UNITED STATES OF AMERICA
NUCLEAR REGULATORY COMMISSION

BEFORE THE ATOMIC SAFETY AND LICENSING BOARD

In the Matter of	)	
	)	
HOUSTON LIGHTING AND POWER COMPANY, ET AL.	)	Docket Nos. 50-498 50-499
	)	
(South Texas Project, Units 1 & 2)	)	

AFFIDAVIT OF JERRY N. WILSON

Jerry N. Wilson, being duly sworn, deposes and says:

1. My name is Jerry N. Wilson. My business address is the Nuclear Regular Commission, Mail Stop 544, Washington, DC 20555. Since a reorganization of the Office of Nuclear Reactor Regulation on November 24, 1985, I have been a Section Leader in the Reactor Systems Branch (RSB) of the Division of PWR Licensing-A, Office of Nuclear Reactor Regulation. Prior to the NRR reorganization I was a Section Leader in the Auxiliary Systems Branch. In that position, I supervised five Mechanical Engineers who were responsible for 33 sections of the Standard Review Plan (NUREG-0800), including Section 3.5.1.4, "Missiles Generated by Natural Phenomena," and Section 3.5.2, "Structures, Systems and Components To Be Protected From Externally Generated Missiles." From December 1981 to December, 1983, I was a Senior Policy Analyst in the NRC's Office of Policy Evaluation. Prior to that, I was a Project Manager in the Office of Nuclear Regulation from May, 1975 to December, 1981. I worked for

the Navy Department as a nuclear engineer and project manager from 1972 to 1975.

2. I received a Bachelor of Science degree in Physics and Mathematics from the University of Puget Sound in 1970. I was awarded an AEC Traineeship at the University of Washington where I received a Master of Science degree in Nuclear Engineering in 1972. I am a professional engineer registered in the Commonwealth of Virginia (008227).

3. The purpose of this affidavit is to address the following question set out by the Licensing Board in its Memorandum of January 29, 1985:

> We have found that the fact that the IVC cubicle roof does not meet deterministic tornado criteria is acceptable because the probability of a serious release by this mechanism is low. We are now confronted with a similar argument with respect to certain MEAB HVAC louvers. Are two or three such failures to meet the deterministic requirements permissible, provided the sum of the probabilities does not exceed 1×10^{-7}?

4. The answer to the Board's question is yes. The number of locations, where barriers are not provided to protect against tornado generated missiles, is not a critical factor in the Staff's review. The important point is whether the overall probability of tornado missiles striking these locations meets the Staff's criteria.

5. Guidance on the use of probability in tornado missile evaluations is contained in SRP Section 3.5.1.4. The SRP states that "the probability per year of damage to the total of all important structures, systems and components (as discussed in Regulatory Guide 1.117) due to a specific design basis natural phenomenon capable of generating missiles is estimated." The acceptance criterion associated with this review states: "If this probability is greater than the acceptable probability stated in Regulatory Guide 1.117, then specific design provisions must be provided to reduce the estimate of damage to an allowable level." Based upon this guidance, the Staff developed the following position:

> "The probability of significant damage to structures, systems and components required to prevent a release of radioactivity in excess of 10 C.F.R. Part 100 following a missile strike, assuming loss of offsite power, shall be less than or equal to a median value of 10^{-7} per year or a mean valve of 10^{-6} per year. Significant damage is damage that would prevent meeting the design basis safety function."

6. At the time of my previous affidavit, dated April 15, 1985, the Staff understood that only the isolation value cubicles (IVCs) were not protected from externally generated missiles. In that affidavit I stated in paragraph 4, that the Staff "did conclude that the probability of tornado and hurricane-borne missile damage to the IVCs and associated essential equipment was approximately 3×10^{-9} per year. This value is correct within an uncertainty bound of at least one order of magnitude."

7. Subsequently, during a Staff visit to the South Texas Project site, it was determined that the Mechanical Electrical Auxiliary Building (MEAB) HVAC louvers and the diesel-generator exhaust pipe openings were

also not protected from externally generated missiles. As a result, the applicant revised their PRA to include these other locations which are vulnerable to externally generated missiles.

8. The Staff has prepared section 3.5.2 of the South Texas SER, which has not yet been issued. Section 3.5.2 of the South Texas SER was prepared under my supervision. In that section of the South Texas SEP, the Staff concludes that the probability of tornado and hurricane-borne missile damage to the IVCs, HVAC louvers, and exhaust pipe openings is much less than 1×10^{-7} per year. The addition of the HVAC louvers and the exhaust pipe openings results in approximately a 50% increase in the target area in the revised PRA as compared to the target area used in the original PRA for the IVCs, and thus does not raise the probability of tornado and hurricane-borne missile damage to the IVCs (and associated equipment), the HVAC louvers, and the exhaust pipe to 1×10^{-7} per year.

Jerry N. Wilson

Jerry N. Wilson, P.E.

Subscribed and sworn to before
me this 27th day of February 1986

Malinda L. McDonald
Notary Public

My commission expires: 7/1/86