UNITED STATES OF AMERICA
NUCLEAR REGULATORY COMMISSION

BEFORE THE ATOMIC SAFETY AND LICENSING BOARD

In the Matter of	)	
	)	
CAROLINA POWER & LIGHT COMPANY	)	Docket Nos. 50-400 OL
AND NORTH CAROLINA EASTERN	)	50-401 OL
MUNICIPAL POWER AGENCY	)	
	)	
(Shearon Harris Nuclear Power	)	
Plant, Units 1 and 2)	)	

AFFIDAVIT OF RONALD L. SHEARIN
IN SUPPORT OF APPLICANTS' MOTION
FOR SUMMARY DISPOSITION OF INTERVENOR
WELLS EDDLEMAN'S CONTENTION 29/30

County of Wake)
)ss.
State of North Carolina)

Ronald L. Shearin, being duly sworn deposes and says:

1. I am employed by North Carolina Power & Light Company as Project Specialist - Environmental for the Shearon Harris Nuclear Power Plant, Units 1 and 2; and my duties have included the development and establishment of the Shearon Harris environmental monitoring system. My business address is Shearon Harris Energy and Environmental Center, Route 1, Box 327, New Hill, North Carolina 27562. My personal qualifications are attached as Attachment 1. I have personal knowledge of the matters stated herein, and I make this Affidavit in support of Applicants' Motion for Summary Disposition of Eddleman Contention 29/30.

2. Applicants' environmental monitoring system at the Shearon Harris Nuclear Power Plant (SHNPP) is composed of six Analytical Process Instruments, Inc., Model NRC-2000 Nuclear Air Samplers, two Hydragard Automatic Liquid Samplers, Model CU, and a Brailsford Battery-Operated Liquid Sampler. The

Brailsford sampler will be replaced by a third Hydragard, Model CU, prior to power operations at SHNPP, which requires laying a power line. The locations of the air and liquid samplers are as identified in the SHNPP ER Table 6.1.5-1, "Radiological Environmental Program." These locations were designated in accordance with the criteria contained in NRC Reg. Guide 4.1, "Programs for Monitoring Radioactivity in the Environs of Nuclear Power Plants." The air and liquid samplers have been in place and functioning properly since January 1, 1983.

3. Applicants developed their criteria and concomitant specifications for the selection of their environmental monitors and samplers in accordance with NUREG 0472, "Radiological Effluent Technical Specifications for PWRs." Applicants provided these specifications to the vendor. Each vendor established that its monitors could meet these specifications and verified that fact through vendor site testing. Applicants have subsequently verified the ability of vendor's equipment to meet Applicants' original specifications and, concurrently, comply with the requirements of NUREG 0472. Testing and the resultant documentation ensures that vendor design, fabrication, and testing procedures will meet Applicants' specifications.

4. Applicants' air calibration standards were calibrated at the vendor site prior to shipment. Calibration documentation is included in the documentation package which accompanied the equipment when it was shipped to Applicants. Applicants inspected the documentation for its completeness, thoroughness, and ability to establish compliance with Applicants' design specifications. Applicants independently conducted calibration. Applicants' samplers were also subjected to testing by the vendor and Applicants.

5. Applicants' calibration procedures involve a Kurz Mass Flow Meter which is itself a National Bureau of Standards traceable standard for air flow

calibrations. Calibration procedures enable Applicants to obtain accurate monitor readings of the air and water volumes flowing through, or taken as a sample by, the appropriate monitors. Such calibrations ensure that the contribution of error due to volumetric calculations in the overall radioactivity analysis is small compared to the expected error contribution stemming from the Lower Limit of Detection capabilities of the sample analysis equipment. The Lower Limit of Detection requirements are established in SHNPP FSAR Section 16.2. Calibration procedures are currently being developed by Applicants and will adhere to appropriate NRC guidelines.

6. Applicants' procedures ensure that contamination of the samples taken does not occur. Samples are collected on a predetermined "set" basis. Each "set" constitutes designated samples removed from specified monitors on the same day. Each sample is individually packaged and identified at the time of removal from the monitor. Each sample is transported to the Environmental Analysis Laboratory and given priority for analysis. Only samples and materials with low-level radioactivity are allowed in the holding room of the laboratory to ensure that no cross-contamination takes place. Tests and data reviews are conducted daily to ensure that any extraneous radioactivity which might alter the true reading of a sample will be promptly discovered.

7. Analysis of the samples is conducted by a gamma spectrometer which detects all isotopes of radioiodine with gamma emissions of greater than 70 thousand electron volts of energy.

8. Applicants' environmental air samplers include charcoal type samplers which adsorb radioiodines. This type of sampler is not subject to inaccuracies due to leakage when operated according to established SHNPP procedures. Any error in the total sample volume calculation would be insignificant compared to the counting error contribution anticipated. See ¶ 5 above.

9. Applicants' environmental water samplers directly sample surface water by extracting aliquots, or portions of a sample, from surface water and combine them to form a composite sample over a specified period of time. The sample is removed weekly from the surface water monitor, and the direct volume taken is compared to the volume indicated on the water sampler meter. Such a direct comparison serves to verify proper operation. When the samples are removed, the environmental technician ensures by direct observation that the surface water sampler is functioning properly and packages, identifies, and returns the water samples to the Environmental Analysis Laboratory for analysis as indicated in paragraphs 6 and 7 above.

10. The results of the sample analyses are utilized to validate estimated doses according to the Off-site Dose Calculation Manual (ODCM) at critical locations. The ODCM, which is currently being developed, includes the assumptions, procedures, and calculations extracted from NRC Reg. Guide 1.109, "Calculation of Annual Doses to Man from Routine Releases of Reactor Effluents for the Purpose of Evaluating Compliance with 10CFR Part 50, Appendix I," necessary to convert sample analyses into projected dose requirements for the purpose of ensuring compliance with Appendix I.

11. The critical locations for dose projections are initially determined according to the guidelines contained in NUREG 0133, "Preparation of Radiological Effluent Technical Specifications for Nuclear Power Plants." Annual land use surveys conducted according to the Radiological Effluent Technical Specifications (developed from NUREG 0472) establish a continuing ability to determine these critical locations. The annual surveys will ensure that changes in the local land use and population will not increase doses beyond the guidelines contained in 10CFR Part 50, Appendix I, and RM-50-2 (the Annex) because of shifts in the critical locations.

12. I am familiar with and have reviewed Eddleman Contention 29/30, Mr. Eddleman's responses to both Applicants' and the NRC Staff's Interrogatories, the NRC Staff's Responses to Mr. Eddleman's Interrogatories, and Applicants' Responses to Mr. Eddleman's Interrogatories. I have personally investigated the allegations made by Mr. Eddleman in his various responses and interrogatories regarding the purported deficiencies in Applicants' environmental monitoring system and have been unable to substantiate any of them.

13. As a result of my familiarity with Applicants' environmental system and my review of the pleadings and discovery discussed above, I can state that I know of no factual basis for Eddleman Contention 29/30 or the various allegations Mr. Eddleman presents regarding Applicants' environmental monitoring system. I believe that no significant defects or deficiencies exist in Applicants' environmental monitoring system and that this system will enable Applicants accurately to estimate dose equivalents from Applicants' radioiodine releases at the Shearon Harris site. I am aware of no equipment or computational deficiencies in Applicants' methods of obtaining, analyzing, or evaluating environmental radioiodine data which could preclude an accurate dose projection.

For the Affidavit of Ronald L. Shearin in Support of Applicants' Motion for Summary Disposition of Intervenor Wells Eddleman's Contention 29/30.

Ronald L. Shearin
RONALD L. SHEARIN

Subscribed and sworn to before me this 30th day of September, 1983.

Betty D. Hicks
NOTARY PUBLIC

My Commission Expires: September 28, 1985

Ronald L. Shearin
Project Specialist - Environmental

Education and Training

B.S. Degree in Physics from the University of North Carolina, Chapel Hill, North Carolina (1955)

M.S.P.H. Degree in Health Physics from the University of North Carolina, Chapel Hill, North Carolina (1963)

Ph.D. Candidate at the University of Florida (1971) - 1973, no degree)

Certificate in Meteorology from Texas A & M (1956)

Professional Societies

Health Physics (State and National Chapters)

Certified Health Physicist by American Board of Health Physics

Experience

September 1957 to August 1959 - First Lieutenant (Meteorologist), U.S. Air Force.

September 1959 to January - Health Physicist, E.E. DuPont, Aiken, South Carolina

June 1963 to January 1966 - Health Physics Instructor, Public Health Service.

January 1966 to June 1968 - Senior Radioligical Health Instructor, Southwestern Radiological Health Laboratory, U.S. Public Health Service.

June 1968 to July 1970 - USAF Eastern Test Range; Kennedy Space Center (Apollo Program), Liaison Officer, U.S. Public Health Service.

July 1970 to August 1971 - Chief - Nuclear Facilities Branch, Eastern Environmental Radiation Facility, Environmental Protection Agency, Montgomery, Alabama.

Experience con'd.

August 1973 to August 1979 - Health Services Director, Environmental Radiation Studies, Eastern Environmental Radiation Facility, Environmental Protection Agency, Montgomery, Alabama.

August 1979, employed as a Senior Generation Specialist-Radiation Control in the Generation Services, Harris Energy & Environmental Center, Section of the Generation Department located at New Hill, North Carolina.

November 1979, employed as a Senior Specialist-Health Physics in the Environmental & Radiation Control Section of the Nuclear Operations Department, located at the Harris Energy & Environmental Center in New Hill, North Carolina.

January 1980, employed as a Senior Specialist-Environmental in the Environmental & Radiation Control Section of the Nuclear Operations Department, located at the Harris Energy & Environmental Center in New Hill, North Carolina.

March 1981, employed as a Senior Specialist-Environmental in the Environmental & Radiation Control Section of the Technical Services Department, located at the Harris Energy & Environmental Center in New Hill, North Carolina.

February 1982, employed as a Senior Specialist-Environmental in the Radiological & Chemical Support Section of the Technical Services Department, located at the Harris Energy & Environmental Center in New Hill, North Carolina.

March 1982, employed as a Project Specialist-Environmental in the Radiological & Chemical Support Section of the Technical Services Department, located at the Harris Energy & Environmental Center in New Hill, North Carolina.