UNITED STATES OF AMERICA
NUCLEAR REGULATORY COMMISSION

BEFORE THE ATOMIC SAFETY AND LICENSING BOARD

In the matter of	)	Docket Nos. 50-424
	)	50-425
GEORGIA POWER COMPANY, et al.	)	(OL)
(Vogtle Electric Generating Plant, Units 1 and 2)	)	

AFFIDAVIT OF JAMES E. FAIROBENT

1. My name is James E. Fairobent. I am an employee of the U.S. Nuclear Regulatory Commission in Washington, D.C. My present position is Meteorologist, Meteorology and Effluent Treatment Branch, Division of Systems Integration within the Office of Nuclear Reactor Regulation. My responsibilities include review and evaluation of meteorological conditions used in the assessment of environmental impacts of heat dissipation systems at nuclear power plants. I was a contributor to § 5.5.1.1 of the NRC Staff's Final Environmental Statement for Vogtle Units 1 and 2 (NUREG-1087, March 1985). A statement of my professional qualifications is provided as an attachment to this affidavit.

2. The purpose of this affidavit is to address Joint Intervenors' Contention 12 in this proceeding regarding adverse agricultural and environmental damage in the area of Plant Vogtle resulting from the operation of natural draft cooling towers.

3. I have reviewed the Applicants' Motion for Summary Disposition and all attachments thereto filed in this proceeding on July 11, 1985. I have also reviewed the report entitled "An Evaluation of Cooling Tower Drift Deposition at the Vogtle Electric Generating Plant" (NUS-4662), prepared by NUS Corporation for Southern Company Services, January 29, 1985. Specifically, my review and this affidavit are addressed to the meteorological conditions and atmospheric dispersion modeling used for estimating deposition of material through cooling tower drift.

4. I agree with the statements in the Motion for Summary Disposition and those presented in the accompanying Affidavit of Morton I. Goldman, that the FOG computer model represents a reasonable approach to simulating the atmospheric dispersion of drift droplets as a result of the interaction of a variety of complex atmospheric processes.

5. My conclusion set forth in paragraph 4 above is based on my review and evaluation of information and analyses contained in the following reports: (1) "Evaluation of Mathematical Models for Characterizing Plume Behavior from Cooling Towers - Salt Drift Deposition From Natural Draft Cooling Towers", NUREG/CR-1581, Volume 2, by A. J. Policastro, W. E. Dunn, M. L. Breig, and J. P. Ziebarth, September 1980; and (2) "Evaluation of NUS/FOG Computer Model for Predicting Cooling Tower Drift Deposition Rates," ("the Dunn Report") prepared by W. E. Dunn for NUS Corporation, July 15, 1983.

6. Collectively, the representations of atmospheric processes in the FOG model appear to result in reasonable episodal estimates of deposition of material from natural draft cooling towers, as evidenced in the comparisons with field measurements from the study of the cooling

tower at the Chalk Point Generating Station presented in Dunn's independent evaluation of the FOG model. In his report, Dunn concluded that the FOG model "falls into a category of salt deposition models which could be classified as "better performing." Dunn Report at 61. Evidence cited in the Dunn Report would appear to support this conclusion.

7. The FOG model has been utilized to predict salt deposition for other nuclear units. For instance, in the Palo Verde OL proceeding, the Staff reviewed deposition predictions based upon the FOG model and found them to be reasonable.

8. As stated in § 5.5.1.1 of the NRC Staff's Final Environmental Statement for Vogtle Units 1 and 2 (NUREG-1087, March 1985), estimates of deposition at the Vogtle site based on the FOG model are reasonable compared to the results of other cooling tower modeling studies which were reviewed by the Staff. See also Affidavit of Germain LaRoche, submitted herewith.

9. Predictions of seasonal and annual amounts of deposited material using the FOG model appear to be comparable to the predictions of the independently-derived Electric Power Research Institute (EPRI) model for the mechanical draft cooling tower configuration at the Palo Verde nuclear plant, as presented in Dunn's independent evaluation of the FOG model. See Dunn Report at 63.

10. Annual wind speed and direction information provided from the onsite meteorological tower and from the WJBF-TV tower at the Savannah River Laboratory indicate reasonable agreement, given the disparities in measurement heights. In terms of annual distributions of wind speed and

direction, either of the two one-year periods (April 4, 1977 to April 4, 1978 and April 1, 1980 to March 31, 1981) of onsite meteorological data used in the FOG model appears reasonably representative of expected long-term conditions at the Vogtle site.

11. As demonstrated in Figures 12-4 through 12-7 of the Goldman Affidavit, changes in the meteorological data base for the FOG model resulted in minor changes to the pattern of deposited material and some change (less than a factor of two) to the magnitude of peak deposition.

12. Given the conceptual representations, taken collectively, of atmospheric processess used in the FOG model, the comparability of FOG model results to empirical data from the Chalk Point study, and the comparability of FOG model results to the results of the EPRI model for the Palo Verde cooling tower configuration, the FOG model appears to be typical of state-of-the-art cooling tower drift models. Use of onsite meteorological data in the FOG model should provide reasonable predictions of material deposited from operation of the natural drift cooling towers in the immediate vicinity of the Vogtle site.

13. I, James E. Fairobent, being duly sworn, certify that I have reviewed this Affidavit and that the statements contained herein are true and correct to the best of my knowledge and belief.

James E. Fairobent

Subscribed and sworn to
before me this 1st day of August, 1985.

Melinda A. McDonald
Notary Public

My Commission expires: 7/1/86

James E. Fairobent
Professional Qualifications
Meteorology and Effluent Treatment Branch
Division of Systems Integration

I am a meteorologist in the Meteorology Section, Meteorology and Effluent Treatment Branch, Division of Systems Integration, Office of Nuclear Reactor Regulation, U.S. Nuclear Regulatory Commission. My duties include evaluation of the meteorological aspects of nuclear reactor siting and operation.

I received a Bachelor of Science degree in meteorology and oceanography from the University of Michigan in 1970, and a Master of Science degree in meteorology from the University of Michigan in 1972. While at the University of Michigan, I performed as a research assistant on a rain scavenging project, weather observer, and teaching assistant.

In 1973, I joined the U.S. Atomic Energy Commission, Division of Technical Review. I was responsible for the evaluation of the meteorological aspects of nuclear power plant siting and design for Construction Permit and Operating License applicants. In addition, I performed evaluations of the meteorological aspects related to license amendments for operating reactors. I served as the senior NRC meteorologist at the Incident Response Center during the Three Mile Island accident (March 1979) where I coordinated all relevant meteorological information and disseminated it to NRC officials and representatives of other Federal Agencies.

In 1979, I joined the staff of the National Commission on Air Quality (NCAQ) as the only meteorologist. I participated in the review of the Clean Air Act and in the making of recommendations for legislative improvements for revision of the Act. My particular responsibilities included atmospheric dispersion modeling, long-range transport of air pollutants, and climatic change due to increased anthropogenic emissions to the atmosphere.

I returned to the position of meteorologist with the U.S. Nuclear Regulatory Commission in 1981 after the NCAQ submitted its report to Congress. I resumed my former duties related to evaluations of the meteorological aspects of nuclear power plant siting and operation.

I am a professional member of the American Meteorological Society (AMS), the National Weather Association (NWA) and the Air Pollution Control Association. I have participated on the Meteorological Aspects of Air Pollution committee of the AMS and the Industrial Meteorology Committee of the NWA. I have co-authored several technical papers and chapters of textbooks related to atmospheric dispersion. I have participated in the development of regulatory guides and standard review plans related to the meteorological aspects of nuclear power plant siting and operation. I have provided expert testimony at hearings conducted by the Atomic Safety and Licensing Board and made presentations to the Advisory Committee on Reactor Safeguards.