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July 29, 1988
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UNITED STATES OF AMERICA
NUCLEAR REGULATORY COMMISSION
before the
ATOMIC SAFETY AND LICENSING BOARD

OFFICE OF SECRETARY
DOCKETING & SERVICE
BRANCH

)
In the matter of)
)
PUBLIC SERVICE COMPANY)
OF NEW HAMPSHIRE, et al.)
)
(Seabrook Station, Units 1)
(& 2)
)
_____)

Docket Nos. 50-443-OL-1
50-444-OL-1

(Onsite Emergency
Planning and Safety
Issues)

FURTHER AFFIDAVIT OF NEWELL K. WOODWARD

1. I am the same Newell K. Woodward that submitted the Newell K. Woodward Affidavit of July 21, 1988.

2. From a review of NECNP's response to the affidavits made by me (Woodward Affidavit) and Messrs. Walker and Gill, it is very clear that there is No "confusion over what constitutes the actual performance criteria for cable included in Equipment Qualification File No. 113-19-01"¹ but rather a misinterpretation by NECNP. There is no basis for not concluding that the information and data in EQ File 113-19-01 is found to demonstrate that the RG-58 and RG-59 coaxial cables will perform their functions when required, or not fail in a manner detrimental to plant safety, when exposed to postulated plant environmental conditions. NECNP implies that because the Applicants and the NRC do not persist in using the same language, and because EQ File No. 113-19-01 (NECNP Fxh. 4) does not contain a page entitled "Performance

¹ NECNP "Reply to NRC Staff Response to Board Request of July 20, 1988 and Affidavit of Newell K. Woodward," dated July 27, 1988.

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Specifications," that we cannot define performance specifications for cable and reach consistent conclusions regarding the RG-58 and RG-59 cable qualification. As previously stated in the Woodward Affidavit (Items 6, 7 and 8), the performance specifications for the cable in question are given in the documentation contained in the EQ File (NECNP Exh. 4) and the criteria used to assess the acceptability of these specifications for both safety and non-safety related applications is also so stated. Further, NECNP's statement that "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." is completely invalid and again reflects NECNP's inability to evaluate all the data contained in the file and reach a satisfactory conclusion, but rather to continue to misunderstand the evaluation process and misinterpret the technical results.

3. The issues raised in regard to, and the interpretation of, my affidavit, the affidavits of Messrs. Walker and Gill, and the EQ File No. 113-19-01 qualification documentation are invalid and incorrect, respectively, as follows.

a. The performance characteristics of the RG-58 and RG-59 cable, "which define what constitutes remaining intact," are its ability to "carry current and load" during environmental exposure. These characteristics are proved by the fact that the total leaking/charging current rate during the test (NECNP Exh. 4) did not exceed 1 amp. During the LOCA test, a voltage and current were continually applied to the cable test specimens such that they were continuously energized. The test circuit that allowed this current and voltage to energize the test specimens included a 1 amp circuit breaker to monitor the current, such that if it exceeded 1 amp, the breaker would open and the cables would be deenergized. During the test, if the cable insulation degrades to the point of failure (does not remain intact), the current will increase above 1 amp as it flows through the insulation and shorts to ground, and the breaker will open. Because the cable was continuously energized (carried current and load) throughout the test and the 1 amp breaker did not open, the leakage/charging

current rate did not exceed approximately 1 amp and the cable remained intact. (NECNP Exh. 4 Ref. 2, p. 13) (Woodward Affidavit, Item 5; Walter and Gill Affidavit, Item A10). Therefore, NECNP's statement that the "Applicants and the NRC staff have offered two different descriptions of what the performance specification for the cable are" is wrong because the applicants and the NRC staff are describing the same cable performance characteristic.

b. As previously stated, and continuously misinterpreted by NECNP, the test program performed by Franklin Research Center (NECNP Exh. 4, Ref. 2) was not done so at the request of the Applicants but rather completed for ITT Surprenant, the cable vendor. There is no requirement that testing be performed on the same piece of equipment for each utility that purchases it, but rather that any test or other qualification document used in support of qualification be evaluated by the end user (Applicant) to determine if it adequately supports the environmental qualification of purchased equipment. The Assessment Report (checklist) in NECNP Exh. 4 provides the basis for the Applicant's evaluation and acceptance of NECNP Exh. 4 Ref. 2 as documentation in support of the environmental qualification of the RG-58, RG-59, and RG-11 cable.

c. Contrary to NECNP's assertion on page 4 that "the test report did not demonstrate the acceptance criteria" stated therein, the fact that the cable maintained an electrical load throughout the test and the breaker installed in the test circuit did not open is proof that acceptance criteria (a) (NECNP Exh. Ref. 2, Section 2.2) was met. The breaker exists to indicate cable failure during the test. If the cable insulation fails (does not remain intact) then the current surge to ground will open the breaker. Further, this failure is permanent. Any arguments concerning the use of an uncalibrated breaker by Franklin Research Center, a nationally recognized laboratory with a quality assurance program, are without fact.

d. The high-potential voltage withstand test, although not performed under accident environmental conditions, does provide a basis to assess the overall performance of the cable as installed in the plant (Woodward Affidavit, Items 6 and 7). This test was performed after all other sequential (i.e., thermal and radiation aging and LOCA) testing was complete (NECNP Exh. 4, Ref. 2). This is a potentially destructive test where these cables were charged with voltages as high as 9500 volts (NECNP Exh. 4, Ref. 2, p. 15) after they had been exposed to 40 years of simulated thermal and radiation aging, one year of simulated accident radiation and 100 days of LOCA and high humidity simulation. The fact that the cables did not fail (short to ground) during this test demonstrates that no insulation failure occurred during the environmental testing and this is further proof that the performance specification "remain intact" was met, and that the cable will not fail when exposed to the Applicant's environmental conditions.

e. A significant number does not have to be defined as acceptable or unacceptable for measured insulation resistance (IR). The circuit design and the unique characteristics of the instrumentation included in the circuit determine its insulation resistance tolerance during exposure to environmental events. Therefore, the IR's measured during the test were found acceptable for use in their specific applications at Seabrook. The evaluation of these IR's with respect to the Seabrook design and effects they may have on instrumentation was performed by the Applicant and the results were found acceptable (NECNP Exh. 4 Ref. 9) such that the cable test (NECNP Exh. 4 Ref. 2) provides adequate documentation in support of cable environmental qualification at Seabrook. Moreover, these evaluations were performed for the safety-related cable in NECNP Exh. 4 as stated in my previous Affidavit, Item 8.

4. In conclusion, my Affidavit, the NRC Staff's filing (Affidavits of Walker and Gill) and EQ File No. 113-19-01 (NECNP Exh. 4) demonstrate that the RG-58 and RG-

59 cable are environmentally qualified for use in Seabrook Station, will perform their function as required, and will not fail in a manner detrimental to plant safety when exposed to the harsh environmental conditions occurring subsequent to design basis events.

Newell K. Woodward
Newell K. Woodward

STATE OF NEW YORK

Suffolk, ss.

July 29, 1988

The above-named Newell K. Woodward appeared before me and made oath that he had read the foregoing affidavit and that the statements set forth therein are true to the best of his knowledge.

Before me,

Winifred M. Wink
Notary Public

WINIFRED M. WINK
Notary Public, State of New York
No. 4864923
Qualified in Suffolk County
Commission Expires April 1, 1988

CERTIFICATE OF SERVICE

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I, Thomas G. Dignan, Jr., one of the attorneys for the Applicants herein, hereby certify that on July 29, 1988, I made service of the within document by depositing copies thereof with Federal Express, prepaid, for delivery to (or where indicated, by depositing in the United States mail, first class, postage paid, addressed to):

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