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Subject: McGuire Nuclear Station
Docket Nos. 50-369, 50-370
Technical Specification Bases Change #6

Attached are revised Technical Specification Bases pages. These changes were implemented in accordance with the provisions of 10 CFR 50.59. The changes are not part of the McGuire Technical Specifications and do not require staff review.

Technical Specification Bases 3.3.2 Function 8.a, ESFAS Interlock P-4, Reactor Trip was revised to delete the reference to item 4, "Transfer the steam dump from the load rejection controller to the unit trip controller." A portion of this steam dump transfer instrumentation is not tested and not required for operability; therefore the reference was removed.

Technical Specification Bases 3.5.2 was revised to clarify the timing of swapover to hot leg recirculation following a large break LOCA. This change was made to the McGuire UFSAR, Section 6.3.3.10, "Boron Precipitation Evaluation," in the 1998 update. This change provides consistency between the UFSAR, the safety analysis and the Improved Technical Specifications.

Technical Specification Bases 3.6.5 was revised to clarify the initial containment temperature assumed in the Loss of Coolant Accident analysis. This change provides consistency between UFSAR 6.2.1.1.3.1 and the Improved Technical Specifications.

A001

Technical Specification Bases 3.7.12 was revised to provide additional clarification of the operational requirements of the Fuel Handling Ventilation Exhaust System (FHVES). The phrase "in filtered mode" was added to the BACKGROUND, APPLICABLE SAFETY ANALYSIS, LCO and APPLICABILITY sections. The phrase provides additional emphasis that the FHVES must be in operation with the filtering train in service for movement of irradiated fuel in the fuel building.

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

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Attachment

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BASES

APPLICABLE SAFETY ANALYSES, LCO, and APPLICABILITY (continued)

These Functions must be OPERABLE in MODES 1, 2, and 3 when there is a potential for a LOCA to occur, to ensure a continued supply of water for the ECCS pumps. These Functions are not required to be OPERABLE in MODES 4, 5, and 6 because there is adequate time for the operator to evaluate unit conditions and respond by manually starting systems, pumps, and other equipment to mitigate the consequences of an abnormal condition or accident. System pressure and temperature are very low and many ESF components are administratively locked out or otherwise prevented from actuating to prevent inadvertent overpressurization of unit systems.

8. Engineered Safety Feature Actuation System Interlocks

To allow some flexibility in unit operations, several interlocks are included as part of the ESFAS. These interlocks permit the operator to block some signals, automatically enable other signals, prevent some actions from occurring, and cause other actions to occur. The interlock Functions back up manual actions to ensure bypassable functions are in operation under the conditions assumed in the safety analyses.

a. Engineered Safety Feature Actuation System Interlocks-Reactor Trip, P-4

The P-4 interlock is enabled when a reactor trip breaker (RTB) and its associated bypass breaker is open. Operators are able to reset SI 60 seconds after initiation. If a P-4 is present when SI is reset, subsequent automatic SI initiation will be blocked until the RTBs have been manually closed. This Function allows operators to take manual control of SI systems after the initial phase of injection is complete while avoiding multiple SI initiations. The functions of the P-4 interlock are:

- Trip the main turbine;
- Isolate MFW with coincident low T_{avg};
- Prevent reactuation of SI after a manual reset of SI; and

APPLICABLE SAFETY ANALYSES, LCO, and APPLICABILITY (continued)

- Prevent opening of the MFW isolation valves if they were closed on SI or SG Water Level-High High.

Each of the above Functions is interlocked with P-4 to avert or reduce the continued cooldown of the RCS following a reactor trip. An excessive cooldown of the RCS following a reactor trip could cause an insertion of positive reactivity with a subsequent increase in generated power. To avoid such a situation, the noted Functions have been interlocked with P-4 as part of the design of the unit control and protection system.

None of the noted Functions serves a mitigation function in the unit licensing basis safety analyses. Only the turbine trip Function is explicitly assumed since it is an immediate consequence of the reactor trip Function. Neither turbine trip, nor any of the other three Functions associated with the reactor trip signal, is required to show that the unit licensing basis safety analysis acceptance criteria are not exceeded.

The RTB position switches that provide input to the P-4 interlock only function to energize or de-energize or open or close contacts. Therefore, this Function has no adjustable trip setpoint with which to associate a Trip Setpoint and Allowable Value.

This Function must be OPERABLE in MODES 1, 2, and 3 when the reactor may be critical or approaching criticality. This Function does not have to be OPERABLE in MODE 4, 5, or 6 because the main turbine and the MFW System are not in operation.

b. <u>Engineered Safety Feature Actuation System Interlocks-Pressurizer Pressure, P-11</u>

The P-11 interlock permits a normal unit cooldown and depressurization without actuation of SI or main steam line isolation. With two-out-of-three pressurizer pressure channels (discussed previously) less than the P-11 setpoint, the operator can manually block the Pressurizer Pressure-Low SI signal and the Steam Line Pressure-Low steam line isolation signal (previously discussed).

B 3.5 EMERGENCY CORE COOLING SYSTEMS (ECCS)

B 3.5.2 ECCS—Operating

BASES

BACKGROUND

The function of the ECCS is to provide core cooling and negative reactivity to ensure that the reactor core is protected after any of the following accidents:

a. Loss of coolant accident (LOCA), coolant leakage greater than the capability of the normal charging system;

b. Rod ejection accident;

c. Loss of secondary coolant accident, including uncontrolled steam or feedwater release; and

d. Steam generator tube rupture (SGTR).

The addition of negative reactivity is designed primarily for the loss of secondary coolant accident where primary cooldown could add enough positive reactivity to achieve criticality and return to significant power.

There are three phases of ECCS operation: injection, cold leg recirculation, and hot leg recirculation. In the injection phase, water is taken from the refueling water storage tank (RWST) and injected into the Reactor Coolant System (RCS) through the cold legs. When sufficient water is removed from the RWST to ensure that enough boron has been added to maintain the reactor subcritical and the containment sumps have enough water to supply the required net positive suction head to the ECCS pumps, suction is switched to the containment sump for cold leg recirculation. When the core decay heat has decreased to a level low enough to be successfully removed without direct RHR pump injection flow, the RHR cold leg injection path is realigned to discharge to the auxiliary containment spray header. After approximately 6 hours, part of the ECCS flow is shifted to the hot leg recirculation phase to provide a backflush which, for a cold leg break, would reduce the boiling in the top of the core and prevent excessive boron concentration.

The ECCS consists of three separate subsystems: centrifugal charging (high head), safety injection (SI) (intermediate head), and residual heat removal (RHR) (low head). Each subsystem consists of two redundant, 100% capacity trains. The ECCS accumulators and the RWST are also part of the ECCS, but are not considered part of an ECCS flow path as described by this LCO.

BASES

APPLICABLE SAFETY ANALYSES (continued)

The limiting DBA for the maximum peak containment air temperature is an SLB. For the upper compartment, the initial containment average air temperature assumed in the design basis analyses (Ref. 1) is 100°F. For the lower compartment, the initial average containment air temperature assumed in the design basis analyses is 135°F. This resulted in a maximum containment air temperature of 317°F. The current environmental qualification temperature limit is 341°F.

The temperature upper limits are used to establish the environmental qualification operating envelope for both containment compartments. The maximum peak containment air temperature for both containment compartments was calculated to be within the current environmental qualification temperature limit during the transient. The basis of the containment environmental qualification temperature is to ensure the performance of safety related equipment inside containment (Ref. 2).

The temperature upper limits are also used in the depressurization analyses to ensure that the minimum pressure limit is maintained for both containment compartments following an event which has the potential to result in a net external pressure on the containment.

The containment pressure transient is sensitive to the initial air mass in containment and, therefore, to the initial containment air temperature. The limiting DBA for establishing the maximum peak containment internal pressure is a LOCA. The temperature lower limits, 75°F for the upper compartment and 100°F for the lower compartment, are used in this analysis to ensure that, in the event of an accident, the maximum containment internal pressure will not be exceeded in either containment compartment.

Containment average air temperature satisfies Criterion 2 of 10 CFR 50.36 (Ref. 3).

LCO

During a DBA, with an initial containment average air temperature within the LCO temperature limits, the resultant peak accident temperature is maintained below the containment environmental qualification temperature. As a result, the ability of containment to perform its design function is ensured. Two Notes to the LCO provide containment air temperature flexibility. Note 1 establishes that in MODES 2, 3, and 4, containment air temperature may be as low as 60°F because the resultant calculated peak containment accident pressure would not

B 3.7 PLANT SYSTEMS

B 3.7.12 Fuel Handling Ventilation Exhaust System (FHVES)

BASES

BACKGROUND

The FHVES filters airborne radioactive particulates from the area of the fuel pool following a fuel handling accident. The FHVES, in conjunction with other normally operating systems, also provides environmental control of temperature and humidity in the fuel pool area.

The FHVES is composed of both a supply and exhaust section. The supply portion consists of a 100% capacity air handling unit containing water cooling coils, hot water heating coils, roughing filters, and associated ductwork and dampers. The exhaust portion consists of a 100% capacity filter train, two 50% capacity exhaust fans, and associated ductwork and dampers. The exhaust fans were originally each 100% capacity but have been modified to 50% capacity fans in order to meet the required intake and exhaust flowrate. The filter train contains a prefilter, high efficiency particulate air (HEPA) filter, and carbon filters of the gasketless design. The system is required to be in operation in filtered mode any time irradiated fuel is being moved in the fuel handling building.

The prefilters remove any large particles in the air, and any entrained water droplets present, to prevent excessive loading of the HEPA filters and carbon adsorbers.

The FHVES is discussed in the UFSAR, Sections 9.4 and 15.7 (Refs. 1 and 2 respectively) because it may be used for normal, as well as post accident, atmospheric cleanup functions.

APPLICABLE SAFETY ANALYSES

The FHVES design basis is established by the consequences of the limiting Design Basis Accident (DBA), which is a fuel handling accident. The analysis of the fuel handling accident, given in Reference 2, assumes that all fuel rods in an assembly are damaged. The DBA analysis of the fuel handling accident assumes that the FHVES is in operation in filtered mode. The accident analysis accounts for the reduction in airborne radioactive material provided by this filtration system. The amount of fission products available for release from the fuel handling building is determined for a fuel handling accident. These assumptions and the analysis follow the guidance provided in Regulatory Guide 1.25 (Ref. 3).

The FHVES satisfies Criterion 3 of 10 CFR 50.36 (Ref. 4).

BASES

LCO

The FHVES is required to be OPERABLE and in operation in filtered mode when irradiated fuel is being handled in the fuel handling building. Total system failure could result in the atmospheric release from the fuel handling building exceeding the 10 CFR 100 (Ref. 5) limits in the event of a fuel handling accident.

The FHVES is considered OPERABLE when the individual components necessary to control exposure in the fuel handling building are OPERABLE. The FHVES is considered OPERABLE when its associated:

a. Two exhaust fans are OPERABLE;

b. Supply fan is OPERABLE;

c. HEPA filter and carbon adsorber are not excessively restricting flow, and are capable of performing their filtration function; and

d. Ductwork, valves, and dampers are OPERABLE, and air circulation can be maintained.

APPLICABILITY

During movement of irradiated fuel in the fuel handling building, the FHVES is required to be OPERABLE and in operation in filtered mode to alleviate the consequences of a fuel handling accident.

ACTIONS

A.1

With the FHVES inoperable, action must be taken to immediately suspend the movement of irradiated fuel in the fuel handling building. This does not preclude movement of a fuel assembly to a safe position. This action ensures a release to the environment will be within the limits of 10 CFR 100 limits (Ref. 5), if a fuel handling accident were to occur. Required Action A.1 is modified by a Note indicating that LCO 3.0.3 does not apply.

SURVEILLANCE REQUIREMENTS

SR 3.7.12.1

With the FHVES in service, a periodic monitoring of the system for proper operation is required to ensure that the system functions properly. The 12 hour Frequency is sufficient to ensure proper operation through the HEPA and charcoal filters and is based on the known reliability of the equipment.