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Subject: McGuire Nuclear Station
Docket Nos. 50-369, 370
Supplemental Summary Report of Evaluations Performed Pursuant to 10CFR 50.59, "Changes, Tests, and Experiments"

By letter dated September 30, 2004, McGuire submitted a summary report of evaluations performed at McGuire pursuant to 10 CFR 50.59(d)(2) for the period ending June 30, 2004. Please find attached additional evaluation summaries submitted as a supplement that report. These evaluations demonstrate that the changes do not meet the criteria for a license amendment as defined by 10 CFR 50.59(c)(2).

Questions regarding this submittal should be directed to Kay Crane, McGuire Regulatory Compliance at (704) 875-4306.

Gary R. Peterson

Attachment

IE47

cc: Mr. W. D. Travers
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## Changes Completed Under 10CFR 50.59

### M1C17 Reload Core Design

This evaluation was performed for the Unit 1, Cycle 17 (M1C17) core reload in calculation file MCC-1552.08-00-0332. The M1C17 Reload Design Safety Analysis Review (REDSAR), performed in accordance with Nuclear Engineering division workplace procedure NE-102, "Workplace Procedure for Nuclear Fuel Management", and the M1C17 Reload Safety Evaluation confirm the Updated Final Safety Analysis Report (UFSAR) Chapter 15 accident analyses remain bounding with respect to the M1C17 safety analysis reactor physics parameters. The safety analysis reactor physics parameters method is described in topical report DPC-NE-3001-PA.

The 1MC17 core reload is similar to past cycle core designs, with a design generated using NRC approved methods. The M1C17 Core Operating Limits Report (COLR) was prepared in accordance with Technical Specification 5.6.5 and submitted to the NRC in accordance with 10 CFR50.4. Additionally, applicable sections of Technical Specification and the UFSAR were reviewed and no changes specifically related to the operation of the M1C17 core were required. The M1C17 core reload 10 CFR 50.59 evaluation concluded that no prior NRC approval was required.

### M2C16 Reload Core Design

This evaluation was performed for the Unit 2, Cycle 16 (M2C16) core reload in calculation file MCC-1552.08-00-0326. The M2C16 Reload Design Safety Analysis Review (REDSAR), performed in accordance with Nuclear Engineering division workplace procedure NE-102, "Workplace Procedure for Nuclear Fuel Management", and the M2C16 Reload Safety Evaluation confirm the Updated Final Safety Analysis Report (UFSAR) Chapter 15 accident analyses remain bounding with respect to the M2C16 safety analysis reactor physics parameters. The safety analysis reactor physics parameters method is described in topical report DPC-NE-3001-PA. The transition core analyses for the RFA fuel type are performed according to DPC-ND-2009-PA "Westinghouse Fuel Transition Report", and WCAP-12945-PA, "Best Estimate Analysis of the Large Break Loss of Coolant Accident for the McGuire and Catawba Nuclear Stations". Upon NRC approval of the LAR to relocate cycle specific parameters to the COLR, minimum measure flow will be reduced to 388,000 gpm in the COLR. NRC approval of the proposed LAR is not needed for the operation of M2C16 since operating with a minimum measured Technical Specification flow of 390,000 gpm is conservative compared to the analyzed value of 388,000.

The 2MC16 core reload is similar to past cycle core designs, with a design generated using NRC approved methods. The M2C16 Core Operating Limits Report (COLR) was prepared in accordance with Technical Specification 5.6.5 and submitted to the NRC in accordance with 10 CFR50.4. Additionally, applicable sections of Technical Specification and the UFSAR were reviewed and no changes specifically related to the operation of the M2C16 core were required.

The M2C16 core reload 10 CFR 50.59 evaluation concluded that no prior NRC approval was required.

AP/2/A/5500/034

This abnormal procedure was changed to add steps to have a local operator manually align valve 2ND-15B in the event this valve cannot be opened manually when desired by action of a Reactor Operator in the Control Room. This is a compensatory action to be used only during Mode 4 after refueling, during 2EOC15. The compensatory action is to use an operator, pre-designated for this task, for local manual alignment of 2ND-15B when required in AP/2/A/5500/034.

This procedure change is in support of allowing work to repair the Electric Motor Operator (EMO) actuator for 2ND-15B while McGuire Unit 2 proceeds from Mode 5 to Mode 4 during the startup phase of the 2EOC15 refueling outage. These compensatory actions are only in effect during Mode 4 prior to restart and will not apply at any other time. Valve 2ND-15B operability is not required during Mode 5.

The Residual Heat Removal (ND) System provides decay heat removal during shutdown operation and Low Head Safety Injection as necessary in response to accident conditions. Technical Specification 3.5.3 requires that one Emergency Core Cooling System (ECCS) train be operable when the unit is in Mode 4. This requires that one ND pump and one centrifugal charging pump be operable and capable of injecting water from the Refueling Water Storage Tank (RWST) and later the containment sump. The bases to the Technical Specifications note that it is expected that the pumps be capable of injecting through each of the cold leg injection nozzles. 2ND-15B is the B train ND to hot leg isolation valve. 2ND-15B does not receive any automatic signals, nor does it generate any automatic signals or permissives for other components. This valve must be capable of being opened or closed to align the ND system in desired accident alignments. The valve may be aligned either opened or closed during Mode 4. The valve must be open to allow a single ND pump to inject to all four cold legs.

Operation of 2ND-15B is not time critical. During Mode 4 after refueling is not a period when high amounts of injection is necessary. Operation of ND pumps is AP/2/A/5500/034 comes after use of Centrifugal Charging (NV) and Safety Injection (NI). Provision is already in the procedure for alignment of the system prior to use. No time specification has been or is now necessary for these actions.

The actuator for 2ND-15B is being replaced due to failure of the EMO actuator. The valve actuator will be repaired and tested in Mode 4. During this repair and restoration time the compensatory action to provide local operation of the valve will be in place. At some times the EMO will be available to stroke the valve, at other times, the valve will be available to be stroked by local manual action if necessary. The valve position may be aligned either open or closed. Valve actuator functional testing and valve stroke timing will be performed during Mode 4 at times approved by the control room senior reactor operator. The valve is considered operable but degraded until completion of valve testing and restoration. The degradation is based only on the need for local manual operation of the valve.

In the event of an accident in Mode 4, AP/2/A/5500/034 directs the plant response if reactor coolant inventory is indicated. No single failure is expected in this response as stated in the bases of the Technical Specification 3.5.3. This procedure expects 2ND-15B to open or close if needed to align the ND system for accident mitigation. The procedure is modified to dispatch an operator to manually align 2ND-15B locally is operation of ND is considered or if valve operation is needed as part of Safety Injection (SI) alignment. Normally this alignment is performed in the control room by an operator assigned to perform the SI alignment enclosure of the procedure. Steps are added to the SI alignment enclosure to dispatch an operator to perform this action if the valve cannot be opened from the control room. This valve is not required to be open or closed to initiate SI using either or both ND pumps. Operation of 2ND-15B is not time critical to any actions needed in Mode 4 accident response. The manual operation of this valve by accident response procedure does not require any pre-staging of personnel or equipment. An Operations Level One Pre-Job Brief will be conducted as needed to assign an operator the duty of operating this valve is procedure AP/2/A/5500/034 is entered. The brief provides instruction on location, environmental concerns and valve operation. The manual operation of a valve as required in the revised procedure steps is a normal operator function and no special training or procedural instruction is required beyond the normal operator training. Communication of the operators actions by normal phone or radio link with the control room is available and acceptable for these added procedure steps. The valve is located in the 2B ND heat exchanger room and is readily accessible during all analyzed Mode 4 accidents during the time it is necessary to operate the valve. The valve is located in a normally high radiation environment and temperatures in the area may be between 80 degrees F and 100 degrees F. These conditions are acceptable for personnel entry for the time needed to locally operate the valve as necessary during accident conditions.

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Steps were added to this procedure that direct the securing of Containment Spray (NS) pumps during a shutdown Loss of Coolant Accident (LOCA). The NS system is a standby safety system actuated by containment pressure. The system has no accident initiators and the changes do not cause any increase in the frequency of an accident. The changes do not block the automatic actuation of NS, they do not impact the ability of NS to reduce airborne fission products by containment spray nor do they render the NS system inoperable.

The applicable Technical Specifications for NS (in Mode 3 after cold leg accumulators are isolated, or in Mode 4) state that 2 ND trains shall be operable. The procedure steps added do not render the NS system inoperable, but rather are intended to reserve the system's use to only situations in which it is actually needed. Therefore, instructions to secure NS during a shutdown LOCA, and to restart in the unlikely event that building pressure increases to 10 psig does not require a change to the Technical Specifications. Containment pressure will be controlled within the design basis and no challenges to nuclear safety are posed by this change.

**AP/1/A/5500/019**
**AP/2/A/5500/019**

Steps were added to these procedures to use a Containment Spray (NS) pump to pump water from the Emergency Core Cooling system (ECCS) sump to the Refueling Water Storage Tank (FWST). This facilitates long term decay heat removal if decay heat removal (ND) becomes unavailable. The loss of both trains of NS is beyond the design basis.

The NS system is an engineered safety feature which serves to remove thermal energy from containment in the event of a LOCA or a main steam line break (MSLB). It performs this function in conjunction with the ECCS, which subcools the reactor by direct injection. The NS system also serves to remove fission product iodine from the post-accident containment atmosphere.

As required by 10 CFR50, Appendix A, General Design Criteria 38, a system to remove heat from the reactor containment is required. The system safety function shall be to reduce rapidly, consistent with the functioning of other associated systems, the containment pressure and temperature following any LOCA and maintain them at acceptable low levels. Containment heat removal is partially provided by the NS system.

The use of the NS system to transfer borated water from the ECCS sump to the FWST during Mode 5 or 6, with Reactor Coolant (NC) temperature less than 200 degrees F is beyond design basis for this system but is considered as an additional accident mitigation strategy.