COOPER NUCLEAR STATION
TECHNICAL SPECIFICATIONS
STANDBY LIQUID CONTROL SYSTEM
RELIEF VALVES

Revised Pages

107
110

1.0 Bases for Changes

Section 4.4.A.2.a

This paragraph delineating the operability testing of SLC relief valves has been deleted based on the fact that this operability testing has already been captured in the Augmented Testing Program which is a part of the In-Service Testing Program.

Section 3.4.A Bases

The paragraph describing the significance of SLC relief valve setting has been deleted since the SLC relief valve operability testing criteria no longer exists in the Technical Specifications.

2.0 Significant Hazard Determination

10 CFR 50.91 (a) (1) requires that licensee requests for operating license amendments be accompanied by an evaluation of significant hazard posed by the issuance of an amendment. This evaluation is performed with respect to the criteria given in 10 CFR 50.92 (c).

This proposed change to Cooper Nuclear Station (CNS) Technical Specifications deletes the SLC relief valve operability testing.

2.1 The proposed amendment does not involve a significant increase in the probability or consequences of an accident previously evaluated. Standby Liquid Control (SLC) system is designed to meet two functions: a) bring the Reactor to a cold shutdown condition without use of control rods, and b) meet the requirements of the ATWS Rule per 10 CFR 50.62. Neither of these functions are impacted by

the deletion of the SLC relief valve testing from the Technical Specifications. Furthermore, the deletion does not alter any input parameters or precursors for any accident analyses described in the USAR. The function of the SLC relief valves during an ATWS event is to remain closed during two-pump SLC operation, thereby preventing recirculation flow. Relocating the relief valve testing requirements from the Technical Specifications to the IST Augmented Testing Program preserves the requirements to test the valves. Consequently, the ability of the relief valves to perform their credited function is not challenged by this proposed change. Therefore, deletion of the SLC relief valve testing from the CNS Technical Specifications does not involve a significant increase in the probability or consequences of an accident previously evaluated.

2.2 The proposed change will not create the possibility of a new or different kind of accident than evaluated in the USAR. The proposed change does not result in any physical change to CNS Structures, Systems, or Component, nor does it change the fit, form, or function of any equipment/component taken credit for in the accident analyses described in the USAR. Therefore, the relocation of SLC relief valve testing from the Technical Specifications to the IST Augmented Testing Program does not create the possibility of a new or different kind of accident.

2.3 The proposed deletion of SLC relief valve testing from the CNS Technical Specifications will not reduce the margin of safety. The SLC relief valve setpoints will be tested at the same frequency under the IST Augmented Testing Program. Under this program, the valves are set at a nominal setpoint of 1540 psig ± 1%. Since the maximum nominal SLC system pressure based on test data is determined to be 1419 psig, a margin of 121 psi is available between this calculated pressure and the relief valve nominal setpoint. This 121 psi margin allows for pump ripple and setpoint drift as opposed to only 70 psi which in the past has been added as a margin to obtain the current Technical Specification minimum limit of 1450 psig from the original calculated maximum SLC system pressure of 1380 psig to account for the same reasons. Although the SLC calculated maximum system pressure has increased from 1380 psig to 1419 psig based on test data by setting the SLC relief valve at a nominal setpoint of 1540 psig ± 1%, an increase in the margin will be achieved since consistent methodology has been applied in both cases.

3.0 <u>Conclusion</u>

The District has evaluated the proposed changes described above against the criteria of 10 CFR 50.92 in accordance with the requirements of 10 CFR 50.91 (a) (1). This evaluation has determined that the proposed change to Technical Specifications will not (1) involve a significant increase in the

probability or consequences of an accident previously evaluated, (2) create the possibility for a new or different kind of accident from any accident previously evaluated, or (3) create a significant reduction in the margin of safety. Therefore, the District requests NRC approval of this proposed change.

3.4 STANDBY LIQUID CONTROL SYSTEM

Applicability:

Applies to the operating status of the Standby Liquid Control (SLC) System.

Objective:

To assure the OPERABILITY of a system with the capability to SHUTDOWN the reactor and maintain the SHUTDOWN condition without the use of control rods.

Specification:

A. Normal System Operation

1. During periods when fuel is in the reactor and prior to startup from a Cold Condition, the Standby Liquid Control System shall be operable, except as specified in 3.4.B below. This system need not be operable when the reactor is in the Cold Condition and all control rods are fully inserted and Specification 3.3.A is met.

4.4 STANDBY LIQUID CONTROL SYSTEM

Applicability:

Applies to the surveillance requirements of the Standby Liquid Control (SLC) System.

Objective:

To verify the OPERABILITY of the SLC System.

Specification:

A. Normal System Operation

The OPERABILITY of the SLC System shall be shown by the performance of the following tests:

1. At least once each 3 months each subsystem shall be tested for OPERABILITY by recirculating demineralized water to the test tank and verifying each pump develops a flow rate ≥ 38.2 gpm at a discharge pressure ≥ 1300 psig.

2. At least once during each OPERATING CYCLE:

a. ~~Check that the settings of the subsystem relief valves are 1450 ≤ P ≤ 1680 psig and the valves will reset at P ≥ 1300 psig.~~ [Deleted]

b. Manually initiate the system, except explosive valves, and pump boron solution from the SLC Storage Tank through the recirculation path. Verify each pump develops a flow rate ≥ 38.2 gpm at a discharge pressure ≥ 1300 psig. After pumping boron solution the system will be flushed with demineralized water.

3.4 BASES

STANDBY LIQUID CONTROL SYSTEM

A. The Standby Liquid Control (SLC) System consists of two, distinct subsystems, each containing one positive displacement pump and independent suction from the SLC storage tank, and discharge to a common injection header through parallel explosive valves. The purpose of the SLC System is to provide the capability of bringing the reactor from RATED POWER to a cold, xenon-free SHUTDOWN CONDITION assuming that none of the withdrawn control rods can be inserted. To meet this objective, the system is designed to inject a quantity of boron that produces a concentration of 660 ppm of boron in the reactor pressure vessel in less than 125 minutes. The 660 ppm concentration in the reactor pressure vessel is required to bring the reactor from RATED POWER to a 3.0 percent Δk subcritical condition, considering the hot to cold reactivity difference, xenon poisoning, etc. The time requirement for inserting the boron solution was selected to override the rate of reactivity insertion caused by cooldown of the reactor following the xenon poison peak.

The conditions under which the SLC System must provide shutdown capability are identified in Limiting Conditions for Operation. If no more than one OPERABLE control rod is withdrawn, the basic shutdown reactivity requirement for the core is satisfied and the SLC System is not required. Thus, the basic reactivity requirement for the core is the primary determinant of when the SLC System is required.

~~The minimum limitation on the relief valve setting is intended to prevent the recycling of liquid control solution via the lifting of a relief valve at too low a pressure. The upper limit on the relief valve setting provides system protection from overpressure.~~

B. Only one of the two SLC subsystems is needed for operating the system. One inoperable subsystem does not immediately threaten shutdown capability, and reactor operation can continue while the inoperable subsystem is being repaired. The seven day completion time is based on the availability of an OPERABLE subsystem capable of performing the intended SLC system function and the low probability of a Design Basis Accident (DBA) or severe transient occurring concurrent with the failure of the Control Rod Drive (CRD) system to shut down the plant.

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Specification:

A. Normal System Operation

1. During periods when fuel is in the reactor and prior to startup from a Cold Condition, the Standby Liquid Control System shall be operable, except as specified in 3.4.B below. This system need not be operable when the reactor is in the Cold Condition and all control rods are fully inserted and Specification 3.3.A is met.

4.4 STANDBY LIQUID CONTROL SYSTEM

Applicability:

Applies to the surveillance requirements of the Standby Liquid Control (SLC) System.

Objective:

To verify the OPERABILITY of the SLC System.

Specification:

A. Normal System Operation

The OPERABILITY of the SLC System shall be shown by the performance of the following tests:

1. At least once each 3 months each subsystem shall be tested for OPERABILITY by recirculating demineralized water to the test tank and verifying each pump develops a flow rate þ 38.2 gpm at a discharge pressure þ 1300 psig.

2. At least once during each OPERATING CYCLE:

a. Manually initiate the system, except explosive valves, and pump boron solution from the SLC Storage Tank through the recirculation path. Verify each pump develops a flow rate þ 38.2 gpm at a discharge pressure þ 1300 psig. After pumping boron solution the system will be flushed with demineralized water.

3.4 BASES

STANDBY LIQUID CONTROL SYSTEM

A. The Standby Liquid Control (SLC) System consists of two, distinct subsystems, each containing one positive displacement pump and independent suction from the SLC storage tank, and discharge to a common injection header through parallel explosive valves. The purpose of the SLC System is to provide the capability of bringing the reactor from RATED POWER to a cold, xenon-free SHUTDOWN CONDITION assuming that none of the withdrawn control rods can be inserted. To meet this objective, the system is designed to inject a quantity of boron that produces a concentration of 660 ppm of boron in the reactor pressure vessel in less than 125 minutes. The 660 ppm concentration in the reactor pressure vessel is required to bring the reactor from RATED POWER to a 3.0 percent Δk subcritical condition, considering the hot to cold reactivity difference, xenon poisoning, etc. The time requirement for inserting the boron solution was selected to override the rate of reactivity insertion caused by cooldown of the reactor following the xenon poison peak.

The conditions under which the SLC System must provide shutdown capability are identified in Limiting Conditions for Operation. If no more than one OPERABLE control rod is withdrawn, the basic shutdown reactivity requirement for the core is satisfied and the SLC System is not required. Thus, the basic reactivity requirement for the core is the primary determinant of when the SLC System is required.

B. Only one of the two SLC subsystems is needed for operating the system. One inoperable subsystem does not immediately threaten shutdown capability, and reactor operation can continue while the inoperable subsystem is being repaired. The seven day completion time is based on the availability of an OPERABLE subsystem capable of performing the intended SLC system function and the low probability of a Design Basis Accident (DBA) or severe transient occurring concurrent with the failure of the Control Rod Drive (CRD) system to shut down the plant.

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The following table identifies those actions committed to by the District in this document. Any other actions discussed in the submittal represent intended or planned actions by the District. They are described to the NRC for the NRC's information and are not regulatory commitments. Please notify the Licensing Manager at Cooper Nuclear Station of any questions regarding this document or any associated regulatory commitments.

COMMITMENT	COMMITTED DATE OR OUTAGE
None	