

FROM: Duke Power Company Charlotte, N.C. 28201 Mr. A.C. Thies			DATE OF DOC 2-28-74	DATE REC'D 3-4-74	LTR X	MEMO	RPT	OTHER
TO: A. Giambusso			ORIG 1 signed	CC	OTHER	SENT AEC PDR SENT LOCAL PDR		XXX XXX
CLASS	UNCLASS XXX	PROP INFO	INPUT	NO CYS REC'D 1		DOCKET NO: <u>50-269/270</u>		

DESCRIPTION:  
Ltr furn info concerning failures of the control rod drive system.....and adv of the progress and corrective taken by Duke Power...

ENCLOSURES:  
**ACKNOWLEDGED**  
**DO NOT REMOVE**

PLANT NAME: Oconee

FOR ACTION/INFORMATION 3-6-74 JB

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## DUKE POWER COMPANY

POWER BUILDING

422 SOUTH CHURCH STREET, CHARLOTTE, N. C. 28201

A. C. THIES  
SENIOR VICE PRESIDENT  
PRODUCTION AND TRANSMISSION

P. O. Box 2178

February 28, 1974



Mr. Angelo Giambusso  
Deputy Director for Reactor Projects  
Directorate of Licensing  
Office of Regulation  
U. S. Atomic Energy Commission  
Washington, D. C. 20545

Re: Oconee Nuclear Station  
Docket Nos. 50-269 and 50-270

Dear Mr. Giambusso:

This letter is in response to a recent verbal request by Mr. I. A. Peltier of your staff concerning control rod drive system stator failures and problems with the control rod drive absolute position indication system at Oconee Nuclear Station.

To date, 12 control rod drive stator failures have occurred on Oconee Unit 1 and two on Unit 2. These failures have predominantly been in Groups 5, 6, and 7 and have been random with respect to core location. The cause of the failures is electrical shorting occurring primarily between phases or from one phase to neutral. One failure has been evaluated as a manufacturing defect, and all failures analyzed to date have been located in the end turns of the stator.

In each case when a control rod drive stator failed, the control rod dropped into the core, the appropriate alarms actuated, and automatic actions were properly initiated. The rod drop accident is analyzed and documented in the Oconee Final Safety Analysis Report based on assumptions which yield the most adverse response. When a dropped rod is indicated by the position indication system, the control system inhibits all rod motion out of the core and runs the unit back to 60 percent load. The results of this transient analysis show that for approximately 30 seconds the neutron power, primary pressure, and moderator temperature fluctuate, after which the system comes to equilibrium. Throughout this transient the reactor operates without exceeding any of the reactor protective system setpoints. Thus, a stator failure does not cause a reactor trip and does not affect the health and safety of the public.

1770

1770

Mr. Angelo Giambusso  
Page 2  
February 28, 1974

The following corrective actions will be taken for Oconee Units 1 and 2 (Unit 3 stators are of a different design from those installed on Units 1 and 2): The temperature of the control rod drive stator cooling water is being maintained above the dewpoint of containment atmosphere. The stator insulation is being isolated from the containment atmosphere with a sealing ring. A nitrogen cover gas system will be added to maintain a vapor-free atmosphere against the stator insulation.

The absolute position indication system comprises an arrangement of magnetically-actuated reed switches that are wired together to yield a signal that indicates the control rod position. Most of the problems with the API have occurred during operation and have consisted of fluctuating or erratic indications. A fluttering reed switch will cause the API indication to fluctuate, but in most cases, slight rod movement will settle the indication. If the switch flutters or fails to close, the API could indicate that a rod is out of alignment within its group by a distance greater than nine inches. When this occurs, the plant will automatically run back to 60 percent power. It should be emphasized that the absolute position indication system does not serve a reactor protection function. Therefore, a malfunction of the API system will have no effect on the health and safety of the public.

The planned corrective action for the absolute position indication system is to modify the automatic runback logic so that an automatic runback is initiated, but not locked in, when a single reed switch flutters or malfunctions. Therefore, when the control rod moves past a faulty reed switch, the logic would no longer require an automatic runback.

If you have additional questions regarding the control rod drive stator or absolute position indication situations at Oconee, please advise.

Very truly yours,



A. C. Thies

ACT:vr

cc: Mr. Norman C. Moseley