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

Report Nos.: 50-369/84-20 and 50-370/84-17

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: September 4-6, 1984

Inspector: T E Conlon for 4-15-85
W. H. Miller, Jr. Date Signed

Approved by: T E Conlon 4-15-85
T. E. Conlon, Section Chief Date Signed
Engineering Branch
Division of Reactor Safety

SUMMARY

Scope: This routine, unannounced inspection involved 20 inspector-hours on site in the areas of Fire Protection/Prevention and Standby Shutdown Facility System.

Results: One violation was identified - Failure to Perform Periodic Tests of the Standby Shutdown System - paragraph 5.b.

REPORT DETAILS

1. Licensee Employees Contacted

*M. D. McIntosh, Station Manager
*K. S. Canady, Manager, Nuclear Engineering Service
*R. L. Gill, Licensing
*D. Mendezoff, Licensing
*D. Hyde, Operations
R. Pierce, I&E Engineer
*W. E. Galbreath, Performance
*L. R. Kimray, Chemistry
*R. F. Turner, I&E Engineer

NRC Resident Inspectors

*W. Orders
*R. C. Pierson

*Attended exit interview

2. Exit Interview

The inspection scope and findings were summarized on September 6, 1984, with those persons indicated in paragraph 1 above. The following item was identified to the licensee:

a. Violation Item (369/84-20-01 and 370/84-17-01), Failure to Perform Periodic Tests of the Standby Shutdown System - paragraph 5.b.

b. Inspector Followup Item (370/84-17-02), Calibration Records Not Available for Standby Shutdown Facility (SSF) Steam Generator C and D Level Instruments - paragraph 5.b.(4).

The licensee did not identify as proprietary any of the material provided to or reviewed by the inspector during this inspection.

3. Licensee Action on Previous Enforcement Matters

Not inspected.

4. Unresolved Items

Unresolved items were not identified during this inspection.

5. Fire Protection/Standby Shutdown System

A review was made of the Standby Shutdown System (SSS) and systems provided since January 1983, to meet the dedicated plant shutdown fire protection requirements of 10 CFR 50, Appendix R, Section III.G. Operating License

Section 2.C.(4) for Unit 1 and Section 2.C.(7) for Unit 2 require the licensee to maintain in effect and fully implement all provisions of the approved fire protection plan and the Fire Protection Review in Supplements 5 and 6 to the McGuire Safety Evaluation Report (NUREG-0422). The SSS System which is part of the McGuire fire protection program was required to be operational by January 28, 1983, for Unit 1 and prior to March 1, 1984, for Unit 2. However, since Unit 1 was in an outage until April 29, 1983, the SSS for Unit 1 was not required to be operational until the end of this outage.

The following items of the SSS and associated systems were evaluated:

a. Operational Procedures

The following procedures were reviewed and it was verified that these procedures were issued prior to the date the SSS was required to be operational:

No.	Title
OP/0/A/6100/17	Operation of the Standby Shutdown Facility
OP/0/B/6350/04	Standby Shutdown Facility Diesel Operation
AP/1/A/5500/17	Loss of Control Room
AP/2/A/5500/17	Loss of Control Room

b. Surveillance and Maintenance of Standby Shutdown Facility

A review was made of the following surveillance inspection, test and maintenance records for the dates indicated.

(1) PT/0/A/4200/02, Standby Shutdown Facility Operability Test (31 days)

(a) Unit 1 SSS Operability Tests

The SSS for Unit 1 was required to be operational on January 28, 1983. However, Unit 1 was shutdown for an outage from January 21 to April 29, 1983. The first operability test of the SSS was conducted on April 28, 1983, which demonstrated that the Unit 1 portion of the SSS was operational, except the instrumentation devices for the reactor coolant wide range pressure, pressurizer level and steam generator levels did not meet the acceptance criteria of Procedure PT/0/A/4200/02.

The licensee's operability tests, conducted during several months of 1983, and 1984, found the SSS instrumentation devices either inoperative or out of the tolerance permitted by the procedure. For example, the steam generator level gages were found out of tolerance on September 15, 1983, and were not repaired until June 12, 1984. The SSS pressurizer level gages were found inoperative on September 15, 1983, and were not repaired until August 11, 1984. The incore thermocouples were found nonfunctional on September 15, 1983, and were not repaired and retested until June 12, 1984.

The diesel engine for the emergency SSS generator reportedly was out of service on several occasions due to maintenance, repairs, and testing operations. The engine was out of service October 11-14, 1983, to replace the oil filter, October 19-26, 1983, to repair and/or replace the voltage regulator and engine governor, and from February 14 to March 29, 1984, due to engine testing and correction of overcurrent trip problems. Unit 1 was operational during these dates except for the refueling outage which began February 24, 1984.

(b) Unit 2 SSS Operability Test

The SSS for Unit 2 was required to be operational prior to March 1, 1984. Tests records from April 28, 1983 through August 11, 1984 were reviewed. Routine operability tests of the SSS components for Unit 2 were conducted on April 28, 1983, prior to the required time, and monthly thereafter, except operability tests were not conducted from January 16 through April 24, 1984. Unit 2 was operating during March and April of 1984.

The licensee's operability tests, conducted during 1983 and 1984, found the SSS instrumentation devices either inoperative or out of the tolerance permitted by the procedure. For example, the SSS pressurizer level gage was found inoperative on May 13, 1984, and was not repaired until August 21, 1984. The incore thermocouples were found nonfunctional on September 15, 1983, and were not repaired and retested until June 12, 1984.

The diesel engine for the emergency SSS generator reportedly was out of service on several occasions due to maintenance, repairs, and testing operations. The engine was out of service October 11-14, 1983, to replace the oil filter, October 19-26, 1983, to repair and/or replace the voltage regulator and engine governor, and from February 14 to March 29, 1984, due to engine testing and correction of overcurrent trip problems. The SSS was required for Unit 2 beginning March 1, 1984.

(2) PT/1/A/4209/0/1C, Standby Makeup Pump Flow Periodic Test (92 days)

Test records of April 25, 1984 to July 24, 1984, were reviewed. The first recorded operability test of the Unit 1 Standby Makeup Pump following turnover to the plant's operations group on January 26, 1983 was April 25, 1984. This pump was required to be in service by January 28, 1983. The failure to verify the operability of this pump periodically in accordance with PT/1/A/4209/0/1C is identified as Violation Item (369/84-20-01), Failure to Perform Periodic Tests of the Standby Shutdown System.

Operability tests conducted by the licensee on this pump during August 1984, indicated that the pump would only deliver approximately 22 gpm against a head pressure of 2485 psig in lieu of the required 26 gpm at a pressure greater than or equal to 2485 psig. To correct this deficiency required the following modifications:

- Rebored and increased damper orifice from 1.16 to 1.2484 inch diameter (NSM No. MG 1-1613 and Work Request No. 93145);

- Replaced valve 1NV845 with another type gate valve and added a pressure gage to permit the pump to be tested under a back pressure of 2485 psig (NSM No. MG 1-1673 and Work Request No. 93156);

- Replaced pressure relief valve INV843; and,

- Changed size of motor sheave (pulley) from eight to nine inches diameter to increase capacity output of the pump (NSM No. MG 1-1674 and Work Request No. 93157).

Subsequent tests indicated that this pump would deliver 29 gpm at 2485 psig which exceeds the minimum requirement of 26 gpm.

(3) PT/2/A/4709/0/1C, Standby Makeup Pump Flow Periodic Test (92 days)

Test records of June 15, 1983, to May 25, 1984, were reviewed. This pump was not required to be operational until March 1, 1984. Operability tests conducted by the licensee on this pump during August 1984, indicated that the pump would only deliver 22 gpm against a head pressure of 2485 psig in lieu of the required 26 gpm. To correct this situation, the licensee accomplished the same above modifications required for the Unit 1 pump. This work was accomplished under the following Modification/Work Request Nos.: MG 2-469/WR 93115, MG 2-524/WR93154, and MG 2-525/WR 93158. Following these modifications, the pump was retested and delivered 30 gpm against a head pressure of 2485 psig.

(4) IP/O/B/3250/08, Instrument Calibration (18 months)

The calibration dates listed by the licensee's Periodic Maintenance Program documentation records for the following instruments were reviewed:

Device No.	Function	Date of Calibration Unit 1	Unit 2
NCLP5121	Reactor Coolant Pressure	4/20/81 4/27/84	1/6/84
NCLP5151	Pressurizer Level	4/20/81 11/20/82 4/6/84	1/9/84
CFLP6080	Steam Generator "A" Level	4/1/81 3/1/84	5/6/83
ENALP9110	Incore Thermocouples	4/20/81 11/23/83	2/20/84

Procedure requirements for calibration of SSS instrumentation devices, including, reactor coolant pressure, steam generator level and incore thermocouples, within 18 months following the initial calibration were not adhered to for Unit 1. The time between calibration was 36 months for reactor coolant pressure devices, 35 months for steam generator level devices, and 31 months for incore thermocouples. This is identified as another example of Violation Item (369/84-20-01).

The calibration records for the Unit 2 SSS instruments for the level within steam generators "C" and "D" could not be located. Pending the licensee's research, location, and NRC review of these records, this item is identified as Inspector Followup Item (370/84-17-02), Calibration Records Not Available for SSF Steam Generators "C" and "D" Level Instruments.

(5) IP/O/B/3061/02, Station Auxiliary, Standby Shutdown Facility Power Batteries (Monthly)

The licensee's record data indicated that the SSS batteries were inspected monthly from December 3, 1982, to August 27, 1984, except an inspection was not performed between September 9, 1983, and November 28, 1983. Unit 1 was operating during this time.

Surveillance of the diesel engine starting batteries for the SSF generator was not initiated until November 11, 1983. The SSF for Unit 1 was required to be operational by January 28, 1983. Monthly inspections have been made of these batteries since November 1983. However, the failure to conduct monthly inspec-

tions of these batteries prior to November 1983, is another example of Violation Item (369/84-20-01).

Procedure for detail periodic inspection and maintenance of diesel generator starting batteries to verify such items as battery-to-battery terminal connections are clean, tight, and free of corrosion had not been issued. This is another example of Violation Items (369/84-20-01 and 370/84-17-01).

(6) Diesel Fuel for SSF Diesel Engine

The licensee stated that new fuel received and placed in the fuel storage tank for the diesel engine to the SSF generator was received and sampled, the same as the fuel for the main station emergency diesel driven generators. Records were not available to substantiate this statement, but it appears that this was true. However, procedures were not provided to periodically verify that the diesel fuel in the diesel generator fuel storage tank is within acceptable limits when checked for viscosity and water and sediment. This is another example of Violation Items (369/84-20-01 and 370/84-17-01).

(7) Water Supply to Standby Makeup Pumps

The water in the Unit 1 fuel pool is sampled every 72 hours to verify that the boron concentration remains equal to or greater than 2000 ppm. This should assure that the water to the makeup pump will contain the minimum required boron concentration. The water for the Unit 2 standby makeup pump was obtained from the wier wall enclosure within the Unit 2 fuel pool area. This water reportedly was supplied from the Unit 2 reactor water storage tank; however, no records were available to indicate that prior to September 5, 1984, periodic water samples had been obtained to verify that this water contained at least a minimum boron concentration of 2000 ppm. Apparently, a procedure to require a periodic sample of this water was not available. This item is identified as another example of Violation Item (370/84-17-01).

Other than the above listed violation, no additional violations or deviations were identified within the areas examined.