

3.4 REACTOR COOLANT SYSTEM (RCS)

3.4.3 RCS Pressure and Temperature (P/T) Limits

LCO 3.4.3 With the reactor vessel head bolts tensioned*, the Reactor Coolant System (except the pressurizer) temperature and pressure shall be limited in accordance with the limit lines shown on Figures 3.4.3-1, 3.4.3-2, 3.4.3-3, 3.4.3-4, 3.4.3-5, and Table 3.4.3-1 during heatup, cooldown, and inservice leak and hydrostatic testing with:

- a. A maximum heatup of 60°F in any 1-hour period with RCS cold leg temperature greater than or equal to 86°F.
- b. A maximum cooldown as specified by Figure 3.4.3-3 in any 1-hour period with RCS cold leg temperature less than or equal to 160°F. A maximum cooldown of 100°F in any 1-hour period with RCS cold leg temperature greater than 160°F.
- c. A maximum temperature change of 10°F in any 1-hour period during inservice hydrostatic and leak testing operations above the heatup and cooldown limit curves.
- d. A minimum temperature of 86°F to tension reactor vessel head bolts.

With the reactor vessel head bolts detensioned, the Reactor Coolant System (except the pressurizer) temperature shall be limited to a maximum heatup or cooldown of 60°F in any 1-hour period.

*With the reactor vessel head bolts detensioned, RCS cold leg temperature may be less than 86°F.

APPLICABILITY: At all times.

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
<p>A. -----NOTE----- Required Action A.2 shall be completed whenever this Condition is entered. ----- Requirements of LCO not met in MODE 1, 2, 3, or 4.</p>	<p>A.1 Restore parameter(s) to within limits. <u>AND</u> A.2 Determine RCS is acceptable for continued operation.</p>	<p>30 minutes 72 hours</p>
<p>B. Required Action and associated Completion Time of Condition A not met.</p>	<p>B.1 Be in MODE 3. <u>AND</u> B.2 Be in MODE 5 with RCS pressure < 500 psia.</p>	<p>6 hours 36 hours</p>
<p>C. -----NOTE----- Required Action C.2 shall be completed whenever this Condition is entered. ----- Requirements of LCO not met any time in other than MODE 1, 2, 3, or 4.</p>	<p>C.1 Initiate action to restore parameter(s) to within limits. <u>AND</u> C.2 Determine RCS is acceptable for continued operation.</p>	<p>Immediately Prior to entering MODE 4</p>

SURVEILLANCE REQUIREMENTS

SURVEILLANCE	FREQUENCY
<p>SR 3.4.3.1 -----NOTE----- Only required to be performed during RCS heatup and cooldown operations and RCS inservice leak and hydrostatic testing. -----</p> <p>Verify RCS pressure, RCS temperature, and RCS heatup and cooldown rates within limits specified in Figure 3.4.3-1, Figure 3.4.3-2, Figure 3.4.3-3, Figure 3.4.3-4, Figure 3.4.3-5, and Table 3.4.3-1.</p>	<p>30 minutes</p>
<p>SR 3.4.3.2 The reactor vessel material irradiation surveillance specimens shall be removed and examined, to determine changes in material properties, as required by 10 CFR 50 Appendix H. The results of these examinations shall be used to update Figures 3.4.3-1 through 3.4.3-5. Recalculate the Adjusted Reference Temperature in accordance with Regulatory Guide 1.99, Revision 2, "Radiation Embrittlement of Reactor Vessel Materials," May 1988.</p>	<p>In accordance with requirements of 10CFR 50 Appendix H</p>

BASES

SURVEILLANCE
REQUIREMENTS
(continued)

SR 3.4.3.2

This SR verifies that the reactor vessel material irradiation surveillance specimens will be removed and examined, to determine changes in material properties, as required by 10 CFR 50 Appendix H. The results of these examinations will be used to update Figures 3.4.3-1 through 3.4.3-5. Also, the Adjusted Reference Temperature will be recalculated in accordance with Regulatory Guide 1.99, Revision 2, "Radiation Embrittlement of Reactor Vessel Materials," May 1988.

REFERENCES

1. Deleted.
 2. 10 CFR 50, Appendix G.
 3. ASME, Boiler and Pressure Vessel Code, Section III, Appendix G.
 4. ASTM E185-73.
 5. 10 CFR 50, Appendix H.
 6. ASME, Boiler and Pressure Vessel Code, Section XI, Appendix E.
 7. UFSAR, Chapter 5.
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Table 3.7.1-2 (page 1 of 1)
Main Steam Safety Valves (Lift Settings)

VALVE NUMBER		LIFT SETTING*
Steam Generator #1	Steam Generator #2	(psig)
2PSV-8401	2PSV-8410	1085**
2PSV-8402	2PSV-8411	1092
2PSV-8403	2PSV-8412	1099
2PSV-8404	2PSV-8413	1106
2PSV-8405	2PSV-8414	1113
2PSV-8406	2PSV-8415	1120
2PSV-8407	2PSV-8416	1127
2PSV-8408	2PSV-8417	1134
2PSV-8409	2PSV-8418	1140

- * The lift setting pressure shall correspond to ambient conditions of the valve at nominal operating temperature and pressure. Each MSSV has an as-found tolerance of +2%/-3%. Following testing according to LCO 5.5.2.10, MSSVs will be set within +/-1% of the specified lift setpoint.
- ** Valves 2PSV-8401 and 2PSV-8410 have an as-found lift setting of 1085 psig with a tolerance of +1%/-3%.

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- a. A maximum heatup of 60°F in any 1-hour period with RCS cold leg temperature greater than or equal to 86°F.
- b. A maximum cooldown as specified by Figure 3.4.3-3 in any 1-hour period with RCS cold leg temperature less than or equal to 147°F. A maximum cooldown of 100°F in any 1-hour period with RCS cold leg temperature greater than 147°F.
- c. A maximum temperature change of 10°F in any 1-hour period during inservice hydrostatic and leak testing operations above the heatup and cooldown limit curves.
- d. A minimum temperature of 86°F to tension reactor vessel head bolts.

With the reactor vessel head bolts detensioned, the Reactor Coolant System (except the pressurizer) temperature shall be limited to a maximum heatup or cooldown of 60°F in any 1-hour period.

*With the reactor vessel head bolts detensioned, RCS cold leg temperature may be less than 86°F.

APPLICABILITY: At all times.

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
<p>A. -----NOTE----- Required Action A.2 shall be completed whenever this Condition is entered. ----- Requirements of LCO not met in MODE 1, 2, 3, or 4.</p>	<p>A.1 Restore parameter(s) to within limits. <u>AND</u> A.2 Determine RCS is acceptable for continued operation.</p>	<p>30 minutes 72 hours</p>
<p>B. Required Action and associated Completion Time of Condition A not met.</p>	<p>B.1 Be in MODE 3. <u>AND</u> B.2 Be in MODE 5 with RCS pressure < 500 psia.</p>	<p>6 hours 36 hours</p>
<p>C. -----NOTE----- Required Action C.2 shall be completed whenever this Condition is entered. ----- Requirements of LCO not met any time in other than MODE 1, 2, 3, or 4.</p>	<p>C.1 Initiate action to restore parameter(s) to within limits. <u>AND</u> C.2 Determine RCS is acceptable for continued operation.</p>	<p>Immediately Prior to entering MODE 4</p>

SURVEILLANCE REQUIREMENTS

SURVEILLANCE	FREQUENCY
<p>SR 3.4.3.1 -----NOTE----- Only required to be performed during RCS heatup and cooldown operations and RCS inservice leak and hydrostatic testing. -----</p> <p>Verify RCS pressure, RCS temperature, and RCS heatup and cooldown rates within limits specified in Figure 3.4.3-1, Figure 3.4.3-2, Figure 3.4.3-3, Figure 3.4.3-4, Figure 3.4.3-5, and Table 3.4.3-1.</p>	<p>30 minutes</p>
<p>SR 3.4.3.2 The reactor vessel material irradiation surveillance specimens shall be removed and examined, to determine changes in material properties, as required by 10 CFR 50 Appendix H. The results of these examinations shall be used to update Figures 3.4.3-1 through 3.4.3-5. Recalculate the Adjusted Reference Temperature in accordance with Regulatory Guide 1.99, Revision 2, "Radiation Embrittlement of Reactor Vessel Materials," May 1988.</p>	<p>In accordance with requirements of 10CFR 50 Appendix H</p>

BASES

SURVEILLANCE
REQUIREMENTS
(continued)

SR 3.4.3.2

This SR verifies that the reactor vessel material irradiation surveillance specimens will be removed and examined, to determine changes in material properties, as required by 10 CFR 50 Appendix H. The results of these examinations will be used to update Figures 3.4.3-1 through 3.4.3-5. Also, the Adjusted Reference Temperature will be recalculated in accordance with Regulatory Guide 1.99, Revision 2, "Radiation Embrittlement of Reactor Vessel Materials," May 1988.

REFERENCES

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