Attachment 1C
McGuire Nuclear Station

EMERGENCY CORE COOLING SYSTEMS

3/4.5.4 BORON INJECTION SYSTEM

BORON INJECTION TANK

LIMITING CONDITION FOR OPERATION

3.5.4.1 The boron injection tank shall be OPERABLE with:

a. A minimum contained borated water volume of 900 gallons, and

b. Between 2,000 and 4,000 ppm of boron.

APPLICABILITY: MODES 1, 2, and 3.

ACTION:

With the boron injection tank inoperable, restore the tank to OPERABLE status within 1 hour or be in HOT STANDBY and borated to a SHUTDOWN MARGIN equivalent to 1% $\Delta k/k$ at 200°F within the next 6 hours; restore the tank to OPERABLE status within the next 7 days or be in HOT SHUTDOWN within the next 12 hours.

SURVEILLANCE REQUIREMENTS

4.5.4.1 The boron injection tank shall be demonstrated OPERABLE by:

a. Verifying the contained borated water volume at least once per 7 days, and

b. Verifying the boron concentration of the water in the tank at least once per 7 days.

Attachment 2A

McGuire Nuclear Station

Technical Specification 3/4.5.4 - Boron Injection System

Proposed Change

Change 3.5.4.2 as follows:

Delete entire specification (3.5.4.2) on heat tracing for boron injection tank.

Change 4.5.4.2 as follows:

Delete entire surveillance requirement (4.5.4.2) on heat tracing for boron injection tank.

Justification and Safety Analysis

The current requirement for heat tracing is due to high boron concentration required in the BIT tank and associated piping. Reduction of this requirement to less than 4,000 ppm eliminates the need for heat tracing, resulting in cumulative maintenance savings on the heat tracing equipment associated with the BIT. Heat tracing is only required for boron concentration above 4 weight percent, corresponding to approximately 7,000 ppm.

Delete

EMERGENCY CORE COOLING SYSTEMS

HEAT TRACING

LIMITING CONDITION FOR OPERATION

3.5.4.2 At least two independent channels of heat tracing shall be OPERABLE for the boron injection tank and for the heat traced portions of the associated flow paths.

APPLICABILITY: MODES 1, 2 and 3.

ACTION:

With only one channel of heat tracing on either the boron injection tank or on the heat traced portion of an associated flow path OPERABLE, operation may continue for up to 30 days provided the tank and flow path temperatures are verified to be greater than or equal to 145°F at least once per 8 hours; otherwise, be in at least HOT STANDBY within 6 hours and in HOT SHUTDOWN within the following 6 hours.

SURVEILLANCE REQUIREMENTS

4.5.4.2 Each heat tracing channel for the boron injection tank and associated flow path shall be demonstrated OPERABLE:

a. At least once per 31 days by energizing each heat tracing channel, and

b. At least once per 24 hours by verifying the tank and flow path temperatures to be greater than or equal to 145°F. The tank temperature shall be determined by measurement. The flow path temperature shall be determined by either measurement or recirculation flow until establishment of equilibrium temperatures within the tank.

EMERGENCY CORE COOLING SYSTEMS

BASES

ECCS SUBSYSTEMS (Continued)

The limitation for a maximum of one centrifugal charging pump to be OPERABLE and the Surveillance Requirement to verify all charging pumps except the required OPERABLE pump to be inoperable below 300°F provides assurance that a mass addition pressure transient can be relieved by the operation of a single PORV.

The Surveillance Requirements provided to ensure OPERABILITY of each component ensures that at a minimum, the assumptions used in the safety analyses are met and that subsystem OPERABILITY is maintained. Surveillance requirements for throttle valve position stops and flow balance testing provide assurance that proper ECCS flows will be maintained in the event of a LOCA. Maintenance of proper flow resistance and pressure drop in the piping system to each injection point is necessary to: (1) Prevent total pump flow from exceeding runout conditions when the system is in its minimum resistance configuration, (2) provide the proper flow split between injection points in accordance with the assumptions used in the ECCS-LOCA analyses, and (3) provide an acceptable level of total ECCS flow to all injection points equal to or above that assumed in the ECCS-LOCA analyses.

3/4.5.4 BORON INJECTION SYSTEM

The OPERABILITY of the boron injection system as part of the ECCS ensures that sufficient negative reactivity is injected into the core to counteract any positive increase in reactivity caused by RCS system cooldown. RCS cooldown can be caused by inadvertent depressurization, a loss-of-coolant accident or a steam line rupture.

The limits on injection tank minimum contained volume and boron concentration ensure that the assumptions used in the steam line break analysis are met. The contained water volume limit includes an allowance for water not usable because of tank discharge line location or other physical characteristics.

3/4.5.5 REFUELING WATER STORAGE TANK

The OPERABILITY of the RWST as part of the ECCS ensures that a sufficient supply of borated water is available for injection by the ECCS in the event of a LOCA. The limits on RWST minimum volume and boron concentration ensure that 1) sufficient water is available within containment to permit recirculation cooling flow to the core, and 2) the reactor will remain subcritical in the cold condition following mixing of the RWST and the RCS water volumes with all control rods inserted except for the most reactive control assembly. These assumptions are consistent with the LOCA analyses.

Attachment 3A

McGuire Nuclear Station

Technical Specification 3/4.6.1 - Primary Containment

Proposed Change

Change 3.6.1.5a to read:

"a. between 75°F* and 100°F in the containment upper compartment, and"

Justification and Safety Analysis

The low temperature limit is set because of the density of air at the prescribed temperature. In an accident condition, the volume increase which would result in heating up dense air could significantly increase the pressure in containment. A review of the various containment integrity analyses (including Westinghouse and FSAR analyses) performed as a result of a recent difficulty in maintaining this limit revealed that the minimum temperature assumed in these analyses was 75°F. Thus, the current Technical Specification limit of 85°F is overly conservative, and may result in unnecessarily detrimental effects on plant availability. Most plants have a 75°F minimum temperature. The inadvertent 85°F limit was probably the result of a typographical error.

The foregoing assessment demonstrates that the proposed Technical Specification change reducing the minimum average air temperature in the primary containment upper compartment from 85°F to 75°F does not have any adverse effect on safety of plant operation or the health and safety of the public.

CONTAINMENT SYSTEMS

AIR TEMPERATURE

LIMITING CONDITION FOR OPERATION

3.6.1.5 Primary containment average air temperature shall be maintained:

a. between 75°F* and 100°F in the containment upper compartment, and

b. between 100°F* and 120°F in the containment lower compartment.

APPLICABILITY: MODES 1, 2, 3 and 4.

ACTION:

With the containment average air temperature not conforming to the above limits, restore the air temperature to within the limits within 8 hours or be in at least HOT STANDBY within the next 6 hours and in COLD SHUTDOWN within the following 30 hours.

SURVEILLANCE REQUIREMENTS

4.6.1.5.1 The primary containment upper compartment average air temperature shall be the weighted average** of all ambient air temperature monitoring stations located in the upper compartment. As a minimum, temperature readings will be obtained at least once per 24 hours from the following locations:

Location

a. Elev. 826' at the inlet of upper containment ventilation Unit 1A.

b. Elev. 826' at the inlet of upper containment ventilation Unit 1B.

c. Elev. 826' at the inlet of upper containment ventilation Unit 1C.

d. Elev. 826' at the inlet of upper containment ventilation Unit 1D.

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*Lower limit may be reduced to 60°F in MODE 2, 3 and 4.

**The weighted average is the sum of each temperature multiplied by its respective containment volume fraction. In the event of inoperable temperature sensor(s), the weighted average shall be taken as the reduced total divided by one minus the volume fraction represented by the sensor(s) out of service.