



UNITED STATES
 NUCLEAR REGULATORY COMMISSION
 REGION II
 101 MARIETTA STREET, N.W.
 ATLANTA, GEORGIA 30303

Report Nos. 50-369/82-36 and 50-370/82-30

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

Facility Name: McGuire Units 1 and 2

Docket Nos. 50-369 and 50-370

License Nos. NPF-9 and CPPR-84

Inspection at the McGuire site near Charlotte, North Carolina

Inspectors: A. J. Ignatowicz for 10/14/82
 P. R. Bemis Date Signed

A. J. Ignatowicz for 10/14/82
 P. Hopkins Date Signed

Approved by: A. J. Ignatowicz for 10/14/82
 J. C. Bryant, Section Chief, Division of Date Signed
 Project and Resident Programs

SUMMARY

Inspection on August 20 - September 17, 1982

Areas Inspected

This routine announced inspection involved 288 resident inspector-hours on site in the areas of maintenance, surveillance, hot functional tests, operational safety verification, plant trips and inspector followup.

Results

Of the six areas inspected, no items of noncompliance or deviations were identified in any area.

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DETAILS

1. Persons Contacted

Licensee Employees

- *M. McIntosh, Station Manager
- G. Cage, Superintendent of Operations
- E. Estep, Project Engineer
- *M. Sample, Project Engineer
- B. Barron, Operations Engineer, Unit 2
- G. Gilbert, Operations Engineer
- *D. Mendezoff, Licensing Engineer
- C. Van Vynckt, Staff Engineer
- *T. Keane, Station Health Physicist

Other licensee employees contacted included superintendents, operating engineers, shift supervisors, reactor operators, unit coordinators, station group supervisors, planners, technicians, mechanics, specialists, security, office personnel, corporate design engineers, training and QA personnel.

Other Organizations

- *A. Johnson, NRC Inspector
- R. Albright, NRC Inspector

*Attended exit interview

2. Exit Interview

The inspection scope and findings were summarized on September 16, 1982, with those persons indicated in paragraph 1 above. The plant manager acknowledged the findings.

3. Licensee Action on Previous Inspection Findings

(Closed) Unresolved item (369/81-17-06): Certification of SRO at Regional Office level. Correspondence with the Operator of the Licensing Branch (OLB) determined that under special conditions on an individual case basis an individual could be put up for SRO with only an RO certification if he has undergone additional training and the licensee has informed OLB of that training.

(Closed) Unresolved item (369/81-39-01): High Head SI Pump discharge pressure discrepancy. Discussions with NRR determined that changing out a shaft and impeller would probably alter the flow characteristics of a pump, therefore, both a minimum and maximum flow rate should have been determined. But since the licensee did meet the IWP requirements for their interpretation of the surveillance requirement and a new shaft and impeller which meets the flow requirements is in place this item will be closed.

(Closed) Unresolved Item (369/82-17-01): Start signals to Containment Spray pumps. At the present time the licensee meets the requirement of the containment spray system. NRC is looking into this area as a generic problem.

(Closed) Unresolved item (369/82-17-02): Start signals to various ESF pumps and valves. This item closed for same reason as noted above.

(Closed) Unresolved item (369/82-10-04): No keys for fire brigade to warehouses. Although it appears to be an unsafe practice for the fire brigade to not have immediate access to warehouses, on the back shifts in particular there are no regulations that can be found that require the fire brigade.

(Closed) Unresolved (369/82-12-01): Failure to test Boric Acid Transfer Pump prior to declaration of operability. The licensee submitted Licensee Event Report No. 369/82-31 on this item and they met all the criteria of the enforcement policy, therefore, this item is closed. Since the time of the incident it has been determined that the boric acid transfer pumps are not required to be performance tested.

(Closed) Violation (369/82-17-03): Housekeeping in Lower Annulus. The licensee posted and cleaned the affected area. Both the station employees and the cleaning contractor were again informed of the importance of the posted cleanliness areas. Further inspections have not identified subsequent problems.

(Closed) Unresolved item (369/82-17-05): Problem with exiting a high radiation area (Annulus) with ventillation system running. The licensee has installed telephones in the annulus in order for people to call out if they cannot exit or if there is a problem due to the differential pressure caused by the ventillation system running. They have also decided administratively to not enter the annulus if the system is running.

4. Unresolved Items

Unresolved items were not identified during this inspection.

5. Operating History

At the beginning of the inspection period Unit 1 was operating at 75% power. Unit 1 was approved to operate at power levels above 50% but not to exceed 75% power for a maximum of 720 hours during the period from August 13 until the next outage now planned for October 15, 1982. Unit 1 has operated at 75% power during the week with reduction to 50% power during the weekend to take advantage of peak power demands. On September 3, 1982, 1:30 p.m. the plant experienced a reactor trip. The plant achieved criticality on restart September 4, 1982 at 9:45 a.m., continuing power advance to 50% at 11:00 a.m. and remaining at 50% power until September 7, 1982, 7:00 a.m. when 75% power was achieved. The reactor trip is discussed in paragraph 10.

Hot Functional testing on Unit 2 was initiated and completed at no load pressure and temperature during this inspection period. Cooldown to ambient pressure and temperature began on September 13, 1982. Upon reaching 350°, inspections of hangers and snubbers was completed. Adjustments and alignments will continue. Once the unit is at ambient temperature and pressure the integrated leakrate test will begin. Plans have been made to remove all thermal sleeves from Unit 2 beginning October 15, 1982. This will offer experience and will be of benefit in the planning and removal of the thermal sleeves from Unit 1.

6. Operational Safety Verification

Throughout the inspection interval the inspectors observed operational activities in the plant and the control room for Units 1 and 2. The following activities were reviewed and/or observed as possible on a daily basis: shift turnover; control room and shift manning; control room and other vital area access; control room and plant operators use of and adherence to approved procedures for ongoing activities; instrumentation and recorder traces important to safety for anomalies; operator understanding of alarmed control room annunciators to include initiation of corrective action in a timely manner; operator response to computer alarms; valve and electrical alignment for emergency safeguards features (ESF), and reactor protection system (RPS) inputs in the control room are in compliance with Technical Specification (TS) requirements; shift supervisor, control operator, tag out, and operator's work request logs; access and egress from the protected area in compliance with requirements of the security procedures; and egress from controlled areas in compliance with the Health Physics Plan.

During the inspection period the inspectors also observed, reviewed and/or verified the following: Status of instrument calibration, equipment tags and radiation work permits; results of selected liquid and gaseous samples; and gas and liquid waste discharges and logs. The inspectors toured the accessible areas of the plant to make an assessment of the following: Plant and equipment conditions; areas which could be fire hazards; interiors of selected electrical and control panels; proper personnel monitoring practices; housekeeping and cleanliness practices; and radiation protection controls. The inspectors performed a walkdown of the upper head safety injection system, and containment spray systems, Units 1, and 2. Alignment of valves was in accordance with operational procedures.

Based on this review and observation no violations or deviations were identified.

7. Maintenance

Maintenance activities were observed in progress throughout the inspection period. The inspector verified that the following activities were accomplished by qualified personnel using approved procedures: Radiation controls, fire prevention and safety measures, and QA/QC hold points were observed as appropriate; test equipment used was verified to be calibrated,

and data recorded was compared to that observed; required administrative approvals and tagouts were obtained prior to initiating work; Limiting Conditions for Operation were met while maintenance was being performed; replacement parts and materials used were properly certified; testing and calibration as necessary were completed prior to returning the equipment to service; and holding requirements were met.

The inspector reviewed portions of outstanding work orders for safety-related systems to verify the licensee is performing maintenance in a timely manner and that an excessive backlog is not developing. The inspector examined procedures used for technical adequacy and the completion of work requests.

Examples of those observed are as follows:

MP/O/A/7150/50	UHI Piping Removal and Replacement
Shutdown Request 6249, Installation of Seismic Restraints for Cooling Component Pumps (KC2A1)	
MP/O/A/7150/38	Pressurizer Safety Valve Corrective Maintenance
MP/O/A/7150/47	Steam Generator Handhole, Manway and Sludge Lance Port
MP/O/A/7150/39	Reactor Coolant Pump Seal Removal and Replacement

Based on this review and observation, no violations or deviations were identified.

8. Surveillance

Surveillance activities were observed throughout the inspection interval. The inspector reviewed and/or verified that procedures used conform to the Technical Specification (TS) requirements and had received proper licensee review and approval; that test instrumentation was properly calibrated; that the systems were removed from service and restored to service per procedure; test prerequisites and acceptance criteria were met; test data was accurate and complete; completed tests were performed by qualified individuals. The following surveillance activities were observed in greater depth:

TP/2/A/1150/15A	Hot Functional of Reactor Coolant Low Flow Alarms
PT/1/A/4200/08	Airlock Operational Test
PT/1/B/4250/04D	FWPT and Oil Pump Test
PT/1/A/4200/14A	Ice Condenser Intermediate Deck door and Monitoring System Inspection
OP/1/A/6200/07	Containment Spray System

Work Request IAE 63819

Repair ground to clear PM/PT Unit 2 Diesel Generator

Based on this review and observation no violations or deviations were identified.

9. Trip-Safety System Challenges

During the reporting period, Unit 1 experienced an unplanned reactor trip at 1:30 p.m. September 3, 1982. Unit 1 was operating at 75% power. Chemistry personnel were working with OP/O/B/6250/09, Condensate Polishing Demineralizer Operation. The event that led to the reactor trip was the interruption in the flow through the condensate polishing demineralizer cells that caused the condensate booster pumps to trip due to low suction pressure.

Prior to the reactor trip, the several condensate strainers were experiencing high differential pressures. One of the four strainers (B) was out of service for cleaning. Chemistry had isolated polisher/strainer path (C) in preparation for maintenance as soon as polisher/strainer (B) was operable. However, with this, the high flow through the two remaining polisher/strainer paths caused the differential pressure across the strainer to rise above 20 psid (the gauge pegged at 20 psid). At this point, Chemistry personnel started closing the effluent valves (polisher discharge control valves, 1CM441 and 1CM447) on the operating flow paths in an effort to reduce the flow rate through the strainer, thereby reducing the strainer differential pressure. When manually throttling the effluent valves to approximately 50-60% open, the valves started to make a high pitched noise. The manual loader was turned to a fully open position, with the noise continuing. The Control Room was being notified to manually open the bypass valves. Before the operator could respond, the condensate booster pumps tripped on emergency low suction pressure. Both main feedwater pumps, the turbine and the reactor tripped in sequence. The operators then initiated AP/1/A/5500/01 Reactor Trip, and AP/1/A/5500/02 Turbine Trip. The Plant was shut down without further incident.

The licensee has initiated an investigation to determine why the bypass valve did not open automatically, and has committed to a review procedure OP/O/B/6250/09 for possible changes.

Until the investigation is completed and the procedures are properly reviewed and appropriate changes made as necessary, this will be an Inspector Followup Item (369/82-36-01).

Following this event, after maintenance, the plant was restarted without further incident and is presently operating at 75%.

10. Hot Functional Preoperational Testing Unit 2 (73011, 70314, 70370)

The inspector reviewed selected preoperational test procedures and witnessed portions of the Hot Functional Tests performed while the plant was in steady

state at the 557°F plateau, verifying that tests were conducted and performed in accordance with appropriate standards and regulatory requirements. The following are several of the work and operational tests, performance tests and test procedures that were performed.

OP/2/A/6300/01	Turbine Generator Operation
TP/2/B/1300/02	Initial Roll of #2 Main Turbines During HFT
TP/2/A/1150/15B	Hot Functional Testing of Pressurizer and Level Control and PORV's
TP/2/B/1600/06	Steam Dump Control System Functional Test
OP/2/A/6250/02	Auxiliary Feedwater System

During this review and observation, the functional testing of the pressurizer failed to meet the criteria specified. This is discussed in paragraph 11.

11. Independent Inspections

The inspector observed work being performed during the installation of seismic restraints for the component cooling (KC2A1) pumps located on elevation 750. The associated work requests, blueprints and portions of drilling and welding accomplished to date were reviewed by the inspector. Since the plant is operating, work cannot be completed until the outage in October. Until the work is completed, this will be carried as an Inspector Followup Item (369/82-36-02).

During the inspection period the inspector reviewed portions of training records and observed academic training and simulator training, and the testing of Reactor Operators, (RO's), Senior Reactor Operators (SRO's), and Shift Technical Advisors (STA's) for licensing.

Exams were presented in a timely and professional manner except that when the exams were collated, an answer sheet with no more than three answers was inadvertently attached as the last page of the examination. This was brought to the attention of the examiners and they decided to administer three new questions in place of the ones which had answers attached.

The inspector witnessed portions of preoperational test (Unit 2) TP/2/A/1150/15B Hot Functional Testing of Pressurizer Pressure and Level Control and PORVs. The pressurizer functional test did not meet the acceptance criteria. The nominal pressure response to actuation of all heaters, either with all reactor coolant pumps working or with reactor coolant pump "B" off, failed to keep the pressurizer within the pressurizer pressure (PSIA) and the time (schedule) operating envelope because of the 78 pressurizer heaters. Eighteen were in (approximately 23%) an inoperable status. These heaters are to be replaced in the latter part of October. After that time, the test will be run again, probably during startup. Until the test has been completed satisfactorily this will be an Inspector Followup Item (370/82-30-01).

12. Inspection Followup - Unit 1 and 2 (70312 and 92706)

(Closed) Inspector Followup Items (369/82-28-01, 370/82-22-01): Retest MSIV 5 Second Timing. The inspector reviewed and witnessed the rerun of TP/2/A/1250/06 Main Steam Isolation Valve Test (Unit 2) and PT/1/A/4250/01A, Main Steam Isolation Valve Movement (Unit 1). The Main Steam isolation valves performed in accordance to the above procedures, station FSAR, the Safety Evaluation Report (SER) of 1978, and Technical Specification 3.7.1.3.