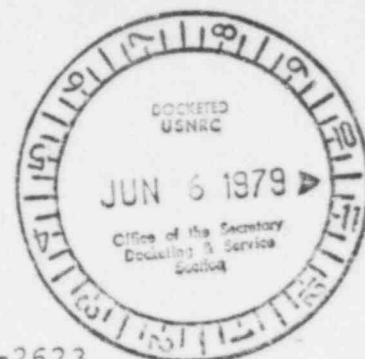


UNITED STATES OF AMERICA
NUCLEAR REGULATORY COMMISSION



In the Matter of)
DUKE POWER COMPANY)
(Amendment to Materials)
License SNM-1773 for Oconee)
Nuclear Station Spent Fuel)
Transportation and Storage)
at McGuire Nuclear Station))

Docket No. 70-2623

TESTIMONY OF S. B. HAGER

My name is S. B. Hager. My business address is 422 South Church Street, Charlotte, North Carolina 28242. I am Chief Engineer, Civil and Environmental Division, Design Engineering Department, Duke Power Company.

I graduated from North Carolina State University in 1960 with a Bachelor of Science degree in Civil Engineering.

From July 1960 to January 1961, I was employed by the Veterans Administration in Washington, D.C. in the Structural Division.

From January 1961 to July 1961, I was on active military duty with the U. S. Army in Ft. Eustis, Virginia as Operations Officer attached to the Corps of Engineers.

From August 1961 to present, I have been employed by Duke Power Company in the Design Engineering Department. Assignments have been in civil engineering design work on thermal and hydro plants. In November 1972, I was promoted to Principal Engineer in the Civil and Environmental Division which included responsibility for structural, hydraulic, and earthwork of

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specific assigned projects in the Design Engineering Department. In May 1978, I was promoted to Chief Engineer of the Civil and Environmental Division of the Design Engineering Department which includes responsibility for civil, architectural, and environmental design work of Duke's generating stations.

Since graduation from North Carolina State University in 1960, I have attended various continuing education and technical courses.

I am a member of the American Society of Civil Engineers, member of the American Nuclear Society, and a registered professional engineer in North Carolina and South Carolina.

My testimony, contained herein, presents economic and scheduling data pertinent to Mr. R. W. Bostian's response to contentions concerning alternatives to transportation of Oconee fuel to McGuire. The alternatives are addressed as follows:

a) Modification of existing Oconee spent fuel pools:

The Oconee Nuclear Station was designed and constructed with two spent fuel storage pools, one shared by Units 1 & 2 with 336 storage locations, and one for Unit 3 with 216 storage locations.

In 1976, the capacity of the Unit 3 Spent Fuel Pool was expanded from 216 to 474 locations by replacement of the existing racks with the Combustion Engineering, Inc., supplied High Capacity Fuel Assembly Storage Rack. The

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structural geometry of the pool was unchanged. The work was completed in 1976 at an actual cost of \$2,348,000. On a per storage location basis, this cost equates to approximately \$9000 per additional spent fuel storage location.

Duke is currently pursuing the approval of a license amendment to allow the installation of high density racks in the Oconee Units 1 & 2 pool. This expansion, if approved, will increase the storage capacity from 336 to 750 locations. The modification consists of replacing the existing storage racks with the Combustion Engineering, Inc., supplied High Capacity Fuel Assembly Storage Rack without changing the structural geometry of the spent fuel pool. The cost of this expansion is estimated at \$3,514,000 (1979 dollars). On a per storage location basis, this cost equates to approximately \$8,400 per additional spent fuel storage location. Pending a June 1979 approval of the proposed license amendment, this work is scheduled to be completed in late 1979.

Based on current discussions with Poison Rack Suppliers, the estimated cost of poisoned racks for the Oconee pools is approximately \$7,000,000, and the estimated delivery time is 12 to 15 months. We are currently performing a study to determine the feasibility of installing poisoned racks.

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b) Construction of a separate storage facility at Oconee:

Support systems for a separate spent fuel storage facility at Oconee would have to be independent of the existing station, since those systems were sized and designed for the existing spent fuel pools. The most feasible location on the site would be in an area where interference with existing structures is minimized. A possible location adjacent to the Unit 3 Spent Fuel Pool was evaluated and deemed less suitable because of confined working conditions during construction.

The cost of this facility, an Independent Spent Fuel Storage Facility (ISFSF), was estimated at \$44,315,000 (1976 dollars). On a per storage location basis, this cost equates to \$29,500 (1976 dollars) or \$34,500 (1978 dollars) per additional spent fuel storage space. The estimate includes costs for materials, equipment, engineering, field labor, field and general office overhead, contingencies and interest during construction. The estimate considers a fully self-contained, Category 1 facility with a capacity of 1500 spent fuel assemblies located so as to avoid interference with existing structures.

The time to design and construct this facility on a "run" basis is estimated at 45 months; however, the estimated time is 60 months on a preferred schedule.

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The environmental impact resulting from the construction of this facility at Oconee would be minimized since construction would be in an area adjacent to the existing Oconee station.

- c) Construction of a separate storage facility away from Oconee but not at McGuire:

As compared to the facility described in part b, the cost of an ISFSF sited at a location other than a reactor site would be great due to additional property, roadway, and security costs. The licensing and design time would likely be extended due to additional investigations required as a result of the location of the facility in an area where the geology and demography have not been evaluated. This facility would require a significant volume of earth to be displaced. Also, the environmental impact associated with the clearing of property, construction of roadways, power lines, and other utilities, the potential destruction of farmland and/or forest, and the potential displacement of residents may be significant.

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