

**DUKE POWER COMPANY**

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NUCLEAR PRODUCTION

85 JUL 31 P2:27

July 26, 1985

Dr. J. Nelson Grace, Regional Administrator  
U.S. Nuclear Regulatory Commission  
Region II  
101 Marietta Street, NW, Suite 2900  
Atlanta, Georgia 30302

Subject: McGuire Nuclear Station  
Docket No. 50-369, 50-370

Reference: RII:WTO  
NRC/OIE Inspection Report 50-369/85-06,  
50-370/85-06

Dear Dr. Grace:

Pursuant to 10 CFR 2.201, please find attached a response to violations which were identified in the above referenced Inspection Report.

Very truly yours,

*H.B. Tucker*

Hal B. Tucker

WHM:smh

Attachment

cc: Mr. W. T. Orders  
Senior Resident Inspector - NRC  
McGuire Nuclear Station

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Duke Power Company  
McGuire Nuclear Station  
Responses to NRC/OIE Inspection Reports  
50-369/85-06 and 50-370/85-06

Violation 369/85-06-01, Severity Level IV

10 CFR 50, Appendix B, Criterion III requires that design control measures provide for verifying or checking the accuracy of design.

Contrary to the above, NSM MG 1376 Rev. 0 was incorporated into the Unit 1 Reactor Trip Breaker cabinetry without adequate design control measures in that no guidance was provided to ensure that wiring separation criteria would be met which led to a violation of the separation criterion.

Response:

1. Admission or denial of the alleged violation:

Duke Power agrees that the violation occurred as stated.

2. Reasons for violation:

This violation occurred due to a procedural deficiency. A modification had been made to add a separately fused power source to the shunt trip circuitry in the reactor trip breaker cabinets. The modification did not involve extensive wiring changes but did require internal cabinet wiring changes. The reactor trip breaker cabinets are supplied with internal wiring troughs to provide electrical separation for the internal wiring. The Instrument and Electrical (IAE) personnel were not aware of the wiring trough routing path in the top of the cabinets when the Unit 1 modification was being made. The "A" train trough is difficult to access and requires removing cabinet panels when routing new wires. The procedures used by the technicians did not reference the installation specifications or proper electrical separation criteria. An IAE procedure, Separation Requirements for Cables and Associated Equipment, did exist to provide extensive details and signoffs for this type of electrical modification. This procedure was not referenced by the modification implementation procedure or work request. Additional details of this event are contained in Licensee Event Report (LER) 369/85-08.

3. Corrective steps which have been taken and the results achieved:

Upon identification of this problem, the Reactor Trip Breakers were declared inoperable and the NRC was notified. The wiring was subsequently corrected to comply with appropriate Installation Specifications and cable separation criteria.

4. Corrective steps which will be taken to avoid further violations:

The IAE procedure, Wiring Changes on Systems and Components, will be enhanced to become either a controlling procedure or installation procedure to cover the full scope of modifications. Training guidelines will be revised to include IAE training on applicable installation specifications.

5. Date when full compliance will be achieved:

Corrective actions will be implemented by September 2, 1985. McGuire Nuclear Station is presently in full compliance.

Violation 369/85-06-02, Severity Level IV

Technical Specification (TS) 6.8.1.a requires that current written approved procedures be established, implemented and maintained for safety-related equipment. This includes but is not limited to the removal from and restoration to service of safety-related equipment and safety-related system testing.

Contrary to the above:

1. On February 6, 1985, the requirements of Procedures PT-1-A-4601-03, Protective System Channel III Functional Test, and IP-0-H-3207-03K, NIS Drawer Calibration on Unit 1, were not implemented in that testing was being performed on two channels (III and IV) simultaneously when both procedures stipulate that testing may only be performed on one channel at a time.
2. On October 16, 1984, the requirements of Procedures OP-0-A-6100-09, Equipment Removal and Restoration on Unit 2, were not implemented in that on or about that date valve 2RN-158, the Nuclear Service Water pump 2B motor cooler inlet isolation valve, was opened but not locked open as specified following completion of maintenance on the pump.

Response to Number 1:

1. Admission or denial of the alleged violation:

Duke Power Company agrees that the violation occurred as stated.

2. Reasons for the violations:

This violation occurred due to a procedural deficiency which allowed work to be performed on Channels III and IV simultaneously. No steps in the procedures used were directly violated, as interpreted by Instrument and Electrical (IAE) technicians involved. IAE Specialist A was using a procedure to adjust the negative flux rate trip setpoint. Procedure steps that were intended to prevent this type of event and resultant comments are listed below:

Step 4.1 "Notify and obtain approval from Shift Supervisor prior to removing equipment from service." Since IAE Specialist A had obtained clearance from the Shift Supervisor on the previous shift, he felt that this step was satisfied.

Step 4.8 "Verify that "STEAM GEN LO-LO LEVEL ALERT" annunciators AD4-06.01 through AD4-06.04 are extinguished." One of these annunciators would have been in alarm after IAE Specialist B placed S/G low-low level Channel III in test. Apparently IAE Technician A completed step 4.8 before IAE Technician B placed channel III in test.

Step 5.1 "Tests may be made on only one channel at a time." This step was interpreted to mean only one channel of NIS can be tested

at a time. The word "Tests" should have specified testing on NIS, 7300 PCS, and any other systems that could affect the RPS.

Step 5.4 "Only one protection channel in Process 7300 may be in test at a time." Since Channel IV was not placed in test, this precaution was met.

IAE Specialist B was using a procedure to perform a function test on RPS S/G low-low level as required by Technical Specifications. Procedure steps that were intended to prevent this type of event and resultant comments are listed below:

Step 6.1 "Test may be performed on only one protection set at a time. When one protection set is being tested, the remaining protection sets must be in the normal (untripped) mode and not operating unusually close to trip points." The first sentence could be interpreted to mean that testing is allowed on only one 7300 PCS loop at a time. It does not specify that the NIS channels cannot be tested at the same time the 7300 PCS channels are being tested.

Since IAE specialist A stated that his work on NIS channel IV would not generate a trip signal, IAE Specialist B thought the rest of this note was satisfied.

Step 6.7 "Do not start test if any other channel of the same parameter is down or any type maintenance is being performed on loop." Since no other RPS S/G level channels were being tested, this step was met as it is worded.

Step 12.3 "Insure no other protection cabinets are open or any work is being performed on the SSPS or NIS Systems that would enhance the possibility of interrupting normal plant operations." No other protection cabinets were open. Since IAE Specialist A stated that his work on NIS channel IV would not generate a trip signal, IAE Specialist B thought this step was satisfied.

The Shift Supervisor turnover checklist indicated that the seven day NIS calibration was in progress (this work involves source range instrumentation) and that the channel 44 setpoint (NIS) had not been changed yet. It was not clear when work on the channel 44 NIS setpoint would resume. When IAE Specialist A started working on NIS channel 44 after shift turnover, he did not notify the new Shift Supervisor. It is an IAE group practice that once clearance has been obtained for work, clearance is not re-obtained following each Operations shift change. Also, since the work on the NIS did not require any Technical Specification Action Item Logbook entries in Mode 3, the Shift Supervisor was not contacted after shift turnover. Operations personnel are not responsible for reading IAE's procedures and ensuring they are meeting their prerequisites to begin work. The evening shift IAE supervisor was aware that IAE Specialist A was working late from the previous shift. He was not aware that two channels were being worked on at the same time.

3. Corrective steps which have been taken and the results achieved:

Immediate procedure changes were made to clarify actions which are to be taken.

4. Corrective steps which will be taken to avoid further violations:

IAE personnel will review appropriate procedures to ensure that all steps are adequately clear and concise so that this type event will be prevented in the future. Also IAE Supervision clarified the requirements of obtaining shift supervisor clearance.

5. Date when full compliance will be achieved:

Corrective actions will be implemented by October 1, 1985. McGuire Nuclear Station is presently in full compliance.

Response to Number 2:

1. Admission or denial of the alleged violation:

Duke Power Company agrees that the violation occurred as stated in Licensee Event Report (LER) 370/85-01 which was submitted to the NRC on February 22, 1985.

2. Reasons for the violations:

This violation occurred due to a personnel error because a Nuclear Equipment Operator (NEO) did not write down the correct valve position when completing a Restoration Checklist. The required valve position of 2RN-158 was changed from "Open" to "Locked Open" to allow removing it from an operation valve verification procedure.

When a NEO filled out the Restoration Checklist, he either copied the valve position incorrectly from a control copy or he looked at the completed valve checklist of a procedure dated 10/7-8/83 to obtain the normal valve position of 2RN-158. The completed valve checklist dated 10/7-8/83 shows 2RN-158 as "Open". Station Directives state that "Procedures that are used in the station for conduct of work will be verified against the Control Copy or Master File Copy to ensure they are correct." This statement applies to any working copy of a procedure used in the conduct of work, including those used for reference. In this case, a checklist used as a reference to obtain the valve position of 2RN-158 should have been compared to the Control Copy at the time it was used. The valve checklist dated 10/7-8/83 was compared to the Control Copy on 10/7/83 but was not up to date with the Control Copy on 10/16/84, when the subject Restoration Checklist was made. Further details of the event are discussed in LER 370/85-01.

3. Corrective steps which have been taken and the results achieved:

Valve 2RN-158 was verified to be in its proper position and a lock and chain were installed. A check was made of other valves outside con-

tainment which were required to be locked. Details of the corrective actions are contained in LER 370/85-01.

4. Corrective steps which will be taken to avoid further violations:

Appropriate procedures will be reviewed and revised as necessary to reflect proper and consistent locked valve requirements. Operators were instructed to use the Control Copy of procedures to obtain proper valve positions.

5. Date when full compliance will be achieved:

Corrective actions will be implemented by September 2, 1985. McGuire Nuclear Station is presently in full compliance.

Violation 369/85-06-03, 370/85-06-01, Severity Level IV

Technical Specification 4.8.1.1.2.a requires that diesel generator surveillance testing be performed at a frequency specified in Table 4.8-1. Table 4.8-1 identifies a test schedule that is dependent on the number of failures in the last 100 valid tests per unit basis as defined in regulatory position C.2.e of Regulatory Guide 1.108, Revision 1, August 1977.

Contrary to those requirements, diesel generator surveillance testing was not performed as required by Technical Specification 4.8.1.1.2.a, in that Unit 1 diesel generator 1A failed on February 28, 1984, and also on July 22, 1984, which should have caused an increase in the surveillance testing for Unit 1 diesel generators to a frequency of at least once per 14 days. Unit 2 diesel generator 2A failed on July 8, 1983, September 11, 1984, and January 31, 1985; generator 2B failed July 17, 1984 and again on July 21, 1984. These failures should have caused an increase in Unit 2 diesel generator testing to a frequency of at least once per three days. The frequency of testing was not increased as required.

Response:

1. Admission or denial of the alleged violation:

Duke Power Company agrees that the violation occurred as stated.

2. Reasons for the violation:

Technical Specification Table 4.8-1 was misinterpreted in that testing frequencies were determined on the results of the number of valid failures during the last 100 valid tests on a per diesel generator nuclear unit basis rather than on a per nuclear unit basis.

3. Corrective steps which have been taken and the results achieved:

Once the interpretation problem was identified, the station established a test frequency on a per nuclear unit basis.

4. Corrective steps which will be taken to avoid further violations:

McGuire Nuclear Station will continue to monitor diesel generator valid failures on a per nuclear unit basis.

5. Date when full compliance will be achieved:

McGuire Nuclear Station is presently in full compliance.

Violation 369/85-06-04, 370/85-06-03, Severity Level IV

10 CFR 50, Appendix B, Criterion XVI as implemented by Duke Power Company (DPC) Topical Report, Quality Assurance Program Duke-1-A, Amendment 7, Section 17.2.16 requires that conditions adverse to quality be promptly identified and corrected and that the identification of the significant condition, the cause of the condition and the corrective action shall be documented and reported to appropriate levels of management.

Contrary to the above, conditions adverse to quality were not promptly identified and corrected, as detailed below:

An occurrence of August 25, 1981, on Unit 1 as reported in Licensee Event Report 369/81-136, caused overpressurization of the suction side of the turbine driven auxiliary feedwater pump. Identified as contributing to this problem was the stop check valve on the outlet of the pump being mounted in a horizontal position which prevents the closure of this valve to be aided by gravity as designed. Furthermore, on November 11, 1981, Westinghouse notified DPC of a potential problem concerning the design of the auxiliary feedwater pump discharge piping and valve arrangement such that damage could occur which would compromise the safety-related function of the auxiliary feedwater system. Westinghouse in this letter, recommended system modifications and an operating procedures amendment to detect and correct this problem.

No actions were taken on these items identified above until September 5, 1984, when NSM 1-1705 for Unit 1 and NSM 2-0550 for Unit 2 were generated to replace the existing stop check valves with a different design valve, and NSM's 1-1706 and 2-0551 were generated to install a temperature monitoring system as recommended by Westinghouse. As of March 12, 1985, NSM 1-1706 and NSM 2-0551 were in the process of being installed and NSM 1-1705 and NSM 2-0550 were scheduled for outages in 1986 due to material delivery.

Response:

1. Admission or denial of the alleged violation:

Duke Power Company denies that the alleged violation occurred.

2. Reasons for the alleged violation:

Two concerns involving the auxiliary feedwater system have been raised. The first concern is lack of notification to plant operations personnel of a potential problem with backleakage past auxiliary feedwater check valves. The backleakage addressed by the NRC pertains to waterhammer resulting from check valve leakage. Plant operations personnel were not notified in 1981 of potential waterhammer problems because a Duke Power evaluation found that this particular situation did not exist at McGuire Nuclear Station. The results of the evaluation indicated that waterhammer was not a problem due to procedures which prevent voids in feedwater bypass piping, self-venting feedwater bypass piping, and past operating history.

The second concern involves failure to take prompt corrective action for the improper installation of the turbine driven auxiliary feedwater pump (TDAFWP) discharge stop check valve. On August 25, 1981, the suction piping of the TDAFWP was overpressurized. Duke's solution at that time was to install a relief valve in the suction piping and ensure that the mini-flow line to the upper surge tank would always be open when the pump was not operating. At that time, industry experience had been limited to minor backleakage which created steam binding and waterhammer. In fact, this type of backleakage can occur with as many as four check valves in series. Therefore, in 1981 the addition of the suction relief valve and modification to the mini-flow line was an acceptable solution since the problem appeared to be inherent with the "series installed" check valve arrangement. It should be noted that this solution did not assume a gross check valve failure. It was primarily aimed at solving minor backleakage. Redundant auxiliary feedwater trains are provided for double gross check valve failure.

Since the 1981 solution, industry problems with Auxiliary Feedwater check valves have increased and it has become more apparent that the addition of relief valves may not provide a total solution to the problem. Issuance of INPO SOER 84-32, INPO SER 5-84, NRC IN 84-06 and an 8/84 reoccurrence of McGuire pump suction overpressurization due to gross check valve failure made it clear that more insurance against loss of auxiliary feedwater was required.

3. Corrective steps which have been taken and the results achieved:

NSM's 1-1705, 2-0550, 1-1706 and 2-0551, as discussed in the violation, have been completed.

Temperature indication on discharge piping has been installed and the stop check valves have been replaced on both Units 1 and 2.

4. Corrective steps which will be taken to avoid further alleged violations:

Duke Power Company will continue to identify and correct any conditions adverse to quality and report such to appropriate levels of management. Programs are in place to accomplish these actions in a reasonable time period.

5. Date when full compliance will be achieved:

McGuire Nuclear Station is presently in full compliance.