



UNITED STATES
NUCLEAR REGULATORY COMMISSION
REGION II
101 MARIETTA STREET, N.W.
ATLANTA, GEORGIA 30323

Report Nos.: 50-369/85-21 and 50-370/85-22

Licensee: Duke Power Company
422 South Church Street
Charlotte, NC 28242

Docket Nos.: 50-369 and 50-370

License Nos.: NPF-9 and NPF-17

Facility Name: McGuire 1 and 2

Inspection Conducted: May 21 - June 20, 1985

Inspectors: C. H. Burger, for
W. T. Orders, Senior Resident Inspector

7/26/85
Date Signed

C. H. Burger, for
R. C. Pierson, Resident Inspector

7/26/85
Date Signed

Approved by: H. C. Dance
H. C. Dance, Section Chief
Division of Reactor Projects

7/29/85
Date Signed

SUMMARY

Scope: This routine, unannounced inspection entailed 300 inspection hours on site in the areas of operations, safety verification, surveillance testing, maintenance activities and refueling activities.

Results: Of the 5 areas inspected, no violations or deviations were identified in 2 areas; 1 apparent violation was identified in each of the areas of operations, surveillance and refueling.

- 1) Failure to follow procedures and inadequate procedure resulting in valve misidentification, failure to reposition interlock, and failure to complete shift turnover.
- 2) Failure to perform surveillance on unlocked/open fire doors.
- 3) Breach of containment integrity.

REPORT DETAILS

1. Persons Contacted

Licensee Employees

T. McConnell, Plant Manager
*G. Cage, Superintendent of Operations
*D. Rains, Superintendent of Maintenance
B. Hamilton, Superintendent of Technical Services
*L. Weaver, Superintendent of Administration
*B. Travis, Superintendent of Integrated Scheduling
E. McCraw, License and Compliance Engineer
*D. Mendezoff, License and Compliance Engineer
*W. McDowell, Technical Specialist-Licensing
*G. Gilbert, Operations Engineer
*R. Phillips, Operations Engineer
*R. Michael, Station Chemist
P. Huntley, Health Physicist
*K. Carney, Shift Supervisor
*R. Johansen, Performance Engineer
*D. Motes, Maintenance Engineer

Other licensee employees contacted included construction craftsmen, technicians, operators, mechanics, security force members, and office personnel.

*Attended exit interview

2. Exit Interview

The inspection scope and findings were summarized on June 25, 1985, with those persons indicated in paragraph 1 above. The licensee acknowledged understanding of the issues discussed and offered no substantive related discussion. The licensee did not identify as proprietary any of the materials provided to or reviewed by the inspectors during this inspection.

3. Licensee Action on Previous Enforcement Matters

No licensee action on previous enforcement items is discussed.

4. Unresolved Items*

Unresolved items were not identified in this inspection.

5. Plant Operations

The inspection staff reviewed plant operations during the report period, May 21 - June 20, 1985, to verify conformance with applicable regulatory requirements. Control room logs, shift supervisors logs, shift turnover

*An Unresolved Item is a matter about which more information is required to determine whether it is acceptable or may involve a violation or deviation.

records and equipment removal and restoration records were routinely perused. Interviews were conducted with plant operations, maintenance, chemistry, health physics, and performance personnel.

Activities within the control rooms were monitored during shifts and at shift changes. Actions and/or activities observed were conducted as prescribed in applicable station administrative directives. The complement of licensed personnel on each shift met or exceeded the minimum required by technical specifications.

Plant tours were taken during the reporting period on a systematic basis. The areas toured included but were not limited to the following: Turbine Buildings, Auxiliary Buildings, Units 1 and 2, Electrical Equipment Rooms, Units 1 and 2, Cable Spreading Rooms, Station Yard Zone within the protected area, and Unit 1 Reactor Building. During the plant tours, ongoing activities, housekeeping, security, equipment status and radiation control practices were observed.

McGuire Unit 1 began the reporting period in Mode 6 in its second refueling outage with core reload in progress. Fuel loading was completed at 6:29 a.m. on Sunday May 26, 1985. The unit entered Mode 5 at 11:45 p.m. on June 5, 1985 where it remained until 9:48 a.m. on June 19, when the unit entered Mode 4. The unit remained in Mode 4 recovering from a refueling outage for the duration of the reporting period.

McGuire Unit 2 began the reporting period in Mode 1 operating at 100% reactor power and remained at or about 100% power until 9:19 a.m. June 1, 1985 when the unit tripped from a turbine trip. This reactor trip is discussed in paragraph 6. All systems responded normally following the trip. The unit was restarted and entered Mode 2 on June 2, 1985. The reactor was critical at 5:29 a.m. and entered Mode 1 at 7:25 a.m. At 3:40 a.m. on June 3, the reactor reached 100% reactor power and remained at or about 100% throughout the duration of the reporting period.

6. Reactor Trip

On June 2, 1985, at 9:19 a.m. Unit 2 experienced a reactor trip from 100% power. The reactor trip resulted from a feedwater isolation induced feed pump trip and turbine trip. Subsequent evaluation determined that the feedwater isolation resulted from a dc ground in the exterior "doghouse" (mechanical penetration room) water level instrumentation. This water level sensor, designed to isolate the feedwater system in the event of a feedwater pipe rupture, has three level sensors providing an input to a relay which subsequently initiates the feedwater isolation signal. One level sensor provides alarm indication upon reaching 6" with hi-hi level at 12" from two out of three sensors initiating the feedwater isolation. The ground appeared on the wiring between the sensor and the relay which caused the hi-hi level isolation signal to be initiated without a hi level alarm indication. Following a determination of the cause of the trip the reactor was restarted

with the unit reaching criticality at 5:29 a.m. on June 2, 1985 and 100% power at 3:40 a.m. on June 3, 1985.

7. Safety Injection Procedures

On June 5, 1985 at 2:10 p.m. during a routine procedure required/actual position equipment verification, the inspector detected that on page 1 of 8 of the valve lineup checklist, of procedure OP-2-A-6200-06 Safety Injection System that valve 2 NI-162 was listed as the NI pump min flow valve. In actuality valve 2 NI-162 is the safety injection discharge cold leg isolation valve.

A review of the master file copy of the procedure revealed that the procedure deficiency dates back to at least December 1983.

The above event constitutes an example of an inadequate procedure. This example, in conjunction with events detailed in paragraphs 8 and 9 constitutes a violation (370/85-22-01).

8. Personnel Airlock Integrity

On March 20, 1985, at approximately 11:00 a.m., while Unit 1 was at 65% power, two Performance Technicians discovered an interlock keyswitch inside the Unit 1 lower personnel airlock in the "bypass" position. With the keyswitch in this position, it was possible to open both the Reactor side airlock door and the Auxiliary side airlock door, thus losing containment integrity. With the keyswitch in the "bypass" position, the interlock function is inoperable and consequently the containment airlock is technically inoperable.

The containment airlock is required by Technical Specifications (TS) and is verified operable by TS 4.6.1.3c surveillance performed at least once per six months. The discovery was made while performing section 12.8 of PT/1/A/4200/01F, Lower Containment Personnel Lock Leak Rate Test, which is performed pursuant to TS 4.6.1.3c. The technicians immediately ensured both doors were closed and sealed and informed Control Room personnel of the discovery. Containment integrity was not lost.

There is no record of both lower airlock doors being opened simultaneously after 1:00 p.m. on December 18, 1984. Unit 1 entered Mode 4, at 2:12 a.m. on December 19, 1984, after containment integrity was verified. This included having at least one airlock door closed at all times.

Operations personnel sometimes white tag both doors open on the upper and lower personnel airlocks if the associated unit is to be in Mode 5 or 6 (with containment integrity not required) for an extended time. Opening and closing both doors is performed using OP/0/A/6700/06, Personnel Airlock Operations, which was revised and reissued in August 1984 with all sign-off lines deleted. With no sign-offs required, the possibility of not fully implementing the procedure was increased. Further there were no steps in the unit start-up procedure to verify the airlock interlocks were properly positioned prior to entering a mode in which they were required.

Performance personnel found the interlock inside the lower airlock in the "bypass" position. Since there is no documentation reflecting the positioning of the interlock keyswitch, no determination can be made as to when the interlock failed to get changed to the "active" position. It is highly probable that the failure to reposition the keyswitch occurred when the airlock was returned to service prior to the unit entering Mode 4 in December 1984.

TS 6.8.1.a requires that current written approved procedures be established, implemented and maintained for safety related activities. Implicit in that stipulation is the requirement that procedure guidance be specific enough to facilitate the successful accomplishment of the task.

The interlock keyswitch inside the personnel airlock as specified in procedure OP/O/A/6700/06 was not returned to the active position in December 1984 prior to the unit entering mode 4. Further complicating and perhaps leading to this event is the fact that operations procedure OP/O/A/6700/06, Personnel Airlock Operations, does not require a sign-off step to verify that the interlock key switches are in the "active" position when returning the airlock to service. Further Units 1 and 2 operating procedures OP/1/A/6700/01 and OP/2/A/6100/01, Controlling Procedures for Unit Start-up, do not verify the airlock interlock position prior to entering Mode 4. The failure to return the airlock interlock to normal is an example of a failure to follow procedure. This in conjunction with items discussed in paragraphs 7 and 9 constitutes a violation (369/85-21-01).

9. Shift Relief

On June 12 at 9:10 a.m., while reviewing the current Shift Supervisor Turnover Checklist, the inspector noted that the checklist had not been completed. The inspector brought this matter to the attention of the Senior Reactor Operator who then completed the form.

Station Directives 3.1.9, Relief at Duties of Plant Operation, specifies procedures to promote continuity of safety and efficiency during the process of relief of persons at duties of plant operation. Included in this shift relief process is the completion of the Shift Supervisor Turnover Checklist. Section 4 of Station Directive 3.1.9 requires that the shift supervisors fill out and follow the "Shift Supervisor Turnover Checklist", during shift turnover. The oncoming Shift Supervisor must determine the required minimum shift composition for his shift, and identify the individuals that will man the positions.

TS 6.8.1.a requires that current written approved procedures be established, implemented and maintained covering shift relief and turnover.

Contrary to those requirements, on June 12, the Shift Supervisors Turnover Checklist was not completed and followed during shift turnover, in that page 3 of 4 was not completed identifying shift crew composition. This in conjunction with the items discussed in paragraphs 7 and 8 constitutes a violation (369/85-21-01, 370/85-22-01).

10. Fire Door Inspections

On April 14, 1985, during a routine QA audit of completed copies of procedure PT/O/A/4250/12, Fire Door Inspections, the licensee noticed that PD-1 and PD-2, fire doors for the Units 1 and 2 ETB switchgear rooms respectively, were found unlocked on each weekly surveillance since February 14, 1985. It was determined that no daily surveillance was being performed on these two unlocked doors as required by TS 4.7.11.2a. On April 18 and 25, 1985, Health Physics personnel again listed fire doors PD-1 and PD-2 as unlocked during weekly surveillance. Again no daily surveillance was performed on these doors by any group.

Evaluation of the missed surveillances revealed that the security organization for McGuire was initially given the responsibility for the daily and weekly fire door inspections. TS 3.7.11 weekly and daily fire door inspections were performed under PT/O/A/4250/11, Fire Door Inspections.

In August of 1984, a meeting was held between the Security Compliance officer, a Security Specialist, the Mechanical Maintenance Technical Specialist (MMTS) responsible for fire door repairs and the Station Health Physicist to discuss fire door responsibilities in the Radiation Control Area (RCA). Since Security personnel must contact Health Physics personnel for access to the twelve fire doors located in the RCA, Health Physics agreed to perform the weekly inspections on those doors. Procedure PT/O/A/4250/12 (Fire Door Inspections) was written for Health Physics to use for the inspections.

Health Physics personnel performed the weekly surveillance of the twelve fire doors from September 6, 1984 until April 30, 1985. From February 14, to April 11, 1985, Health Physics personnel listed fire doors PD-1 and PD-2 as unlocked during the weekly surveillance.

Tersely stated there was a great deal of confusion as to which group was responsible for the twelve fire doors in question following the August 1984 meeting. As a result no action was taken when PD-1 and PD-2 were found unlocked. The matter was complicated further by the unclear delineation of responsibility in PT/O/A/4250/11 and PT/O/A/4250/12. In both procedures, Maintenance was identified as responsible for the review of completed procedures. Both Security and Health Physics assumed this review would ensure that appropriate action was taken on fire doors if needed.

The net result is that fire doors PD-1 and PD-2, which are normally locked closed, were unlocked from February 14, 1985 to April 14, 1985 during the Unit 2 refueling outage. The doors were then locked by operations but subsequently were unlocked and remained unlocked, even though this problem was identified by a QA audit conducted on April 14, 1985. The problem was corrected on April 30, 1985 when daily inspections of the unlocked doors commenced. As previously stated, the doors are normally verified closed on a weekly basis in accordance with PT/O/A/4250/12 (Fire Door Inspections) and TS 4.7.11.2c. While unlocked, the doors were not verified closed daily as required by TS 4.7.11.2a.

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. In as much as this condition was identified by Quality Assurance two weeks before corrective action was implemented, the intent of Criterion XVI was not met.

In summary, the requirements of 10 CFR 50, Appendix B, Criterion XVI, corrective action was not taken until April 30, 1985 to verify fire doors PD-1 and PD-2 were closed daily following identification of this problem by a routine QA audit conducted on April 14, 1985. As a result the requirements of TS 4.7.11.2a, fire doors PD-1 and PD-2 were not verified closed daily during the time April 14 - 30, 1985 while these fire doors were unlocked. This is a violation (369/85-21-02, 370/85-22-02).

11. Containment Integrity

On May 25, 1985 at 8:05 p.m., Unit 1 was in mode 6 actively reloading the core, when the licensee detected that valve 1 RV-429, a containment ventilation cooling water vent valve outside containment, was found open during the performance of a containment integrity verification procedure PT-1-A-4200-02C. This valve being open in conjunction with valve 1 RV-365, a vent valve on the same line inside containment being open, resulted in a breach of containment integrity. Valve 1 RV-429 was immediately closed and locked as required.

Valve 1 RV-429 had been verified closed during the performance of PT-1-A-4200-02C which had been run during the period spanning May 17 and May 19, 1985. Sometime during the period between May 19 and May 25, 1985, valve 1RV-429, a valve which is required by procedure to be locked closed, was unlocked and misaligned. No documentation can be found either authorizing or documenting the realignment. Apparently a personnel error during the above period resulted in mispositioning of this valve.

Procedure OP-0-A-6400-09, Containment Ventilation Cooling Water System, specifies the inboard and outboard vent valves to be closed and locked during operation. This procedure is specified for completion before unit startup and placing the ventilation cooling water in service.

TS 3.9.4, Containment Building Penetrations, requires during core alterations that each penetration providing direct access from the containment to the outside atmosphere, shall either be closed by an isolation valve, blind flange, manual valve or be exhausting through operable reactor building containment purge exhaust system HEPA filters and charcoal absorbers.

Contrary to those requirements, penetration M 385, Containment Ventilation Cooling Water In, was not isolated or exhausting through an operable filter during the period May 19 - May 25, 1985 when core alterations were in progress. This is a Violation (369/85-21-03). Licensee Event Report 370/85-06 also described a containment integrity problem during core alterations involving maintenance/surveillance activities.

12. Surveillance Testing

The surveillance tests categorized below were analyzed and/or witnessed by the inspector to ascertain procedural and performance adequacy.

The completed test procedures examined were analyzed for embodiment of the necessary test prerequisites, preparations, instructions, acceptance criteria, and sufficiency to technical content.

The selected tests witnessed were examined to ascertain that current written approved procedures were available and in use, that test equipment in use was calibrated, that test prerequisites were met, system restoration completed and test results were adequate.

The selected procedures pursued attested conformance with applicable TS and procedural requirements, they appeared to have received the required administrative review and they apparently were performed within the surveillance frequency specified.

PT/2/A/4252/02	M/D CA Pump 2A Performance Test
PT/2/A/4209/01A	NV Pump 2A Performance Test
PT/1/A/4252/02P	CA Valve Stroke Timing Quarterly
PT/1/A/4204/01B	RHR Pump 1B Performance Test
PT/0/A/4250/04G	Turbine Trip Reactor Trip Functional Test
PT/1/A/4208/02	Containment Spray Stroke Timing Test
PT/1/A/4209/01B	Centrifugal Charging Pump Performance Test
PT/1/A/4204/01B	Residual Heat Removal Pump Performance Test

13. Maintenance Observations

The maintenance activities categorized below were analyzed and/or witnessed by the resident inspection staff to ascertain procedural and performance adequacy.

The completed procedures examined were analyzed for embodiment of the necessary prerequisites, preparation, instructions, acceptance criteria and sufficiency of technical detail.

The selected activities witnessed were examined to ascertain that where applicable, current written approved procedures were available and in use, that prerequisites were met. Equipment restoration completed and maintenance results were adequate.

The selected work requests/maintenance packages pursued attested conformance with applicable TS and procedural requirements and appeared to have received the required administrative review.

WORK REQUEST

113095
106134
950479
036677

EQUIPMENT

Repair 1NC-18
Repair/Plug Leak on 1NV-239
1 CA-22 Check Valve Installation and Hydro
PM/PT on Limitorque Operator

14. Licensee Event Reports

The following licensee event reports (LER) were reviewed in order to determine the adequacy of corrective actions the implications as they pertain to safety of operations, the applicable reporting requirements, and licensee review of the event.

Based on the results of this review, the items are closed.

Unit 1, LER's

83-03	83-42	83-62	83-71
83-04	83-45	83-63	84-05
83-26	83-49	83-64	84-04
83-28	83-52	83-66	84-20
83-33	83-59	83-68	84-21
83-40	83-60	83-69	84-24
83-41	83-61	83-70	

Unit 2, LER 85-15