05/11/81

UNITED STATES OF AMERICA
NUCLEAR REGULATORY COMMISSION

BEFORE THE ATOMIC SAFETY AND LICENSING BOARD

In the Matter of	)	
	)	
HOUSTON LIGHTING AND POWER COMPANY	)	Docket No. 50-466
	)	
(Allens Creek Nuclear Generating Station, Unit 1)	)	

NRC STAFF SUPPLEMENTAL TESTIMONY OF
GREGORY A. HARRISON REGARDING CABLE FIRES

[TEXPIRG Contention 12]

Q. Please state your name and position with the NRC.

A. My name is Gregory A. Harrison. I am a Fire Protection Engineer in the Chemical Engineering Branch of the Division of Engineering. A statement of my professional qualifications is attached.

Q. What is the purpose of this testimony?

A. The purpose of my testimony is to respond to TEXPIRG Contention 12 which alleges that:

> Electrical wiring for the ACNGS is susceptible to fast flaming, and potential resulting common mode failures, in the event of an internal flash fire. A fire protection research test conducted by the Underwriters Laboratory for the Commission, which the staff forwarded on October 30, 1978 to the Board and to those on the service list, indicated that modifications to certain of the staff's fire protection criteria may be necessary.

Q. Since the fire protection research test referenced in the contention was conducted, has the Commission adopted new fire protection criteria?

A. Yes. On October 27, 1980, the Commission approved a rule concerning fire protection, 10 C.F.R. § 50.48. The rule and its Appendix (10 C.F.R. Part 50, Appendix R) were developed to establish the minimum acceptable fire protection requirements necessary to resolve certain areas of concern which had not yet been resolved between the Staff and licensees of plants operating prior to January 1, 1979. Further, the Commission took action to have all near term operating license plants comply with Appendix R. That regulation requires a complete fire protection modification needed to satisfy Branch Technical Position 9.5-1, "Fire Protection Program."

Q. Will the Allens Creek Applicant be required to meet Appendix R to 10 C.F.R. Part 50?

A. Yes.

Q. To ensure that electrical wiring for ACNGS is not susceptible to fast flaming and result in common mode failures in safety systems, what will be required of the Applicant?

A. The Applicant is required to conduct a fire hazard analysis to confirm that redundant safety related system cables and other system cables that are associated with the shutdown system cables are separated from each other by walls having a three-hour fire rating or equivalent protection so that both safety trains are not subject to damage from a single fire hazard. The Applicant can also show that an alternate means for safe shutdown is provided. The Staff's acceptance criteria for fire protection to assure safe shutdown capability is outlined in Section III.G of Appendix R to 10 C.F.R. Part 50.

Q. Does this acceptance criteria give a fire resistant rating credit for cables that passed IEEE-383 tests for flame retardant properties?

A. No. In fact, the Staff assumes a worse case fire for all areas of the plant and assumes that all cables in a common fill area are susceptible to burning and/or fire damage. As indicated above, under the requirements of Appendix R, the Applicant will be required to show that redundant safety related system cables and other system cables associated with shutdown are separated or have equivalent fire protection in order to maintain safe shutdown capability.

Q. What do you conclude regarding this contention?

A. Since the Allens Creek fire protection program will be required to conform to all the requirements of Appendix R to 10 C.F.R. Part 50, I conclude that the problem of fast flaming in electrical wires resulting in common mode failures will also be resolved when the fire protection program is approved.

Gregory A. Harrison
PROFESSIONAL QUALIFICATIONS

I am employed as a Fire Protection Engineer in the Chemical Engineering Branch, Division of Engineering, Nuclear Regulatory Commission, Bethesda, Maryland.

Education

B.S. Fire Protection Engineering, University of Maryland 1966; M.S. Civil Engineering, University of Maryland 1970; and M.S. Engineering Administration, George Washington 1979. I have received a certificate from Oak Ridge University covering the Radiation Safety Training Program. In addition, I hold professional engineering registrations in California and Maryland in fire protection and civil engineering.

Experience

I joined the USNRC in August, 1977 as a fire protection engineer. In this capacity I have performed inspections of power reactors during the construction stage to ascertain conformity with fire protection criteria; evaluated the adequacy of licensees' fire protection programs and its relation to the safety of operations. Finally, I have prepared fire protection SERs for both BWR and PWR plants.

Prior to joining the Commission I worked two years for the Arabian American Oil Company (ARAMCO) in Dhahram, Saudi Arabia. I held the position of Chief, Fire Protection Engineer for the Facilities Engineering Division.

From January, 1973, to July, 1975, I worked for the National Bureau of Standards in Gaithersburg, Maryland as fire protection engineer in fire research testing.

From July, 1969, to January, 1973, I worked as a general engineer with the Naval Ship Engineering Center, Washington, D.C.

From May, 1967, to July, 1969, I worked as a fire protection engineer for NASA at Goddard Space Flight Center, Greenbelt, Maryland.