

DUKE POWER COMPANY

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ATLANTA, GEORGIA

HAL B. TUCKER  
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32 SEP 17 P 1: 53

September 10, 1982

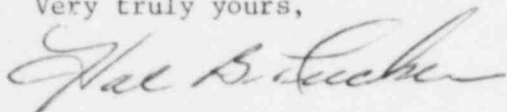
Mr. James P. O'Reilly, Regional Administrator  
U. S. Nuclear Regulatory Commission  
Region II  
101 Marietta Street, Suite 3100  
Atlanta, Georgia 30303

Re: McGuire Nuclear Station Unit 1  
Docket No. 50-369

Dear Mr. O'Reilly:

Please find attached Reportable Occurrence Report RO-369/82-67. This report concerns T.S.3.3.2, "The Engineered Safety Feature Actuation System (ESFAS) instrumentation channels and interlocks shown in Table 3.3-3 shall be operable with their trip setpoints set consistent with the values shown in the trip setpoint column of Table 3.3-4...". This incident was considered to be of no significance with respect to the health and safety of the public.

Very truly yours,



Hal B. Tucker

PBN/jfw  
Attachment

cc: Director  
Office of Management and Program Analysis  
U. S. Nuclear Regulatory Commission  
Washington, D. C. 20555

Records Center  
Institute of Nuclear Power Operations  
1820 Water Place  
Atlanta, Georgia 30339

Mr. P. R. Bemis  
Senior Resident Inspector  
McGuire Nuclear Station

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DUKE POWER COMPANY  
McGUIRE NUCLEAR STATION  
REPORTABLE OCCURRENCE REPORT NO. 82-67

REPORT DATE: September 10, 1982

FACILITY: McGuire Unit 1, Cornelius, NC

IDENTIFICATION: Failure of Train A Auxiliary Feedwater Pump Turbine (AFPT)  
Low Suction Pressure Switches

DESCRIPTION: On August 13, 1982, with Unit 1 at 50% power, two AFPT low suction pressure switches were declared inoperable pursuant to Technical Specification 3.3.2. The switches failed to perform properly during performance of the "Auxiliary Feedwater Low Suction Functional Test". This incident is attributed to Component Failure/Malfunction. The pressure switches were recalibrated and the functional test was successfully completed.

On August 26, 1982, while reviewing past work requests on the pressure switches as part of the incident investigation, a discrepancy between setpoints was noted. The presence of a water leg not included in the August 13, 1982 calibration was verified. Technicians recalibrated the pressure switches to include the water leg and verified operability. Due to the incorrect calibration of August 13, 1982, the pressure switches were inoperable for an additional 13 days. This event was a result of Personnel Error.

EVALUATION: The purpose of the pressure switches is to provide 'A' train Nuclear Service Water to the Auxiliary Feedwater Pump Turbine on low suction pressure (loss of water supply). When the technicians isolated and vented the switches during the performance of the functional test on August 13, 1982, the decrease to zero psig pressure failed to open a valve (via switch actuation) as required. The technicians manually operated the pressure switches and the valve opened, indicating that one or both pressure switches had failed to actuate during the test. No mechanical problems were observed on either switch, but the switches were out of calibration. Although this may have resulted from instrument drift, the setpoints appeared to have been misadjusted. A technician obtained the setpoints from the Mechanical Instrument List and the pressure switches were calibrated to 2 psig decreasing. A replacement was obtained for one of the switches and it was bench calibrated to expedite return to service (the removed pressure switch was later tested, set to 2 psig decreasing, and verified functional).

On August 26, 1982, a review of previous calibrations revealed a setpoint of 5 psig, decreasing, for the switches. This setpoint included 2 psig for the process plus 3 psig to compensate for an 80 inch water column between the suction piping centerline (instrument tap) and the lower elevation of the pressure switches. This water leg could account for both of the pressure switches being found apparently misadjusted on August 13, 1982. The effective setpoint (relative to the process) of the August 13 calibration was 2 psig minus the 3 psig water leg, or -1 psig. This violated the allowable value of  $\geq 1$  psig (Technical Specification Table 3.3-4, item 7.f.) and would have inhibited swap over to 'A' train Nuclear Service Water. The pressure switches were recalibrated to 5 psig decreasing.

It is probable that the failure of August 13, 1982 was limited to only one pressure switch since both switches must actuate to open the valve. The pressure switches are United Electric Type J302 (Model 552 -refers to range). Type J302 pressure switches have a good service history.

The inadvertant omission of water leg compensation was a personnel error directly attributable to a lack of training in the use of setpoints obtained from the Mechanical Instrument List. Unbalanced water legs must be identified, measured, and, if necessary, added to the process setpoint (or range) obtained from the list. Although training at the Technical Training Center includes the effect of water legs on instrumentation, newer technicians are not fully aware that water legs are normally not included in the Mechanical Instrument List.

Many procedures are generic and do not include setpoints (this is the case with the "Calibration Procedure for Electric Pressure Switch Type J302), thereby requiring proper use of the Mechanical Instrument List.

SAFETY ANALYSIS: The purpose of the Auxiliary Feedwater System is to provide a backup to the Main Feedwater system to insure adequate dissipation of energy from the Reactor Coolant System when the main heat sinks (turbine generator or steam dump and main feedwater) are unavailable. At no time during the event did a loss of the assured supply (nuclear service water) to the Auxiliary Feedwater Pump Turbine occur. Although the pressure switch failures prevented 'A' train Nuclear Service Water from being available in the event of an emergency, 'B' train Nuclear Service Water was available.

Additionally, both 'A' and 'B' trains of Nuclear Service Water were available to the Motor Driven Auxiliary Feedwater Pumps. Therefore, the health and safety of the public were unaffected by this incident.

CORRECTIVE ACTION: The action taken to correct the switch malfunction was to calibrate the two pressure switches. Proper operation of the switches was verified August 26, 1982 by successfully completing the calibration at the appropriate setpoint. Since United Electric Type J302 pressure switches have given reliable service and it is probable that only one pressure switch actually malfunctioned, this action is sufficient.

To prevent future instances of incorrect calibration management will notify all technicians, in crew meetings, of the necessity to identify and, if necessary, add water legs to setpoints and ranges obtained from the Mechanical Instrument List. This information will also be incorporated into the Orientation training program conducted for new technicians.

Additionally, management will review the efficiency of the present method of obtaining setpoints and ranges that are corrected to water legs.