

Duke Power Company
McGuire Station
12700 Hag Road
Huntersville, NC 27885

(704)875-4000



DUKE POWER

March 23, 1993

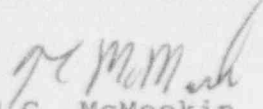
U.S. Nuclear Regulatory Commission
Document Control Desk
Washington, D.C. 20555

Subject: McGuire Nuclear Station
Special Report Number 93-04

Gentlemen:

Attached is Special Report Number 93-04. This Report is being submitted to the NRC pursuant to Final Safety Analysis Review Selected Licensee Commitment 16.9-7, Standby Shutdown System. This event is considered to be of no significance with respect to the health and safety of the public.

Very truly yours,


T.C. McMeekin

TLP/bcb

Attachment

xc: Mr. S.D. Ebnetter
Administrator, Region II
U.S. Nuclear Regulatory Commission
101 Marietta St., NW, Suite 2900
Atlanta, GA 30323

INPO Records Center
Suite 1500
1100 Circle 75 Parkway
Atlanta, GA 30339

Mr. Tim Reed
U.S. Nuclear Regulatory Commission
Office of Nuclear Reactor Regulation
Washington, D.C. 20555

Mr. P.K. Van Doorn
NRC Resident Inspector
McGuire Nuclear Station

9303290177 930323
PDR ADOCK 05000369
S PDR

JE22

McGUIRE SAFETY REVIEW GROUP

SPECIAL REPORT

1. REPORT NUMBER: 93-04 TO: NRC
2. DATE OF REVIEW: March 1, 1993 through March 11, 1993
3. SUBJECT DESCRIPTION: This Special Report is being submitted to the NRC pursuant to Final Safety Analysis Review (FSAR) Selected Licensee Commitment 16.9-7, Standby Shutdown System (SSS).
4. EVALUATION AND COMMENT: The SSS provides a means of achieving and maintaining either one or both units in Hot Standby mode for 3.5 days when the Control Room and Auxiliary Shutdown Panel are unavailable as a result of a security or fire event. The Standby Makeup pump, located in the Annulus of the Containment building, provides borated water to the Reactor Coolant (NC) system and the NC pump seals. The borated water is supplied from the Spent Fuel Pool (SFP) by way of a pipe connection from the fuel transfer tube. Valve 2KF-122, Fuel Transfer Tube Isolation, located in the SFP, must remain open during normal plant operation to assure a source of water to the Standby Makeup pump. For refueling, this valve must be closed to allow the transfer tube to be drained prior to removing the blank flange on the fuel transfer tube.

The SSS is required to be operable in Modes 1 (Power Operation), 2 (Startup), and 3 (Hot Shutdown).

On February 20, 1993, at 0825, the SSS was logged inoperable in the Technical Specification Action Item Logbook (TSAIL), in order to begin maintenance activities to replace valve 2KF-122, as directed by work order 93004222. The SSS was required to be operable no later than February 27, 1993, at 0825. The work had been planned and scheduled so as to be completed prior to exceeding this time frame. To access the valve, it was necessary to pump out the SFP transfer canal. The transfer canal is the section of the SFP where fuel is transferred back and forth from the Reactor core to the SFP, and can be isolated from the main portion of the SFP by means of a weir gate. Work activities proceeded and were completed by February 25, 1993, at approximately 2359. After correcting minor problems with the pump used to refill the transfer canal, Maintenance personnel began to refill the canal from the SFP at approximately 0700, on February 26, 1993. The SFP level was

pumped down to a minimum level. In order to continue filling the transfer canal it would be necessary to makeup to the SFP.

Normal makeup to the SFP is accomplished from the FWST, however, while maintenance activities were progressing on valve 2KF-122, Unit 2 experienced a Reactor trip on February 22, 1993. After recovering from the unit trip, Operations personnel commenced unit startup and were increasing power. Due to erratic flow characteristics exhibited by valve 2CF-17, Steam Generator (SG) D Feed Regulator, Reactor power was decreased to approximately 15 percent on two separate occasions, to investigate/work on the valve. During these evolutions, it was necessary to borate and dilute the primary system due to the changing Xenon levels. Diluting and borating take place using the Reactor Makeup Storage Tank (RMWST), the Boric Acid Tank (BAT), and the Blender. The same components are also used to makeup level to the FWST.

There was not sufficient level in the FWST to makeup to the SFP because Operations personnel had been using the FWST to makeup to the Cold Leg Accumulators (CLAs). Additionally, the FWST could not be made up to due to the diluting and borating taking place on the primary side. Therefore, refilling of the SFP transfer canal could not be completed until the FWST was made up to.

Once Unit 2 stabilized at 100 percent power, Operations personnel commenced intermittent makeup to the FWST, and pumpover of the FWST to the SFP on February 27, and 28, 1993.

It should be noted that once valve 2KF-122 was submerged in the SFP transfer canal on February 26, 1993, the valve was opened to allow water to fill the transfer tube in order to provide a suction for the Standby Makeup pump. Maintenance personnel successfully performed a functional verification on the pump. Therefore, the Standby Makeup pump was functional and would have been available, if required.

CONCLUSION: The SSS was declared operable on February 28, 1993, at 1042, once the TS required level had been obtained in the SFP transfer canal. Operations personnel completed makeup to the SFP on February 28, 1993, at 1430. Adequate planning had taken place to replace valve 2KF-122, and return the SSS to operable status within the required time, however, the Reactor trip and the problems which arose with valve 2CF-17 were

McGUIRE SAFETY REVIEW GROUP

SPECIAL REPORT

1. REPORT NUMBER: 93-04 TO: NRC
2. DATE OF REVIEW: March 1, 1993 through March 11, 1993
3. SUBJECT DESCRIPTION: This Special Report is being submitted to the NRC pursuant to Final Safety Analysis Review (FSAR) Selected Licensee Commitment 16.9-7, Standby Shutdown System (SSS).
4. EVALUATION AND COMMENT: The SSS provides a means of achieving and maintaining either one or both units in Hot Standby mode for 3.5 days when the Control Room and Auxiliary Shutdown Panel are unavailable as a result of a security or fire event. The Standby Makeup pump, located in the Annulus of the Containment building, provides borated water to the Reactor Coolant (NC) system and the NC pump seals. The borated water is supplied from the Spent Fuel Pool (SFP) by way of a pipe connection from the fuel transfer tube. Valve 2KF-122, Fuel Transfer Tube Isolation, located in the SFP, must remain open during normal plant operation to assure a source of water to the Standby Makeup pump. For refueling, this valve must be closed to allow the transfer tube to be drained prior to removing the blank flange on the fuel transfer tube.

The SSS is required to be operable in Modes 1 (Power Operation), 2 (Startup), and 3 (Hot Shutdown).

On February 20, 1993, at 0825, the SSS was logged inoperable in the Technical Specification Action Item Logbook (TSAIL), in order to begin maintenance activities to replace valve 2KF-122, as directed by work order 93004222. The SSS was required to be operable no later than February 27, 1993, at 0825. The work had been planned and scheduled so as to be completed prior to exceeding this time frame. To access the valve, it was necessary to pump out the SFP transfer canal. The transfer canal is the section of the SFP where fuel is transferred back and forth from the Reactor core to the SFP, and can be isolated from the main portion of the SFP by means of a weir gate. Work activities proceeded and were completed by February 25, 1993, at approximately 2359. After correcting minor problems with the pump used to refill the transfer canal, maintenance personnel began to refill the canal from the SFP at approximately 0700, on February 26, 1993. The SFP level was

pumped down to a minimum level. In order to continue filling the transfer canal it would be necessary to makeup to the SFP.

Normal makeup to the SFP is accomplished from the FWST, however, while maintenance activities were progressing on valve 2KF-122, Unit 2 experienced a Reactor trip on February 22, 1993. After recovering from the unit trip, Operations personnel commenced unit startup and were increasing power. Due to erratic flow characteristics exhibited by valve 2CF-17, Steam Generator (SG) D Feed Regulator, Reactor power was decreased to approximately 15 percent on two separate occasions, to investigate/work on the valve. During these evolutions, it was necessary to borate and dilute the primary system due to the changing Xenon levels. Diluting and borating take place using the Reactor Makeup Storage Tank (RMWST), the Boric Acid Tank (BAT), and the Blender. The same components are also used to makeup level to the FWST.

There was not sufficient level in the FWST to makeup to the SFP because Operations personnel had been using the FWST to makeup to the Cold Leg Accumulators (CLAs). Additionally, the FWST could not be made up to due to the diluting and borating taking place on the primary side. Therefore, refilling of the SFP transfer canal could not be completed until the FWST was made up to.

Once Unit 2 stabilized at 100 percent power, Operations personnel commenced intermittent makeup to the FWST, and pumpover of the FWST to the SFP on February 27, and 28, 1993.

It should be noted that once valve 2KF-122 was submerged in the SFP transfer canal on February 26, 1993, the valve was opened to allow water to fill the transfer tube in order to provide a suction for the Standby Makeup pump. Maintenance personnel successfully performed a functional verification on the pump. Therefore, the Standby Makeup pump was functional and would have been available, if required.

CONCLUSION: The SSS was declared operable on February 28, 1993, at 1042, once the TS required level had been obtained in the SFP transfer canal. Operations personnel completed makeup to the SFP on February 28, 1993, at 1430. Adequate planning had taken place to replace valve 2KF-122, and return the SSS to operable status within the required time, however, the Reactor trip and the problems which arose with valve 2CF-17 were

unexpected and could not have been taken into consideration in advance. At no time during the event was the SSS required to perform its design function. The health and safety of the public and of plant personnel was not affected by this event.

5. RECOMMENDATIONS: None

6. REFERENCES:
- 1) Unit 2 Reactor Operator Logbook
 - 2) Unit 2 Senior Reactor Operator Logbook
 - 3) Final Safety Analysis Report, Chapter 16,
Selected Licensee Commitments 16.9-7
 - 4) PIP 2-M93-0197
 - 5) McGuire Nuclear Station Design Basis Document

Prepared By: Beverly P. Parrott Date: March 11, 1993

Reviewed By: Beverly P. Parrott Date: March 11, 1993

Avry Z. Small Date: March 11, 1993

J. M. Wilson Date: March 11, 1993

Tom Arden Date: March 11, 1993

____ Date: _____

____ Date: _____

____ Date: _____

Approved By: Avry Z. Small for T. Z. Pedersen Date: March 11, 1993
Manager, Safety Review