



UNITED STATES
 NUCLEAR REGULATORY COMMISSION
 REGION II
 101 MARIETTA ST., N.W., SUITE 3100
 ATLANTA, GEORGIA 30303

Report Nos. 50-369/82-28 and 50-370/82-22

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

Facility Name: McGuire

Docket Nos. 50-369 and 50-370

License Nos. NPF-9 and CPPR-84

Inspection at McGuire site near Charlotte, North Carolina

Inspectors:	<u><i>A. H. Johnson</i></u>	<u>9/7/82</u>
	A. H. Johnson	Date Signed
	<u><i>for Frank Jape</i></u>	<u>9/7/82</u>
	H. L. Whitener	Date Signed
Approved by:	<u><i>Frank Jape</i></u>	<u>9/7/82</u>
	F. Jape, Section Chief	Date Signed
	Engineering Inspection Branch	
	Division of Engineering and Technical Programs	

SUMMARY

Inspection on August 17-20, 1982

Areas Inspected

This routine, unannounced inspection involved 50 inspector-hours on site in the areas of preoperational test procedure reviews and preoperational test witnessing.

Results

Of the two areas inspected, no violations or deviations were identified.

REPORT DETAILS

1. Persons Contacted

Licensee Employees

- *M. D. McIntosh, Station Manager
- *H. B. Barron, Operations Engineer
- *B. H. Hamilton, Performance Engineer
- *J. W. Boyce, Performance Engineer
- *W. E. Galbreath, Performance Engineer
- *W. W. McCollough, Maintenance Engineer
- *W. R. Hatley, Maintenance Engineer
- *D. Mendezoff, Licensing Engineer

Other licensee employees contacted included test engineers technicians, and operators.

NRC Resident Inspector

- *P. C. Hopkins

*Attended exit interview

2. Exit Interview

The inspection scope and findings were summarized on August 20, 1982, with those persons indicated in paragraph 1 above. The licensee acknowledged the findings.

3. Licensee Action on Previous Enforcement Matters

Not inspected.

4. Unresolved Items

Unresolved items were not identified during this inspection.

5. IE Circular (IEC) Unit 2 (92703)

(Closed) IEC 80-17, Fuel Pin Damage From Core Baffle Water Jet. The inspector reviewed the completed field change notice (FCN) DBPM-10588 that modified the Lower Internals to reduce the level of baffle joint jetting. This item is closed.

6. Hot Functional Preoperational Testing Unit 2 (70311, 70314 and 70370)

a. General Tests Requirements

The inspectors reviewed selected preoperational test procedures and witnessed portions of the hot functional tests performed during initial plant heatup and at the 557°F plateau to verify that the testing was conducted in accordance with regulatory requirements. These requirements are delineated in the documents described below:

- (1) FSAR, Section 14.1: Initial Tests and Operations.
- (2) FSAR, Table 14.1.3-1: Thermal Expansion Test Abstract.
- (3) FSAR, Question and Response Section: Q413.23 and response contain additional thermal expansion test requirements.
- (4) Station Directive 3.1.2: System/Structure Transfer Activities.
- (5) Station Directive 3.2.2: Preoperational Test.
- (6) Preoperational Test Procedures:
 - (a) TP/2/A/1100/91, Controlling Procedure for Hot Functional Testing.
 - (b) TP/2/A/1150/08, ASME Code Piping Thermal Expansion Test.
 - (c) CP-894, NSSS Thermal Monitoring - Unit 2.

From review of the above documents, the inspector concluded that the licensee's program for monitoring the thermal expansion of the Reactor Coolant System, Main Steam System and ASME Section III Classes 1,2 and 3 piping systems which, with the exception of certain concerns discussed in paragraph 6.c below, is adequate.

b. Test Program Elements

During review of the thermal expansion test procedures, the inspector verified that the following test requirements were included in the licensee's test program:

- (1) Examination of piping, supports, and restraints at various temperature plateaus (100 degree F intervals) from ambient to hot no load temperature during plant heatup and at ambient temperature after plant cooldown.
- (2) Verification that supports and restraints are within predicted design limits at selected temperature plateaus.

- (3) Evaluation of recorded test data by the Design Engineering Group at each plateau prior to further heatup.
- (4) Identification of test acceptance criteria in the procedures.

c. Areas of Concern

Section 14.1 of the FSAR and Station Directives 3.1.2 and 3.2.2 specify the procedures to be followed for provisional turnover of systems from construction to the Steam Production Department (SPD). When these procedures are followed, all required design installation verifications and QC inspections are completed and a list of all system deficiencies or exceptions is generated as a part of the turnover package. After turnover to SPD procedures exist to ensure that any further maintenance, repair, replacement or modification of system components receives proper retesting.

In reviewing this area with licensee personnel, the inspector found that some systems had not been turned over. Instances of no system turnover, partial system turnover and complete system turnover were identified. Further, the status of supports and restraints in systems being tested covered a variety of conditions which may require retesting on a subsequent plant heatup. Some of the conditions which existed during the initial plant heatup and may require retesting are indicated below:

1. Some temporary piping supports are installed.
2. Some seismic restraints are not installed.
3. Construction complete on some supports and restraints but final design installation verification and QC inspection was not completed.
4. Adjustment or changes to some supports and restraints was necessary during plant heatup.
5. Some areas will be shimmed during or subsequent to plant heatup.
6. Additional design changes to supports and restraints are anticipated.

This situation was discussed with licensee management who agreed to implement a procedure to identify and track all supports and restraints which require retesting. At the exit interview the inspector identified this matter to a further inspection as follows:

Identify, track, and reinspect during the next plant heatup, as appropriate, and piping system supports, restraints and clearances which:

1. Were not determined acceptable for provisional turnover prior to the initial plant heatup (IFI 50-370/82-22-02).
2. Were adjusted during the initial plant heatup (IFI 50-370/82-22-03).
3. Were shimmed during or after the initial plant heatup (IFI 50-370/82-22-04).
4. Were modified subsequent to the initial plant heatup (IFI 50-370/82-22-05).

Another area of concern is the movement of system piping which is not normally heated above 200°F but is attached to a system which does thermally expand. Licensee management agreed to perform system walk-down inspections on these lines up to the first anchor point to verify that there is no interference to unrestricted piping movement. At the exit interview this matter was identified for inspector followup as follows:

Perform visual inspections on cold systems which are moved because of attachment to an expanding system and verify that no interference to unrestricted movement occurs (IFI 50-370/82-22-06).

d. Other Inspection Effort

The inspectors accompanied licensee inspection teams and observed that the measuring and recording of test data was performed in accordance with approved procedures.

The inspectors also performed independent examinations of selected supports and restraints. No violations or deviations were identified.

7. Main Steam Isolation Valve (MSIV) Timing Test Units 1 and 2 (70312 and 92706)

The inspector witnessed preoperational test TP/2/A/1250/06, Main Steam Isolation Valve Timing Test, on Unit 2, to verify that the testing was conducted in accordance with an approved procedure.

The inspector observed test personnel performance to verify the following:

- a. An approved procedure of the appropriate revision was available and in use by all test personnel.
- b. Special test equipment required by the procedure was calibrated and in service.
- c. Test prerequisites, initial conditions and precautions were met; and those which were waived had been reviewed and approved in accordance with procedural requirements.

- d. Test data was collected and recorded for final analysis by the proper personnel.
- e. Deficiencies identified during conduct of the tests were properly documented.

During this review there were no violations or deviations identified.

However, the inspector did identify that the maximum five second closure time was being timed from the MSIV upper limit switch to the lower limit switch.

This form of testing only covers the valve stroke time and does not satisfy the McGuire Safety Evaluation Report (SER) of March 1978. The SER states that the main steam isolation valves (MSIVs) are capable of closing within five seconds of receipt of the isolation signal. The licensee was inadvertently bypassing the time required for the MSIV solenoid valves to actuate.

The licensee agreed with above finding and stated that the Unit 2 MSIV preoperational testing would be rerun and the timing would be from the receipt of the isolation signal. This item is identified as inspector followup item (IFI 50-370/82-22-01).

The above item also applies to Unit 1 and the licensee stated that an engineering evaluation would be performed and that as a minimum the MSIV testing would be rerun at the next unit shutdown. This item is identified as inspector followup item (IFI 50-369/82-28-01). The item was not identified as a violation because the Unit 1 technical specifications, table 3.6-2 footnote states that times are for valve operation only, and do not include sensor response or circuit delay times.