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

Report Nos. 50-369/91-31 and 50-370/91-31

Licensee: Duke Power Company
12700 Hagers Ferry Road
Huntersville, NC 28078-8985

Facility Name: McGuire Nuclear Station Units 1 and 2

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

Inspection Conducted: December 15, 1991 - January 18, 1992

Inspectors: _____ 1/30/92
P. K. Van Doorn, Senior Resident Inspector Date Signed

_____ 1/30/92
J. A. Cooper, Resident Inspector Date Signed

Approved by: _____ 1/30/92
G. A. Belisle, Section Chief Date Signed
Division of Reactor Projects

SUMMARY

Scope: This routine, resident inspection was conducted on in the areas of plant operations safety verification, surveillance testing, maintenance activities, followup on licensee event reports, followup on previous inspection findings, review of a safeguards concern, and shutdown risk management.

Results: In the areas inspected, one violation and one non-cited violation (NCV) were identified. The violation involved a repeated problem with inoperability of the Annulus Ventilation System (paragraph 3.b.). The NCV involved an inadequate operations procedure for the Control Area Ventilation System (paragraph 6).

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. Pope, Instrument and Electrical Superintendent
*R. Sharpe, Regulatory Compliance Manager
J. Silver, Unit 2 Operations Manager
B. Travis, Component Engineering Manager
*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.

b. Unit 1 Operations

The unit began the inspection period operating at 100% power. During the majority of the period, the unit operated at 95% to 98% power due to overpower delta temperature indication spiking. The unit was taken off line on January 17 due to a tube leak in Steam Generator 'D' that was estimated to be 250 gallons per day. An outage was tentatively scheduled for 15 days dependent on inspection findings. On December 23, when operators realigned some reactor coolant sample valves for a chemistry sample, fire and radiation alarms for the auxiliary building were received. Operators returned valves to the original configuration and alarms cleared within minutes. The licensee discovered the a coolant leak had occurred at a parted instrument fitting. The sample procedure had been used many times previously without a problem. Licensee evaluation of the problem was in progress.

c. Unit 2 Operations

The unit began the inspection period operating at 100% power. The unit was shutdown on January 9 for a scheduled 65 day refueling outage. The outage was on schedule at the end of the period.

No violations or deviations were identified.

3. Surveillance Testing (61726)

a. Observation

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 tests listed below were reviewed or witnessed in detail:

PROCEDURE	EQUIPMENT/TEST
PT/1/A/4350/02B	Diesel Generator 1B Operability Test
PT/2/A/4200/28A	Train A Slave Relay Test
PT/1/A/4252/18	Aux Feedwater Pump #1 Discharge Pressure Verification
PT/2/A/4200/17A	NV to Cold Legs Flow Balance
PT/2/A/4206/09	NI Check Valve Movement Test
PT/2/A/4209/12A	Centrifugal Charging Pump 2A Head Curve Performance Test

b. Followup of Annulus Ventilation Inoperability

On December 18, 1991, security personnel notified the Shift Manager that the Annulus Ventilation Bypass Door had been alarming open for approximately 1 hour. Instrumentation and Electrical (IAE) personnel were performing procedure IP/0/B/3190/26, Volumetrics Leak Rate Calibration, and had latched the door open to allow for communication between personnel working on the pneumatic module and the remote control unit associated with the loop. The door serves as a pressure boundary for the Annulus Ventilation (VE) system and anytime the door is opened for periods longer than normal access during Modes 1 through 4, compensatory measures must be taken to prevent VE inoperability. During the performance of the procedure, no compensatory measures were taken.

Prior to beginning the work, the IAE personnel notified the Control Room SRO that the test was to be performed, but did not inform him that the VE door would be latched open. Upon receipt of the door alarm, Security personnel questioned whether operations personnel were aware that the door was open. IAE personnel told the Security officer that the Control Room SRO knew the procedure was being performed. A different Security guard subsequently questioned the IAE personnel again and received the same answer. The guard then notified the Control Room SRO that the VE door had been open for approximately 1 hour. A Non-Licensed Operator (NLO) was dispatched to secure the door.

Further investigations revealed that latching the VE door open, during the performance of this procedure, was the normal practice. This test is performed semi-annually on each unit. During the times when this door is latched open, without compensatory measures, both trains of VE are inoperable. This has occurred whenever the procedure has been performed.

As a result of this event, chains and padlocks were installed on all VE doors, with the keys being controlled by operations personnel. Requirements were developed to govern issuance of the keys for the VE doors. Permanent controls are being developed to control the VE doors. All procedures which could potentially impact the VE doors are being reviewed and appropriate precautionary statements are being added to alert personnel of the requirements associated with the doors.

During the last two years, two violations were issued as the result of three separate instances of both trains of VE being inoperable while the VE doors were open. One violation involved a failure to follow the work request instructions while painting the VE doors and the others involved a failure to properly independently verify that the doors were secure following maintenance activities. During this incident, the technicians followed the procedural instructions of notifying the Control Room SRO that the procedure was being performed. However, the procedure did not include requirements for compensatory actions while the VE doors were open.

Even though this incident has a different root cause than the earlier incidents, each resulted in VE being inoperable, because the VE doors were open. This incident has been repeated semi-annually, on both units, whenever this procedure was performed since initial unit operation. Corrective actions for the latest violation were still in the process of being implemented, however, it is not clear that previously planned corrective actions would have prevented this recent problem.

Technical Specification (TS) 3.6.1.a requires written procedures to be established, implemented, and maintained covering the applicable procedures recommended in Appendix A of Regulatory Guide 1.33, Revision 2, which includes performing procedures for equipment calibration. TS 3.6.1.8 requires that two independent VE systems shall be operable in Modes 1 through 4. Performance of IP/O/B/3190/26 since initial unit startup has resulted in the inoperability of both trains of the VE system whenever this procedure has been performed, due to the inadequacy of the procedure or other directives to specify required compensatory measures. This is identified as Violation 369,370/91-31-01: Failure to Provide Adequate Procedures for Volumetric Leak Rate Calibration, Resulting in Inoperability of Both Trains of Annulus Ventilation.

One violation was identified as described above.

4. Maintenance Observations (62703)

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:

WORK REQUEST/PROCEDURE	ACTIVITY
98765 NSM	Enlarge/elongate bolt holes in the inclined base of the VC fan drive motor B.
600781 IAE	Inspect Reactor Trip Breaker cubicle door handle for nylon/teflon bushings. Replace these bushings with washers similar to Unit 1.
505488 MNT/ MP/O/A/7650/55	Hydro Test of Diesel Generator Fuel Oil System
02411E PM/ IP/O/B/3213/06	Diesel Generator Outlet Water Temperature Instrument Calibration
506507 MNT/ MP/O/A/7600/06	Corrective Maintenance for Leaking Valve 1KD 45
04833D PM	Perform PM on breakers in 4.16 KV switchgear group 2ETA.

No violations or deviations were identified.

5. Licensee Event Report (LER) Followup (90712,92700)

The below listed LERs were 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 conducted for those reports indicated by an (*). The following LERs are closed:

*369/90-16	Control Room Ventilation System was Inoperable due to Improper Installation (non-cited violation issued in Report 369,370/90-25)
*369/91-01	Reactor Trip due to Loss of Offsite Power

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 369,370/89-01-07: Failure to Follow Procedures for Writing Problem Investigation Reports. Licensee responses for this item were submitted on May 1, 1989; December 27, 1989; June 4, 1990; September 1, 1990 and December 20, 1990. Corrective actions included initiation of appropriate PIRs, personnel training, a task force review of the corrective action program and implementation of section specific lower tier corrective action programs.

b. (Closed) Violation 369,370/90-11-03: Failure to Report Control Room Ventilation Inoperability. Licensee responses for this item were submitted on August 22, 1990; September 11, 1990; September 19, 1990 and March 28, 1991. Corrective actions included development of additional reportability guidance and training of Senior Reactor Operators regarding reportability and use of operability evaluations.

c. (Closed) Violation 369/90-14-01: Failure to Follow TS due to Both Diesel Generators Being Inoperable. The licensee response for this item was submitted on September 28, 1990. Corrective actions included removing paint from the Diesel Generators, verifying operability, implementing procedural changes providing additional controls over painting and personnel training.

d. (Closed) Inspector Followup Item 369,370/91-05-01: Corrective Actions Relative to Work Control in the Switchyards. The licensee issued Operations Management Procedure 1-16, Control of Switchyard Activities providing additional control over switchyard work. Controls include access control, work approval by operations personnel and additional communications regarding degraded bus conditions.

e. (Closed) Violation 369,370/91-11-01: Failure to Take Adequate Corrective Actions. The licensee response for this item was submitted on June 24, 1991. Corrective actions included providing additional guidance to operators, requiring use of the TS reference manual and requiring use of the TS log stamps.

f. (Closed) Violation 369,370/91-13-03: Inadequate Measures to Assure Conditions Adverse to Quality are Corrected. The licensee response for this item was submitted on August 15, 1991. Corrective actions included correction of specific discrepancies, personnel counseling, upgrading labeling, personnel training, developing guidance on cable color coding and procedural changes to better address actions to be taken for damaged equipment.

g. (Closed) Unresolved Item 369,370/91-29-02: Review of Control Area Ventilation Inoperability Corrective Actions. This item involves an event described in LER 369/91-17 and NRC Inspection Report Nos. 369,370/91-29. Operators were periodically running the Smoke Purge Exhaust Fan (SPXF) of the Control Area Ventilation System (VC) as allowed by procedure OP/O/A/6450/11, Control Area Ventilation/Chilled Water System. Running the SPXF degraded VC such that TS requirements could not be met. This is considered a violation of TS 6.8.1 which requires adequate operating procedures to be implemented for systems important to safety. A licensee engineer identified this as a possible problem on October 16, 1991. On the same day, operations personnel tagged the SPXF out of service until further evaluation could be conducted. In addition, a special order was issued to operators and procedure changes were initiated. Planned long term corrective actions include a modification to trip the SPXF upon an Engineered Safety Features actuation (to be completed by August 1, 1992), a team review of equipment interactions for the VC system and further review of other ventilation systems as deemed necessary. This further review will be decided based, in part, upon the results of the VC review. This licensee identified violation is not being cited because criteria specified in Section V.G.1 of the NRC Enforcement Policy were satisfied. This is Non-Cited Violation 369,370/91-31-02: Inadequate Operations Procedure for Control Area Ventilation System. Followup of corrective actions will be conducted against LER 369/91-17. Therefore, this item is closed.

One non-cited violation was identified as described above.

7. Followup of Safeguards Concern (40500)

During a previous NRC review of the licensee's employee concerns program, the inspector noted a concern which had been expressed regarding a safe which held safeguarded information being left open. The inspector discussed this concern with licensee personnel to determine if information had been compromised and appropriate corrective actions had been implemented. The open safe had been observed by a Construction

Maintenance Division (CMD) employee. Licensee review disclosed that a security clerk had been in the area during the period the safe was unlocked preventing any compromise of information. The licensee recognized that the open safe was not a good practice and appropriate personnel were informed.

No violations or deviations were identified.

8. Reliable Heat Removal During Outages (TI 2515/113)

The inspector reviewed licensee activities planned for the Unit 2 refueling outage which have the potential to cause a loss of capability to remove decay heat from the reactor. The inspector determined that the licensee has reviewed activities that impact decay heat removal. To assure continued decay heat removal during reduced inventory operations, an additional SRO will be added to the Control Room with no responsibilities other than oversight of the unit in the outage. Control of outage work load will be managed such that activities affecting primary system hydraulics and electrical power system switching will not take place during reactor coolant system (NC) system reduced inventory conditions.

The licensee has procedures to ensure that forced circulation decay heat removal is maintained when required or that when natural circulation is used, all required conditions are met and temperature monitoring is taking place.

When the unit is in mid-loop operations, one emergency diesel generator (EDG) and two offsite power sources are required to be operable. This arrangement is also the desired line-up during the remainder of the outage.

During periods when one of the battery banks is removed for maintenance, the spare battery charger is used to carry the loads from that bank. The other channel for the same train is cross-tied to supply that channel. This results in two chargers and one bank of batteries supplying the channel. Each bank of batteries is sized to handle the loads from both channels, on both units, during emergency loading conditions, for one hour.

The licensee controls non-standard lineups of vital AC loads by procedure OP/2/A/6350/05, AC Electrical Operation Other Than Normal Line. Non-standard lineups of vital AC loads are always made to 1E buses, which are sized to carry the additional loads.

The inspector verified that the operators are trained in a loss of power event, by following the appropriate emergency procedures, which give directions to manually sequence emergency loads, if necessary.

When the batteries which supply the flashing field to the EDG are removed from service, the EDG is declared inoperable. These batteries also supply power to the DC lube oil booster pump and to the DC control power. Maintenance or testing is not performed on these batteries when the EDG is required to be operable.

The licensee has implemented a Shutdown Risk Management Program to assure safe operations during periods of increased vulnerability. The inspector verified that the licensee has implemented a program with the potential of minimizing losing decay heat removal during shutdown. The inspector also verified that procedural requirements resulting from Generic Letter 88-17, Loss of Decay Heat Removal were implemented.

No violations or deviations were identified.

9. Exit Interview (30703)

The inspection scope and findings identified below were summarized on January 21, 1992, with those persons indicated in paragraph 1 above. The following items were discussed in detail:

Violation 369,370/91-31-01: Failure to Provide Adequate Procedures for Volumetric Leak Rate Calibration, Resulting in Inoperability of Both Trains of Annulus Ventilation (paragraph 3.b)

Non-Cited Violation 369,370/91-31-02: Inadequate Operations Procedure for Control Area Ventilation System (paragraph 6)

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.