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SUBJECT: Responds to NRC 940415 ltr re violations noted in insp repts  
 50-269/94-08, 50-270/94-08 & 50-287/94-08. Corrective actions:  
 initiated assessment of problem to determine past  
 operability of 2A Motor Driven Emergency Feedwater Pump.

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**DUKE POWER**

June 23, 1994

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

Subject: Oconee Nuclear Site  
Docket Nos. 50-269, -270, -287  
Inspection Report 50-269, -270, -287/94-08  
Reply to Notice of Violation

Dear Sir:

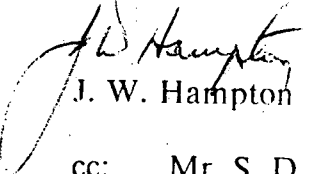
By letter dated April 15, 1994 the NRC issued a Notice of Violation as described in Inspection Report No. 50-269/94-08, 50-270/94-08, and 50-287/94-08.

Pursuant to the provision of 10 CFR 2.201, a written response to the violation identified in the above Inspection Report was submitted.

Subsequently, per a conversation between Mr. B. J. Dolan, Safety Assurance Manager, and Mr. P. E. Harmon, Senior Resident Inspector, it was agreed upon that a revised response outlining the schedule for upgrading the Oconee ground detection system and ground locating process be submitted.

As agreed upon, I am submitting a revised response to the violation identified in the above Inspection Report.

Very truly yours,

  
J. W. Hampton

cc: Mr. S. D. Ebner, Regional Administrator  
U. S. Nuclear Regulatory Commission, Region II

Mr. L. A. Wiens, Project Manager  
Office of Nuclear Reactor Regulation

Mr. P. E. Harmon  
Senior Resident Inspector  
Oconee Nuclear Site

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Document Control Desk  
June 23, 1994  
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	OS-815.01	

Violation 270/94-08-02, Severity Level IV

Oconee Technical Specification (TS) 3.4.2.a allows one Motor Driven Emergency Feedwater Pump to be inoperable for a period of seven days during unit operation.

Contrary to the above, the 2A Motor Driven Emergency Feedwater Pump was determined to be inoperable for a period of 15 days (December 14 - December 29, 1993) due to a failed pressure switch in the start initiation circuitry. The pressure switch was replaced on December 29, 1993, which resulted in the elimination of a ground alarm of the direct current electrical system that had been present since December 14, 1993. The licensee determined that the 2A Motor Driven Emergency Feedwater Pump had been inoperable since the ground alarm had occurred.

RESPONSE:

1. The reason for the violation, or if contested, the basis for disputing the violation:

As discussed in LER 270/94-01, the root cause of this event was the equipment failure of the pressure switch. The cause of the failure has been attributed to the polyamide diaphragm in the switch becoming permeable, over time, in applications for sensing Main Feedwater discharge pressure. This allows water intrusion and will short the contacts within the switch. This model pressure switch had exhibited similar failures in the past; however, there were no DC grounds identified as a result of the switch failure. The pressure switch was determined to be inoperable as a result of the water intrusion.

When a DC ground alarm was received on December 14, 1993, a work request was initiated to investigate the control battery ground detection system. I&E then investigated the ground alarm using IP/0/A/3000/18 and took voltage measurements to determine the magnitude of the ground. These voltage measurements were evaluated and found to be outside the voltage threshold of grounds which can be located. Per the DC ground program, I&E then set up a monitoring program to trend the ground until it either cleared or reached a magnitude that could be located.

On December 29, 1993, Operations personnel identified water leaking from the 2A Main Feedwater Pump discharge pressure switch associated with the automatic start circuitry for the 2A Motor Driven Emergency Feedwater Pump. A work request was issued to I&E personnel for the investigation and repair of the leak. Also, a seven day LCO was entered per TS 3.4.2.a due to the automatic initiation circuit being out of service. When the pressure switch electrical leads were removed for repair/replacement, the DC ground alarm cleared. Operations and I&E personnel recognized that the inoperable pressure switch had caused the DC ground. The pressure switch was full of water and was replaced with the same model spare. The LCO was exited on December 30, 1993.

2. The corrective steps that have been taken and the results achieved:

Engineering initiated an assessment of the problem to determine the past operability of the 2A Motor Driven Emergency Feedwater Pump. This assessment included a review of the start logic circuitry, the DC battery system ground fault detection circuitry, and the failed pressure switch. The relationship between the 125V DC battery configuration and the point in the 2A Motor Driven Emergency Feedwater Pump start logic where the ground occurred was also examined.

On February 8, 1994 the assessment was completed. It concluded that the 2A Motor Driven Emergency Feedwater Pump would have started as required for other initiation signals, but would not have started for a loss of Main Feedwater Pump discharge pressure because the micro switch was assumed to be failed due to corrosion. The effect of the DC ground was also evaluated and was determined to have not affected the operation of the circuit. This condition did not fully meet the TS requirement for automatic initiation. This condition existed from December 14 until December 30, 1993; therefore, the seven day TS LCO was exceeded.

All pressure switches of this model used in the sensing of main feedwater pump discharge pressure applications have been identified (FDWPS0386, 0387, 0388, 0389) and will be replaced with a model that does not use the polyamide diaphragm. The switches for Unit 3 have been replaced, as well as switches 2FDWPS0386 and 0388 for Unit 2. The Unit 1 switches are being replaced in the current refueling outage. The remaining Unit 2 switches will be replaced during the next refueling outage; until these switches are replaced, they are being inspected twice weekly (Work Order 94022992-01) for water intrusion to ensure that the 7-day LCO period is not exceeded.

Other plant applications of this model number pressure switch were evaluated to ensure that critical applications of this switch were not exhibiting adverse trends. A search of the work management system equipment database revealed that, while there are a total of 128 pressure switches in use that are manufactured by Custom Control Sensors Inc. (CCS), there are no additional pressure switches of this model in use. A review of the Work Management System and engineering records for the other model pressure switches made by CCS did not reveal any unusual failures or adverse failure trends in any of these applications. This equipment will continue to be monitored via the electrical systems engineering technical support programs for the systems that utilize this brand of switches.

In addition, new portable ground location equipment has been procured, and procedures governing its use are approved.

3. The corrective steps that will be taken to avoid further violations:
  - a) The remaining Unit 2 switches will be replaced during the U2EOC14 refueling outage, scheduled to begin in September, 1994.
  - b) Testing of the new portable ground location equipment to determine its effectiveness will be completed by 12/31/94.
  - c) Guidelines will be developed describing roles, responsibilities and appropriate time frames for locating the ground, evaluating the significance of the ground and removing the ground. This evaluation will be complete by 12/31/94. Changes will then be made to the maintenance program for ground location within the limitations of the portable locating equipment, Oconee system design, and appropriate station work practices.
  - d) Future upgrades of the installed ground detection/alarm system, including new detectors and potential test system upgrades, will be evaluated by 5/1/95.
4. The date when full compliance will be achieved:

Duke Power Company is in full compliance.