

Senator Gordon J. Humphrey
U.S. Senate
Washington, D.C. 20510
(Attn. Tom Burack)

J.P. Nadeau
Town of Rye
155 Washington Road
Rye, New Hampshire 03870

Mrs. Anne E. Goodman
Board of Selectmen
13-15 New Market Road
Durham, NH 03842

William S. Lord, Selectman
Town Hall - Friend Street
Amesbury, MA 01913

Jane Doughty
SAPL
5 Market Street
Portsmouth, NH 03801

Carol S. Sneider, Esquire
Assistant Attorney General
1 Ashburton Place, 19th Floor
Boston, MA 02108

Richard A. Hampe, Esq.
Hampe and McNicholas
35 Pleasant Street
Concord, NH 03301

Gary W. Holmes, Esq.
Holmes & Ellis
47 Winnacunnent Road
Hampton, NH 03842

William Armstrong
Civil Defense Director
10 Front Street
Exeter, NH 03833

Calvin A. Canney
City Manager
City Hall
126 Daniel Street
Portsmouth, NH 03801

Charles P. Graham, Esq.
Murphy & Graham
33 Low Street
Newburyport, MA 01950

Rep. Roberta C. Pevear
Drinkwater Road
Hampton Falls, NH 03844

Phillip Ahrens, Esq.
Assistant Attorney General
State House, Station #6
Augusta, ME 04333

**Gregory A. Berry, Esq.
Office of General Counsel
U.S. Nuclear Regulatory Commission
Washington, D.C. 20555

Allen Lampert
Civil Defense Director
Town of Brentwood
Exeter, NH 03833

Matthew T. Brock, Esq.
Shaines & M-Eachern
P.O. Box 360
Maplewood Avenue
Portsmouth, NH 03801

Sandra Gavutis
RFD 1, Box 1154
East Kensington, NH 03827

Senator Gordon J. Humphrey
1 Eagle Square, Ste 507
Concord, NH 03301

Judith H. Mizner, Esq.
79 State St. 2nd Floor
Newburyport, MA 01950

**Thomas G. Dignan, Esq.
R.K. Gad II, Esq.
Ropes & Gray
225 Franklin Street
Boston, MA 02110

Robert A. Backus, Esq.
Backus, Meyer & Solomon
111 Lowell Street
Manchester, NH 03105

George Dana Bisbee, Esq.
Geoffrey M. Huntington, Esq.
Office of the Attorney General
State House Annex
Concord, NH 03301

R. Scott Hill-Whilton
Lagoulis, Clark, Hill-Whilton
and McGuire
79 State Street
Newburyport, MA 01950

Leonard Koppelman, Esq.
Barbara J. St. Andre, Esq.
Koppelman & Paige, PC
77 Franklin Street
Boston, MA 02110

Diana P. Sidebotham
NECNP
R.F.D. #2
P.O. Box #1450
Putney, VT 05346

Ashod N. Amirian, Esq.
Town Counsel for Merrimac
376 Main Street
Haverhill, MA 01830

* Hand Delivery

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