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AUTH. NAME	AUTHOR AFFILIATION		
TUCKER, H.B.	Duke Power Co.		
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SUBJECT: Responds to 900104 request for addl info re HPI pump & reactor bldg spray pump motor overcurrent relay settings.

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Duke Power Company  
P.O. Box 33198  
Charlotte, N.C. 28242

HAL B. Tucker  
Vice President  
Nuclear Production  
(704)373-4531



**DUKE POWER**

February 21, 1990

U. S. Nuclear Regulatory Commission  
Document Control Desk  
Washington, DC 20555

Subject: Oconee Nuclear Station  
Docket Nos. 50-269, -270, -287  
RBS and HPI Overcurrent Relays  
TAC Nos. 73399/73400/73401

Gentlemen:

By letter dated January 4, 1990 the NRC requested additional information concerning High Pressure Injection Pump and Reactor Building Spray Pump motor overcurrent relay settings. Attached is the requested information.

Very truly yours,

*H. B. Tucker*

H. B. Tucker

PJN103/td

Attachment

cc: Mr. S. D. Ebnetter  
Regional Administrator  
U. S. Nuclear Regulatory  
Commission - Region II  
101 Marietta St. NW  
Suite 200  
Atlanta, GA 30323

Mr. P. H. Skinner  
NRC Resident Inspector  
Oconee Nuclear Station

Mr. L. A. Wiens, Project Manager  
Office of Nuclear Reactor Regulation  
U. S. Nuclear Regulatory Commission  
Washington, DC 20555

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Duke Power Company  
Oconee Nuclear Station  
HPI and RBS  
Motor Overcurrent Relays

Westinghouse Electric Corporation, the manufacturer of the motors, was contacted for test data on the HPI pump motors and an analysis of the capability of these motors to start and accelerate to rated speed under the predicted worst system voltage conditions. The information obtained from Westinghouse indicated that the HPI pump motors are capable of starting and accelerating to rated speed at 65% of rated voltage. This conclusion is documented on the attached letter from Westinghouse and is based on analysis of data obtained from an actual test performed by Westinghouse on a HPI pump motor in 1974. The predicted worst case voltage of approximately 68% of rated voltage that would rapidly improve to rated voltage.

The Oconee auxiliary power system may experience this voltage condition only during a loss of off site power event on all three units or a LOCA in one unit concurrent with a loss of off site power event. The system starting voltage level for normal plant operating modes and allowable alignments is above 80% of rated voltage and is the starting voltage level normally experienced by these motors. Since these motors are guaranteed by their manufacturer to start at 80% of rated voltage and the lower starting voltage conditions can only be experienced during a Design Basis event, adverse effect of system voltage condition on the motor life is not a concern.

The results of the analysis performed by Westinghouse on the HPI pump motors are consistent with the results of the dynamic analysis performed by Design Engineering on these motors. A similar dynamic analysis was also performed by Design Engineering on the RBS pump motors. The results of this analysis indicates that these motors are capable of starting and accelerating to rated speed under the predicted worst system voltage conditions with even a higher margin of acceptability than the HPI motors. Additionally, the overcurrent relay setting for the RBS pump motor which was recently raised is still well below the thermal damage curve (provided by the manufacturer) for this motor. Based on the above and supported by the manufacturer's analysis of the HPI pump motor, we do not feel the need to request a similar analysis of the RBS pump motors.

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Westinghouse  
Electric Corporation

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CP-DCP (90) 036

February 6, 1990

Duke Power Co.  
422 South Church Street  
Charlotte, NC 28242

Attn: B. L. Peele

Subject: Duke P.O. T52431-76, W G.O. CH16957  
DE File: 83440314.00-00-1006-01 Oconee Station

Please find attached the motor curves requested by the subject purchase order. We have also included curves for 90 and 80 percent along with a thermal limit curve.

The 65% curve illustrates that the motor will not lock up at this value.

Please contact me if I can be of any further assistance.

Regards,

Les Bollinger  
Domestic Customer Programs

Art Anderson  
Mechanical Equipment

crb

cc: Mary Richardson    W Charlotte