



T. PRESTON GILLESPIE, JR.
Vice President
Oconee Nuclear Station

Duke Energy
ON01VP / 7800 Rochester Hwy.
Seneca, SC 29672

864-873-4478
864-873-4208 fax
T.Gillespie@duke-energy.com

August 29, 2012

U. S. Nuclear Regulatory Commission
Washington, DC 20555

Attention: Document Control Desk

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

On August 1, 2012, Station Management approved a revision to TSB 3.7.1, Main Steam Relief Valves, to clearly document in the Bases that the MSRVs may be considered OPERABLE following maintenance provided testing has been satisfactorily completed to the extent possible and the equipment is not otherwise believed to be incapable of performing its function. This clarifies that operation can proceed to a MODE or other specified condition where other necessary post maintenance tests can be completed.

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

If additional information is needed, please contact Sandra Severance at (864)873-3466.

Sincerely,

T. GILLESPIE

T. Preston Gillespie, Jr.
Vice President
Oconee Nuclear Station

RGJ/rgj
Attachments

U. S. Nuclear Regulatory Commission
August 29, 2012
Page 2

cc: Mr. Victor McCree, Regional Administrator
U.S. Nuclear Regulatory Commission, Region II
Marquis One Tower
245 Peachtree Center Ave., NE, Suite 1200
Atlanta, GA 30303-1257

Mr. John P. Boska, Project Manager
(By electronic mail only)
U. S. Nuclear Regulatory Commission
Office of Nuclear Reactor Regulation
One White Flint North, M/S O-8G9A
11555 Rockville Pike
Rockville, MD 20852

Senior Resident Inspector
Oconee Nuclear Station

Ms. Susan E. Jenkins, Manager
Radioactive & Infectious Waste Management
SC Dept. of Health and Env. Control
2600 Bull St.
Columbia, SC 29201

Attachment #1

Revised TSB

TS Bases revision

Remove Page

B 3.7.1-1

B 3.7.1-2

B 3.7.1-3

Insert Page

B 3.7.1-1

B 3.7.1-2

B 3.7.1-3

B 3.7.1-4

B 3.7 PLANT SYSTEMS

B 3.7.1 Main Steam Relief Valves (MSRVs)

BASES

BACKGROUND The primary purpose of the MSRVs is to provide overpressure protection for the secondary system. The MSRVs also provide protection against overpressurizing the reactor coolant pressure boundary (RCPB) by providing a heat sink for removal of energy from the Reactor Coolant System (RCS) if the preferred heat sink, provided by the Condenser and Circulating Water System, is not available.

Eight MSRVs are located on each main steam header, outside containment as described in the UFSAR, Section 10.3 (Ref. 1). The MSRV rated capacity passes the full steam flow at 114% RTP with the valves full open. This meets the requirements of the ASME Code, Section III (Ref. 2). The MSRV design includes staggered setpoints, (Ref. 1) so that only the needed number of valves will actuate. Staggered setpoints reduce the potential for valve chattering because of insufficient steam pressure to fully open the valves.

APPLICABLE SAFETY ANALYSES The design basis of the MSRVs (Ref. 2) is to limit secondary system pressure to $\leq 110\%$ of design pressure when passing 105% of design steam flow. This design basis is sufficient to cope with any anticipated transient or accident considered in the accident and transient analysis.

The events that challenge the relieving capacity of the MSRVs, and thus RCS pressure, are those characterized as decreased heat removal or increased heat addition events. MSRV relief capacity is utilized in the UFSAR (Ref. 3 and Ref. 4) for mitigation of the following events:

- a. Loss of main feedwater;
- b. Steam line break;
- c. Steam generator tube rupture;
- d. Rod withdrawal at rated power; and
- e. Loss of Electric Load.

BASES

APPLICABLE
SAFETY ANALYSIS
(continued)

The MSRVs satisfy Criterion 3 of 10 CFR 50.36, (Ref. 5).

LCO

The MSRVs are provided to prevent overpressurization as discussed in the Applicable Safety Analysis section of these Bases. The LCO requires sixteen MSRVs, eight on each main steam line, to be OPERABLE to ensure compliance with the ASME Code following accidents and transients initiated at full power. Operation with less than a full complement of MSRVs is not permitted. To be OPERABLE, lift setpoints must remain within limits, specified in the UFSAR.

The safety function of the MSRVs is to open, relieve steam generator overpressure, and reseal when pressure has been reduced.

OPERABILITY of the MSRVs requires periodic surveillance testing in accordance with the Inservice Testing Program.

The lift settings correspond to ambient conditions of the valve at nominal operating temperature and pressure.

This LCO provides assurance that the MSRVs will perform the design safety function.

APPLICABILITY

In MODES 1, 2, and 3, the MSRVs must be OPERABLE to prevent overpressurization of the main steam system.

In MODES 4 and 5, there is no credible transient requiring the MSRVs.

The steam generators are not normally used for heat removal in MODES 5 and 6, and thus cannot be overpressurized. There is no requirement for the MSRVs to be OPERABLE in these MODES.

ACTIONS

A.1 and A.2

With one or more MSRVs inoperable, the unit must be placed in a MODE in which the LCO does not apply. To achieve this status, the unit must be placed in at least MODE 3 within 12 hours, and in MODE 4 within 18 hours. The allowed Completion Times are reasonable, based on operating experience, to reach the required unit conditions from full power conditions in an orderly manner and without challenging unit systems.

BASES (continued)

SURVEILLANCE
REQUIREMENTS

SR 3.7.1.1

This SR verifies the OPERABILITY of the MSRVs by the verification of MSRv lift setpoints in accordance with the Inservice Testing Program. The safety and relief valve tests are performed in accordance with ANSI/ASME Code (Ref. 6) and include the following for MSRVs:

- a. Visual examination;
- b. Seat tightness determination;
- c. Setpoint pressure determination (lift setting);
- d. Compliance with owner's seat tightness criteria; and
- e. Verification of the balancing device integrity on balanced valves.

The ANSI/ASME Standard requires the testing of all valves every 5 years, with a minimum of 20% of the valves tested every 24 months.

This SR is modified by a Note that states the surveillance is only required to be performed in MODES 1 and 2. This note allows entry into and operation in MODE 3 prior to performing the SR, provided there is no evidence that the equipment is otherwise believed to be incapable of performing its function. Also, the guidance in the TS Bases for SR 3.0.1 states that equipment may be considered OPERABLE following maintenance provided testing has been satisfactorily completed to the extent possible and the equipment is not otherwise believed to be incapable of performing its function. This allows operation to proceed to a MODE or other specified condition where other necessary post maintenance tests can be completed.

For example, the mode change provisions described above specifically applies to scenarios where maintenance on MSRVs is performed below the mode of applicability for LCO 3.7.1, testing has been satisfactorily completed to the extent possible, and the equipment is believed capable of performing its function. The mode change provisions permit entry into Mode 3 in order to test and adjust the set pressure, as necessary, to satisfy SR 3.7.1.1 prior to entry into Mode 2.

The MSRVs may be either bench tested or tested in situ at hot conditions using an assist device to simulate lift pressure. If the MSRVs are not tested at hot conditions, the lift setting pressure must be corrected to ambient conditions of the valve at operating temperature and pressure.

BASES (continued)

- REFERENCES
1. UFSAR, Section 10.3.
 2. ASME, Boiler and Pressure Vessel Code, Section III, Article NC-7000, Class 2 Components.
 3. UFSAR, Chapter 15.
 4. UFSAR, Section 10.3.3.
 5. 10 CFR 50.36.
 6. ANSI/ASME Boiler And Pressure Vessel Code, Section XI.
-

Attachment #2

Markup of current TSB

B 3.7 PLANT SYSTEMS

B 3.7.1 Main Steam Relief Valves (MSRVs)

BASES

BACKGROUND The primary purpose of the MSRVs is to provide overpressure protection for the secondary system. The MSRVs also provide protection against overpressurizing the reactor coolant pressure boundary (RCPB) by providing a heat sink for removal of energy from the Reactor Coolant System (RCS) if the preferred heat sink, provided by the Condenser and Circulating Water System, is not available.

Eight MSRVs are located on each main steam header, outside containment as described in the UFSAR, Section 10.3 (Ref. 1). The MSRV rated capacity passes the full steam flow at 114% RTP with the valves full open. This meets the requirements of the ASME Code, Section III (Ref. 2). The MSRV design includes staggered setpoints, (Ref. 1) so that only the needed number of valves will actuate. Staggered setpoints reduce the potential for valve chattering because of insufficient steam pressure to fully open the valves.

APPLICABLE SAFETY ANALYSES The design basis of the MSRVs (Ref. 2) is to limit secondary system pressure to $\leq 110\%$ of design pressure when passing 105% of design steam flow. This design basis is sufficient to cope with any anticipated transient or accident considered in the accident and transient analysis.

The events that challenge the relieving capacity of the MSRVs, and thus RCS pressure, are those characterized as decreased heat removal or increased heat addition events. MSRV relief capacity is utilized in the UFSAR (Ref. 3 and Ref. 4) for mitigation of the following events:

- a. Loss of main feedwater;
- b. Steam line break;
- c. Steam generator tube rupture;
- d. Rod withdrawal at rated power; and
- e. Loss of Electric Load.

BASES

APPLICABLE
SAFETY ANALYSIS
(continued)

The MSRVs satisfy Criterion 3 of 10 CFR 50.36, (Ref. 5).

LCO

The MSRVs are provided to prevent overpressurization as discussed in the Applicable Safety Analysis section of these Bases. The LCO requires sixteen MSRVs, eight on each main steam line, to be OPERABLE to ensure compliance with the ASME Code following accidents and transients initiated at full power. Operation with less than a full complement of MSRVs is not permitted. To be OPERABLE, lift setpoints must remain within limits, specified in the UFSAR.

The safety function of the MSRVs is to open, relieve steam generator overpressure, and reseal when pressure has been reduced.

OPERABILITY of the MSRVs requires periodic surveillance testing in accordance with the Inservice Testing Program.

The lift settings correspond to ambient conditions of the valve at nominal operating temperature and pressure.

This LCO provides assurance that the MSRVs will perform the design safety function.

APPLICABILITY

In MODES 1, 2, and 3, the MSRVs must be OPERABLE to prevent overpressurization of the main steam system.

In MODES 4 and 5, there is no credible transient requiring the MSRVs.

The steam generators are not normally used for heat removal in MODES 5 and 6, and thus cannot be overpressurized. There is no requirement for the MSRVs to be OPERABLE in these MODES.

ACTIONS

A.1 and A.2

With one or more MSRVs inoperable, the unit must be placed in a MODE in which the LCO does not apply. To achieve this status, the unit must be placed in at least MODE 3 within 12 hours, and in MODE 4 within 18 hours. The allowed Completion Times are reasonable, based on operating experience, to reach the required unit conditions from full power conditions in an orderly manner and without challenging unit systems.

BASES (continued)

SURVEILLANCE
REQUIREMENTS

SR 3.7.1.1

This SR verifies the OPERABILITY of the MSRVs by the verification of MSRV lift setpoints in accordance with the Inservice Testing Program. The safety and relief valve tests are performed in accordance with ANSI/ASME Code (Ref. 6) and include the following for MSRVs:

- a. Visual examination;
- b. Seat tightness determination;
- c. Setpoint pressure determination (lift setting);
- d. Compliance with owner's seat tightness criteria; and
- e. Verification of the balancing device integrity on balanced valves.

Insert A

The ANSI/ASME Standard requires the testing of all valves every 5 years, with a minimum of 20% of the valves tested every 24 months.

~~This SR is modified by a Note that allows entry into and operation in MODE 3 prior to performing the SR.~~ The MSRVs may be either bench tested or tested in situ at hot conditions using an assist device to simulate lift pressure. If the MSRVs are not tested at hot conditions, the lift setting pressure must be corrected to ambient conditions of the valve at operating temperature and pressure.

REFERENCES

1. UFSAR, Section 10.3.
2. ASME, Boiler and Pressure Vessel Code, Section III, Article NC-7000, Class 2 Components.
3. UFSAR, Chapter 15.
4. UFSAR, Section 10.3.3.
5. 10 CFR 50.36.
6. ANSI/ASME Boiler And Pressure Vessel Code, Section XI.

INSERT A:

This SR is modified by a Note that states the surveillance is only required to be performed in MODES 1 and 2. This note allows entry into and operation in MODE 3 prior to performing the SR, provided there is no evidence that the equipment is otherwise believed to be incapable of performing its function. Also, the guidance in the TS Bases for SR 3.0.1 states that equipment may be considered OPERABLE following maintenance provided testing has been satisfactorily completed to the extent possible and the equipment is not otherwise believed to be incapable of performing its function. This will allow operation to proceed to a MODE or other specified condition where other necessary post maintenance tests can be completed.

For example, the mode change provisions described above will specifically apply to scenarios where maintenance on MSRVs is performed below the mode of applicability for LCO 3.7.1, testing has been satisfactorily completed to the extent possible, and the equipment is believed capable of performing its function. The mode change provisions permit entry into Mode 3 in order to test and adjust the set pressure, as necessary, to satisfy SR 3.7.1.1 prior to entry into Mode 2.