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U. S. Nuclear Regulatory Commission
Washington, D. C. 20555

Attention: Document Control Desk

Subject: Oconee Nuclear Station
Docket Numbers 50-269, 270, and 287
Technical Specification Bases (TSB) Change

Please see attached revisions to Tech Spec Bases 3.3.15, Turbine Stop Valves, which were implemented on March 11, 2004.

Attachment 1 contains the new TSB pages and Attachment 2 contains the marked up version of the Bases pages.

If any additional information is needed, please contact Graham Davenport, at 864-885-3044.

Very truly yours,

R. A. Jones, Vice President
Oconee Nuclear Site

A001

cc: Mr. L. N. Olshan
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Attachment 1

B 3.3 INSTRUMENTATION

B 3.3.15 Turbine Stop Valve (TSV) Closure

BASES

BACKGROUND

The Turbine Stop Valves (TSV) Closure function partially isolates the main steam lines from the SGs by closing the TSVs on both main steam lines following a turbine or reactor trip signal.

Two TSVs are provided for each main steam line and are located outside of containment. The TSVs are downstream from the main steam safety valves (MSSVs) and emergency feedwater pump turbine's steam supply to prevent the MSSVs and EFW pump's steam supply from being isolated from the steam generators by TSV closure. Closing the TSVs partially isolates each steam generator from the other, and isolates the turbine from the steam generators.

TSV Closure is initiated by a reactor trip. To keep from rapidly cooling down the primary plant by drawing off too much steam, the turbine is tripped when the reactor trips. Two independent and redundant "Reactor Trip Confirmed" signals in the form of contact closures from the control rod drive system will energize two independent turbine trip mechanisms. The Channel A and B trip circuits will close all four TSVs within a maximum of 1 second.

TSV Closure Channel A consists of contacts from the Reactor Trip Confirm (RTC) B circuit which provide the Electro-Hydraulic Control (EHC) system an indication that the reactor has tripped. The EHC system responds to this reactor trip signal by de-energizing both of the Master Trip Solenoid Valves (MTSV). De-energizing both MTSV closes the TSV.

TSV Closure Channel B consists of contacts from the RTC A circuit in series with the coils of the Fast Acting Solenoid Valves (FASV) on the TSV. A reactor trip signal in this channel energizes the FASV which closes the TSV.

APPLICABLE SAFETY ANALYSES

The design basis of the TSV Closure function is established by the analysis for the main steam line break (MSLB) as discussed in the UFSAR, Section 15.13 (Ref. 1). TSV closure is necessary to stop steam flow to the turbine (to prevent overcooling) following all reactor trips.

The accident analysis compares several different MSLB events. The MSLB outside containment upstream of the TSV is limiting for offsite dose, although a break in this section of main steam header has a very low

BASES

APPLICABLE SAFETY ANALYSES (continued)

probability. The MSLB with ICS low level control and without operator action prior to ten minutes is the limiting case for a post-trip return to power. The analysis includes scenarios with offsite power available and with a loss of offsite power following turbine trip. With offsite power available, the reactor coolant pumps continue to circulate coolant through the steam generators, maximizing the Reactor Coolant System (RCS) cooldown. With a loss of offsite power, the response of mitigating systems, such as the High Pressure Injection (HPI) System pumps, is delayed.

The TSVs remain open during power operation. These valves close upon a reactor trip.

a. For an HELB or an MSLB inside containment, steam is discharged into containment from both steam generators until closure of the TSVs. After TSV closure, steam is discharged into containment only from the affected steam generator.

b. An MSLB outside of containment and upstream from the TSVs is not a containment pressurization concern. The uncontrolled blowdown of both steam generators must be prevented to limit the potential for uncontrolled RCS cooldown and positive reactivity addition. Closure of the TSVs isolates the break and limits the blowdown to a single steam generator.

c. An event such as increased steam flow through the turbine will terminate on closing the TSVs.

d. Following a steam generator tube rupture, closure of the TSVs isolates the ruptured steam generator from the intact steam generator.

The TSV Closure function satisfies Criterion 3 of 10 CFR 50.36 (Ref. 2).

LCO

Two TSV Closure channels are required to be OPERABLE.

This LCO provides assurance that the TSVs will perform their design safety function to mitigate the consequences of accidents that could result in offsite exposures comparable to the 10 CFR 100 limits (Ref. 3). Since the MTSV are normally energized and are de-energized to close the TSV, a failure that places a MTSV in the tripped state is considered OPERABLE in regards to TSV closure channel A. Since the FASV are normally de-energized and are energized to close the TSV, a failed FASV detected by the coil monitor circuit places the TSV Closure Channel B in an inoperable condition.

BASES (continued)

APPLICABILITY

Both TSV Closure channels must be OPERABLE in MODES 1, 2 and 3 with any TSVs open. In these conditions when there is significant mass and energy in the RCS and steam generators, the TSV Closure function must be OPERABLE or the TSVs closed. When the TSVs are closed, they are already performing the safety function.

In MODE 4, the steam generator energy is low. Therefore, the TSV Closure channels are not required to be OPERABLE. In MODES 5 and 6, the steam generators do not contain a significant amount of energy because their temperature is below the boiling point of water; therefore, the TSV Closure channels are not required for isolation of potential high energy secondary system pipe breaks in these MODES

ACTIONS

A.1

With one or more TSV Closure channels inoperable, all TSVs must be declared inoperable. A Completion Time of 1 hour is provided to return the TSV Closure channels to OPERABLE status. The 1 hour Completion Time is sufficient time to correct minor problems.

SURVEILLANCE REQUIREMENTS

SR 3.3.15.1

This SR requires the performance of a CHANNEL FUNCTIONAL TEST to ensure that the channels can perform their intended function. This test verifies the TSV Closure automatic actuation channels are functional. This test simulates the required inputs to the logic circuit and verifies successful operation of the automatic actuation logic channels. The test need not include actuation of the end device. This is due to the risk of a unit transient caused by the closure of TSVs during testing at power. The Frequency of 31 days is based on engineering judgment and operating experience, which determined the interval provided adequate confidence that the TSV Closure channels are available to perform their safety function, while the risks of testing at operation are avoided.

REFERENCES

1. UFSAR, Section 15.13.

2. 10 CFR 50.36.

3. 10 CFR 100.

Attachment 2

B 3.3 INSTRUMENTATION

B 3.3.15 Turbine Stop Valve (TSV) Closure

BASES

BACKGROUND

The Turbine Stop Valves (TSV) Closure function partially isolates the main steam lines from the SGs by closing the TSVs on both main steam lines following a turbine or reactor trip signal. *

Two TSVs are provided for each main steam line and are located outside of containment. The TSVs are downstream from the main steam safety valves (MSSVs) and emergency feedwater pump turbine's steam supply to prevent the MSSVs and EFW pump's steam supply from being isolated from the steam generators by TSV closure. Closing the TSVs partially isolates each steam generator from the other, and isolates the turbine from the steam generators.

TSV Closure is initiated by a reactor trip. To keep from rapidly cooling ~~down the primary plant~~ by drawing off too much steam, the turbine is tripped when the reactor trips. Two independent and redundant "Reactor Trip Confirmed" signals in the form of contact closures from the control rod drive system will energize two independent turbine trip mechanisms. The Channel A and B trip circuits will close all four TSVs within a maximum of 1 second. ~~The Channel B trip circuit will close the TSVs within a maximum of 15 seconds.~~

Add attached insert #1

APPLICABLE SAFETY ANALYSES

The design basis of the TSV Closure function is established by the analysis for the main steam line break (MSLB) as discussed in the UFSAR, Section 15.13 (Ref. 1). TSV closure is necessary to stop steam flow to the turbine (to prevent overcooling) following all reactor trips.

The accident analysis compares several different MSLB events. The MSLB outside containment upstream of the TSV is limiting for offsite dose, although a break in this section of main steam header has a very low probability. The MSLB with ICS low level control and without operator action prior to ten minutes is the limiting case for a post-trip return to power. * The analysis includes scenarios with offsite power available and with a loss of offsite power following turbine trip. With offsite power available, the reactor coolant pumps continue to circulate coolant through the steam generators, maximizing the Reactor Coolant System (RCS) cooldown. With a loss of offsite power, the response of mitigating systems, such as the High Pressure Injection (HPI) System pumps, is delayed.

BASES

APPLICABLE SAFETY ANALYSES (continued)

The TSVs remain open during power operation. These valves close upon a reactor trip.

a. For an HELB or an MSLB inside containment, steam is discharged into containment from both steam generators until closure of the TSVs. After TSV closure, steam is discharged into containment only from the affected steam generator.

b. An MSLB outside of containment and upstream from the TSVs is not a containment pressurization concern. The uncontrolled blowdown of both steam generators must be prevented to limit the potential for uncontrolled RCS cooldown and positive reactivity addition. Closure of the TSVs isolates the break and limits the blowdown to a single steam generator.

c. An event such as increased steam flow through the turbine will terminate on closing the TSVs.

d. Following a steam generator tube rupture, closure of the TSVs isolates the ruptured steam generator from the intact steam generator.

The TSV Closure function satisfies Criterion 3 of 10 CFR 50.36 (Ref. 2).

LCO

Two TSV Closure channels are required to be OPERABLE.

This LCO provides assurance that the TSVs will perform their design safety function to mitigate the consequences of accidents that could result in offsite exposures comparable to the 10 CFR 100 limits (Ref. 3). ↑ add attached insert #2

APPLICABILITY

Both TSV Closure channels must be OPERABLE in MODES 1, 2 and 3 with any TSVs open. In these conditions when there is significant mass and energy in the RCS and steam generators, the TSV Closure function must be OPERABLE or the TSVs closed. When the TSVs are closed, they are already performing the safety function.

In MODE 4, the steam generator energy is low. Therefore, the TSV Closure channels are not required to be OPERABLE. In MODES 5 and 6, the steam generators do not contain a significant amount of energy because their temperature is below the boiling point of water; therefore, the TSV Closure channels are not required for isolation of potential high energy secondary system pipe breaks in these MODES.

Insert 1:

TSV Closure Channel A consists of contacts from the Reactor Trip Confirm (RTC) B circuit which provide the Electro-Hydraulic Control (EHC) system an indication that the reactor has tripped. The EHC system responds to this reactor trip signal by de-energizing both of the Master Trip Solenoid Valves (MTSV). De-energizing both MTSV closes the TSV.

TSV Closure Channel B consists of contacts from the RTC A circuit in series with the coils of the Fast Acting Solenoid Valves (FASV) on the TSV. A reactor trip signal in this channel energizes the FASV which closes the TSV.

Insert 2:

Since the MTSV are normally energized and are de-energized to close the TSV, a failure that places a MTSV in the tripped state is considered operable in regards to TSV Closure Channel A. Since the FASV are normally de-energized and are energized to close the TSV, a failed FASV detected by the coil monitor circuit places the TSV Closure Channel B in an inoperable condition.