UNITED STATES OF AMERICA
UNITED STATES NUCLEAR REGULATORY COMMISSION

before the

ATOMIC SAFETY AND LICENSING BOARD

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

AFFIDAVIT OF RICHARD BERGERON

I, RICHARD BERGERON, being on oath, depose and say as follows:

1. I am the Instrumentation and Controls Engineering Supervisor for New Hampshire Yankee. A statement of my professional qualifications is attached and marked "A".

2. This Affidavit provides the justification to conclude that all RG-58 coaxial cables installed at Seabrook Station are capable of remaining intact during accident conditions that may occur during low power testing. While all 12 RG-58 cables located in a harsh environment inside the nuclear island have been replaced with qualified RG-59 cable, I have assumed for purposes of my Affidavit, that a hypothetical RG-58 cable still exists within the nuclear island in a harsh environment for low power testing. My Affidavit addresses the effect of the environmental conditions during low power testing on this cable.

3. In the Seabrook Station design, all instrumentation cable within the scope of 10CFR50.49 has been environmentally qualified through sequential testing and analysis that simulates thermal and radiation aging effects

of full power operation and design basis accident parameters. The equipment that must perform accident mitigation functions must demonstrate system functionality (i.e. instrument accuracy) when subjected to these qualification environments.

4. The RG-58 cable is a nonsafety-related cable (See Affidavit of Thomas W. Glowacky ¶ 5) which does not serve an accident mitigation function and thus the acceptance criteria is that it only remain intact during accident conditions (i.e., instrument accuracy or other performance attributes are not essential). The RG-58 cable is in a new condition and has not been subjected to the aging effects of temperature and radiation that are encountered during full power operation. For the 5% power testing levels, the environmental parameters are much less severe than for full power as illustrated in the following paragraphs.

5. With regard to both thermal and radiation aging, low power operation results in a reduction of at least 98% of the aging effects. For thermal aging, the postulated environment for an RG-58 cable is 167°F for 40 years of full power operation. During low power testing, the maximum normal containment ambient temperature that the cable would be exposed to would be 120°F. Considering that the duration of low power testing would be less than one month, this would result in a reduction of more than 99% of thermal aging effects. For radiation aging, the postulated maximum radiation dose for an RG-58 cable is 2.0×10^8 Rads over a 40 year lifetime. For low power testing, the in-containment long-term integrated radiation levels will be reduced by a factor of 50 thereby reducing the radiation aging effects by 98%. See Affidavit of Peter S. Littlefield, ¶ 7).

6. With regard to containment accident parameters the reactor contains a new unirradiated core. The decay heat generated during the low power

testing will be significantly less than that from operation at full power. Expected low power testing levels will be at or below 0.1% power, resulting in 3.65 Mw thermal for 13 days and at or below 4% power, resulting in 146.2 Mw thermal for 2 days. (Affidavit of Peter S. Littlefield, ¶ 5). The lower decay heat will result in a reduced pressure and temperature time envelope for the harsh environment in which the nonsafety-related RG-58 cable hypothetically located inside containment would be required to remain intact.

7. Additional margin and further support for the conclusions drawn above for low power testing is demonstrated by the recently completed environmental qualification testing of RG-58 coaxial cable. This test bounds the parameters for low power testing as delineated below.

8. With regard to the thermal and radiation aging effects, the environmental qualification test subjected the RG-58 coaxial cable to a simulated inplant normal life of 40 years. The cable was thermally aged to simulate a 40 year life assuming that it operates with a conductor temperature of 167°F and is exposed to a total 40 year integrated radiation dose of 2.2×10^8 Rads.

9. With regard to the Design Basis Accident parameters, the environmental qualification test subjected the RG-58 coaxial cable to a LOCA temperature/pressure profile with double peaks of 390°F and 113 psi while inducing a chemical spray of boric acid solution. Throughout the LOCA testing, the RG-58 cable maintained current and voltage and subsequently passed the high potential withstand test with a potential applied at 80 Vac per mil of insulation in accordance with IEEE Std. 383-1974.

10. With regard to the operating requirements for post-LOCA time duration, a 30 day post-LOCA criteria was established for full power

operations. The test was interrupted after 15 days and four RG-58 coaxial cable specimens were removed from the test chamber and analyzed, and post-LOCA functional tests were performed. The remaining RG-58 samples remained in the chamber and the test continued. When compared with the thermal and radiation aging reduction factors discussed in ¶ 15 (i.e., at least 98% reduction from full power levels) the test results demonstrate that adequate margin is available for the RG-58 cable for low power testing. The full 30 day qualification test was successfully compelted and adds further margin for low power testing.

11. In conclusion, considering the significantly reduced environmental conditions during limited operation at 5% power, the relatively new condition of the RG-58 cable, environmental qualification testing of the RG-58 cable, the fact that all identified RG-58 cables within the scope of 10CFR50.49 have been replaced, there is a high level of confidence that all identified and potentially unidentified RG-58 coaxial cable is capable of remaining intact for a harsh environment that may result from low power testing.

Richard Bergeron

STATE OF NEW HAMPSHIRE

Rockingham, ss. July 22, 1988

The above-subscribed Richard Bergeron 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,

Beverly E. Silloway

Beverly E. Silloway, Notary Public
My Commission Expires: March 6, 1990

"A"

RICHARD BERGERON

INSTRUMENTATION & CONTROLS ENGINEERING SUPERVISOR

EDUCATION

BS Marine Engineering, Maine Maritime Academy, May 1969

Mr. Bergeron joined Public Service Company of New Hampshire in May 1982 as Senior I&C Engineer in the Engineering Services Department. His areas of responsibility include coordination of I&C Engineering activities for the Station Staff, Construction and Startup interface activities, as well as, various special projects. Mr. Bergeron was recently appointed to the position of Instrumentation & Control Supervisor in the Engineering Department. For the past six years Mr. Bergeron has also been assigned as the Station Staff Representative on the Equipment Qualification Task Force. He has been responsible for the coordination and review of the Equipment Qualification Program, as well as, coordinating the implementation of the Station Equipment Qualification Program.

Mr. Bergeron came to Public Service Company of New Hampshire from Stone & Webster Engineering Corporation where he was employed from 1972-1982. He held the position of Principle Instrument Application Engineer responsible, for specifying, purchasing and design review of electron and pneumatic instrumentation control systems. Mr. Bergeron is also experienced in the scheduling and preparation of Logic Diagrams and System Descriptions which define the functional control concepts. He was also assigned as a task member to assist in the develop-

ment and preparation of the 79-01B equipment qualification submittal for Duquesne Light Company.

Between 1969 and 1972 was employed by Gulf Oil Corporation as an engineer in their Marine Engineering Division. There he was responsible for the operation and maintenance of Marine Power Plants.