



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

Report Nos. 50-369/92-10 and 50-370/92-10

Licensee: Duke Power Company  
P. O. Box 1007  
Charlotte, NC 28201-1007

Facility Name: McGuire Nuclear Station 1 and 2

Docket Nos. 50-369 and 50-370 License Nos. NPF-9 and NPF-17

Inspection Conducted: March 22 - April 18, 1992

Inspectors: S. E. Sparks for 5/7/92  
P. K. Van Dorn Date Signed  
S. E. Sparks for 5/7/92  
T. A. Cooper Date Signed

Approved by: G. A. Belisle 5/7/92  
G. A. Belisle, Section Chief Date Signed  
Division of Reactor Projects

### SUMMARY

#### Scope:

This routine, resident inspection was conducted in the areas of plant operations safety verification, surveillance testing, maintenance activities, followup on Licensee Event Reports, followup on previous inspection findings, and observation of total quality management training.

#### Results:

In the areas inspected, a non-cited violation, an example of a previously cited violation and an example of a previous weakness were identified. The non-cited violation involved failure to follow a procedure resulting in the opening of nuclear service water valves to the suction of the turbine driven auxiliary feedwater pump (paragraph 2.d.). The example of a previous violation involved a containment pressure transmitter found valved out of service disabling automatic actuation of

one train of the containment air return and hydrogen skimmer system (paragraph 6.b.). The example of a previous weakness involved an extensive procedure discrepancy backlog (paragraph 6.c.). The inspector also noted the licensee is implementing a major effort toward Total Quality Management which has the potential to have positive results regarding plant safety (paragraph 7.).

## REPORT DETAILS

### 1. Persons Contacted

#### Licensee Employees

- D. Baxter, Support Operations Manager
- A. Beaver, Operations Manager
- J. Boyle, Work Control Superintendent
- D. Bumgardner, Unit 1 Operations Manager
- T. Curtis, System Engineering Manager
- \*J. Foster, Station Health Physicist
- F. Fowler, Human Resources Manager
- G. Gilbert, Safety Assurance Manager
- P. Guill, Compliance Engineer
- B. Hamilton, Superintendent of Operations
- B. Hasty, Emergency Planner
- P. Herran, Engineering Manager
- \*L. Kunka, Compliance Engineer
- T. McConnell, Station Manager
- T. McMeekin, Site Vice President
- R. Michael, Station Chemist
- K. Mullen, Compliance Engineer
- M. Nazar, Performance Manager
- \*T. Pederson, Safety Review Supervisor
- \*N. Popa, Instrument and Electrical Superintendent
- \*M. Rains, System Engineering Supervisor
- R. Sharpe, Regulatory Compliance Manager
- J. Silver, Unit 2 Operations Manager
- \*B. Travis, Component Engineering Manger
- R. White, Mechanical Maintenance Superintendent

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

\*Attended exit interview

### 2. Plant Operations (71707)

#### a. Observations

The inspection staff reviewed plant operations during the report period to verify conformance with applicable regulatory requirements. Control room logs, shift supervisors' logs, shift turnover records and equipment removal and restoration records were routinely reviewed.

Interviews were conducted with plant operations, maintenance, chemistry, health physics, and performance personnel.

Activities within the control room 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 (TS). The inspectors also reviewed Problem Investigation Reports (PIRs) and Operations Incident Reports (OIRs) to determine whether the licensee was appropriately documenting problems and implementing corrective actions.

Plant tours taken during the reporting period included, but were not limited to, the turbine buildings, the auxiliary building, electrical equipment rooms, cable spreading rooms, and the station yard zone inside the protected area.

During the plant tours, ongoing activities, housekeeping, fire protection, security, equipment status and radiation control practices were observed. The inspector observed operators in the control room shortly after a reactor trip on April 9, 1992. Operators responded well and exhibited good communication practices.

b. Unit 1 Operations

The unit was held at 98 percent of rated power during the inspection period as a result of swings in the indicated T-avg inputs to the overpower delta temperature circuitry.

On April 6, 1992, operations was notified by chemistry that indications of a small primary to secondary leak of approximately 1 gallon per day had been detected on the "A" steam generator. The leak has been monitored closely since then and has remained steady at that level.

c. Unit 2 Operations

The unit began the inspection period operating at 77 percent power. Power was being increased following a reactor/turbine trip on March 21, 1992. Full power operations resumed on March 25, 1992.

On April 9, 1992, a reactor/turbine trip was received when the feedwater pumps tripped on a loss of the condensate booster pumps.

The condensate booster pumps were lost when adequate condensate flow was lost due to the bypass valve around the condensate coolers and the stator cooler failed closed due to a valve positioner failure. The unit returned to full power operations on April 11, 1992.

d. ESF Actuation During Performance of an R&R

At 6:43 a.m., on April 14, 1992, non-licensed operators (NLOs) were removing the 1B auxiliary feedwater (CA) pump from service for various maintenance activities. During the removal, valves 1RN-162 and 1CA-18, the assured source supply isolation valves, opened on a low suction pressure condition. The opening of these valves constitutes an Engineered Safety Features (ESF) actuation.

The Removal and Restoration (R&R) as written, was not adequate to perform the removal of the CA pump suction without causing the ESF actuation to occur. Additionally, the NLOs performing the R&R failed to adhere to the sequence of steps on the R&R, contributing to the event.

Immediately following the event, the NLOs restored the CA system vent and drain valves to the closed position and the control room operators restored valves 1RN-162 and 1CA-18 to the closed position. The R&R was rewritten and correctly implemented on the following shift.

The licensee's procedure OP/1/A/6250/02, Auxiliary Feedwater System, Enclosure 4.7, provides the correct sequence for removing the CA pump suction for maintenance without causing an ESF actuation. Neither the personnel who developed the R&R nor the NLOs who implemented the R&R were aware that the procedure enclosure was available.

In 1989, an implementation of an incorrectly written R&R caused the Unit 1 turbine driven CA suction supply valves to swap to the service water (RN) suction source. This was classified as an ESF actuation and was described in LER 369/89-09. Twice in 1988, operations personnel deviated from the designated steps on a R&R, on the Unit 2 "B" CA pump suction, resulting in both assured source isolation valves opening on a low suction pressure condition. These were described in LER 370/88-04. The enclosures to procedures OP/1&2/6250/02 were developed as a result of these incidents.

Failure to follow the procedure resulted in the ESF actuation. This was identified by the licensee, who took prompt corrective action to resolve the problem. The licensee's procedure already exists to properly perform the evolution. All the prior examples of this event occurred over three years in the past. The failure to follow procedure is a non-cited violation (NCV), 369/92-10-01: Failure to Follow Procedure for Removal of Auxiliary Feedwater System for Maintenance.

This violation will not be subject to enforcement action because the licensee's efforts in identifying and correcting the violation meet the criteria specified in Section VII.B of the Enforcement Policy.

One non-cited violation was identified concerning failure to follow procedure for removing the auxiliary feedwater pump suction from service, for maintenance. This applies to Unit 1 only.

### 3. Surveillance Testing (61726)

#### a. Observed

Selected surveillance tests were analyzed and/or witnessed by the resident inspection staff to ascertain procedural and performance adequacy and conformance with the applicable TS.

Selected tests were witnessed to ascertain that current written approved procedures were available and in use, that test equipment in use was calibrated, that test prerequisites were met, that system restoration was completed and acceptance criteria were met.

The selected test listed below was reviewed or witnessed in detail:

<u>PROCEDURE</u>	<u>EQUIPMENT/TEST</u>
PT/2/A/4403/07	Nuclear Service Water Flow Balance
PT/1/A/4403/01B	Nuclear Service Water 1B Performance Test

b. Motor Operated Valve Surveillance Tests

A detailed review of motor operated valve surveillances was also conducted by Region II NRC inspectors during the period (see NRC Inspection Report Nos. 369, 370/92-11).

No violations or deviations were identified.

4. Maintenance Observations (62703)

a. Observation

Routine maintenance activities were reviewed and/or witnessed by the resident inspection staff to ascertain procedural and performance adequacy and conformance with the applicable TS.

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

The selected maintenance activities listed below were reviewed or witnessed in detail:

<u>WORK REQUEST/PROCEDURE</u>	<u>ACTIVITY</u>
147230-OPS/IP/O/B/3012/06	Trouble Shooting Digital Rod Position Indication Problem
04959E	Perform PM on 125 VDC Vital Instrument and Control Power System Battery Charger

b. Motor Operated Valve Maintenance

A detailed review of motor operated valve maintenance practices was also conducted by Region II NRC inspectors during the period (See NRC Inspection Report Nos. 369, 370/92-11).

No violations or deviations were identified.

## 5. Licensee Event Report (LER) Followup (9C712,92700)

The below listed LER was reviewed to determine if the information provided met NRC requirements. The determination included: adequacy of description, verification of compliance with Technical Specifications and regulatory requirements, corrective action taken, existence of potential generic problems, reporting requirements satisfied, and the relative safety significance of each event. Additional inplant reviews and discussion with plant personnel, as appropriate, were also conducted. The following LER was closed:

370/91-07                      Manual Reactor Trip due to Control Rod Failure (Violation issued in NRC Report No. 369, 370/91-21).

No violations or deviations were identified.

## 6. Followup on Previous Inspection Findings (92701, 92702)

The following previously identified items were reviewed to ascertain that the licensee's responses, where applicable, and licensee actions were in compliance with regulatory requirements and corrective actions have been implemented. Selective verification included record review, observations, and discussions with licensee personnel.

- a. (Closed) Violation 369, 370/91-21-02: Inadequate Abnormal Procedures for Control Rod Malfunctions. The licensee responded to this item in letters dated October 30, 1991 and March 19, 1992. Corrective actions included revising the affected procedures and providing additional guidance to operators regarding use of abnormal procedures and how to handle situations not covered by procedures. The inspector verified that these actions were completed.
- b. (Open) Violation 369, 370/92-08-03: Failure to Follow Procedures Resulting in Configuration Control Events. On April 1, 1992, an operations support technician discovered the isolation valve for Containment Pressure Control System (CPCS) Transmitter 2NSPT5390 closed. This rendered the automatic operation of train 2A containment air return and hydrogen skimmer system (VX) fans inoperable. The CPCS system is required to be operable by T.S. 3.3.2. The VX system is required to be operable by T.S. 3.6.5.6. Emergency procedures are provided with specific steps for manual actuation if required. These steps would have been encountered within the 10 minute time delay required prior to VX operation. This event is considered another example of the previous violation. The



licensee indicated that the response to the violation would include this example.

- c. (Open) Violation 369/91-22-02: Failure to Follow Procedure for Removal of Lower Reactor Internals. The licensee committed to form an evaluation team to develop solutions to the problem of procedure compliance. The inspector observed one of the team meetings. The team appeared to be conducting a thorough broad based review of this issue. The inspector requested the team leader to inform the inspector of any procedural discrepancy backlogs in the site groups. The leader provided approximate numbers which were 500 emergency procedure discrepancies, 173 abnormal procedure discrepancies, 260 operations procedure discrepancies, 200 instrument and electrical discrepancies and 100 mechanical maintenance discrepancies. The inspector cautioned the licensee that quality procedures and timely followup of procedure improvements are a necessary part of procedure compliance. In addition, this high backlog of procedures awaiting review/revision is considered another example of a previously identified weakness 369,370/92-08-04: Weakness Regarding Timeliness of Corrective Actions.

No violations or deviations were identified.

7. Managing For Excellence Training Observation (40500)

The licensee is in the process of implementing a Total Quality Management (TQM) improvement process. TQM is defined as "A process designed to focus on customer expectations, preventing problems, building commitment to quality in the work force, and promoting open decision making". The licensee process is called Managing for Excellence (MFE). Quality is redefined as "consistent conformance to customer expectations" going beyond simply meeting specifications. The "customer" includes all of the internal and external individuals that a person is responsible to satisfy, e.g., supervisors, subordinates, other groups and the NRC. The licensee has defined the five essentials of quality improvement as follows:

- . Quality Is Consistent Conformance To Customers Expectations
- . Measurements Of Quality Are Through Indicators Of Customer Satisfaction Versus Indicators Of Self-Gratification
- . The Objective Is Conformance To Expectations 100% Of The Time

Quality Is Attained Through Prevention And Specific Improvement Projects

Management Commitment Leads The Quality Process

The inspector observed a senior management workshop for the MFE process. This appears to be a major effort being implemented at all levels.

This improvement process is apparently being implemented to improve the competitive position of the licensee since good quality costs less, not more than poor quality. However, this process also appears to have the potential for general improvements on a broad spectrum resulting in safety improvements as well.

No violations or deviations were identified.

#### 8. Exit Interview (30703)

The inspection scope and findings identified below were summarized on April 20, 1992, with those persons indicated in paragraph 1 above. The following items were discussed in detail:

Non-Cited Violation 369/92-10-01: Failure to Follow Procedure for Removal of Auxiliary Feedwater System for Maintenance (paragraph 2.d.).

Another example of previous Violation 369, 370/92-08-03: Failure to Follow Procedures Resulting in Configuration Control Events, which involved inadvertent isolation of a containment pressure transmitter (paragraph 6.b.).

Another example of previous weakness Item 369, 370/92-08-04: Weakness Regarding Timeliness of Corrective Actions, which involved an extensive procedure discrepancy backlog (paragraph 6.c.).

The licensee indicated that the additional violation example would be included in the response to the original violation.

The licensee representatives present offered no dissenting comments, nor did they identify as proprietary any of the information reviewed by the inspectors during the course of their inspection.