

Docket No. 50-423
B16532

Attachment 2

Millstone Nuclear Power Station Unit No. 3
Proposed Revision to Technical Specification
Demineralized Water Storage Tank
(PTSCR 3-18-97)
Marked Up Pages

June 1997

9706240100 970619
PDR ADOCK 0500C423
P PDR

MARKUP OF PROPOSED REVISION

Refer to the attached markup of the proposed revision to the Technical Specifications. The attached markup reflects the currently issued version of the Technical Specifications listed below. Pending Technical Specification revisions or Technical Specification revisions issued subsequent to this submittal are not reflected in the enclosed markup.

The following Technical Specification changes are included in the attached markup:

- The specification is reworded for clarity.

3.7.1.3

- The surveillance requirement is reworded for clarity.

4.7.1.3.1

- The required volume of water is increased when the CST is used with the DWST to supply the Auxiliary Feedwater System.

4.7.1.3.2

- The Bases Section is reworded and expanded.

B3/4.7.1.2 B3/4.7.1.3

PLANT SYSTEMS

JAN 31 1986

DEMINERALIZED WATER STORAGE TANK

LIMITING CONDITION FOR OPERATION

3.7.1.3 The demineralized water storage tank (DWST) shall be OPERABLE with a contained water volume of at least 334,000 gallons of water.

APPLICABILITY: MODES 1, 2, and 3.

ACTION:

With the DWST inoperable, within 4 hours either:

- a. Restore the DWST to OPERABLE status or be in at least HOT STANDBY within the next 6 hours and in HOT SHUTDOWN within the following 6 hours, or
- b. Demonstrate the OPERABILITY of the condensate storage tank (CST) as a backup supply to the auxiliary feedwater pumps and restore the DWST to OPERABLE status within 7 days or be in at least HOT STANDBY within the next 6 hours and in HOT SHUTDOWN within the following 6 hours.

SURVEILLANCE REQUIREMENTS

4.7.1.3.1 The DWST shall be demonstrated OPERABLE at least once per 12 hours by verifying the contained water volume is within its limits when the tank is the supply source for the auxiliary feedwater pumps.

4.7.1.3.2 The condensate storage tank ^{CST} shall be demonstrated OPERABLE at least once per 12 hours by verifying that the combined volume of both the DWST and CST is at least 334,000 gallons of water whenever the condensate storage tank ^{CST} and DWST are the supply source for the auxiliary feedwater pumps.

→ 334,000

PLANT SYSTEMS

BASES

SAFETY VALVES (Continued)

- w_s = Minimum total steam flow rate capability of the operable MSSVs on any one steam generator at the highest MSSV opening pressure including tolerance and accumulation, as appropriate, in lb/sec. For example, if the maximum number of inoperable MSSVs on any one steam generator is one, then w_s should be a summation of the capacity of the operable MSSVs at the highest operable MSSV operating pressure, excluding the highest capacity MSSV. If the maximum number of inoperable MSSVs per steam generator is three, then w_s should be a summation of the capacity of the operable MSSVs at the highest operable MSSV operating pressure, excluding the three highest capacity MSSVs. The following plant specific safety valve flow rates were used:

SG Safety Valve Number (Bank No.)	Main Steam System	
	Set Pressure (psia)	Flow (lbm/hr per loop)
1	1200	893,160
2	1210	900,607
3	1220	908,055
4	1230	915,502
5	1240	922,950

3/4.7.1.2 AUXILIARY FEEDWATER SYSTEM

✓ INSERT B2

The OPERABILITY of the Auxiliary Feedwater System ensures that the Reactor Coolant System can be cooled down to less than 350°F from normal operating or accident conditions coincident with a total loss-of-offsite power.

The auxiliary feedwater system is capable of delivering a total feedwater flow of 480 gpm at a pressure of 1236 psia to the entrance of at least three steam generators while allowing for (1) any spillage through the design worst-case break of the Normal feedwater line, (2) the design worst-case single failure; and (3) recirculation flow. This capacity is sufficient to ensure that adequate feedwater flow is available to remove decay heat and reduce the Reactor Coolant System temperature to less than 350°F at which point the Residual Heat Removal System may be placed into operation.

Surveillance Requirement 4.7.1.2.1 verifies that each AFW pump's total head at a recirculation flow test point is greater than or equal to the required total head. This surveillance ensures that the AFW pump performance has not degraded during the operating cycle. Because it is undesirable to introduce cold AFW into

Insert B2

The OPERABILITY of the Auxiliary Feedwater (AFW) System ensures a makeup water supply to the steam generators (SGs) to support decay heat removal from the Reactor Coolant System (RCS) upon the loss of normal feedwater supply, assuming the worst case single failure. The AFW System consists of two motor driven AFW pumps and one steam turbine driven AFW pump. Each motor driven AFW pump provides at least 50% of the AFW flow capacity assumed in the accident analysis. After reactor shutdown, decay heat eventually decreases so that one motor driven AFW pump can provide sufficient SG makeup flow. The steam driven AFW pump has a rated capacity approximately double that of a motor driven AFW pump and is thus defined as a 100% capacity pump.

Given the worst case single failure, the AFW System is designed to mitigate the consequences of numerous design basis accidents, including Feedwater Line Break, Loss of Normal Feedwater, Steam Generator Tube Rupture, Main Steam Line Break, and Small Break Loss of Coolant Accident.

In addition, given the worst case failure, the AFW is designed to supply sufficient makeup water to replace SG inventory loss as the RCS is cooled to less than 350°F at which point the Residual Heat Removal System may be placed into operation.

PLANT SYSTEMS

BASES

AUXILIARY FEEDWATER SYSTEM (Continued)

the steam generators while they are operating, this testing is performed with recirculation flow. This test confirms one point on the pump curve and is indicative of overall performance. This test confirms component OPERABILITY is used to trend performance and to detect incipient failures by indicating abnormal performance. The total head specified in Surveillance Requirement 4.7.1.2.1 does not include a margin for test measurement uncertainty. This consideration shall be addressed at the implementing procedure level.

3/4.7.1.3 DEMINERALIZED WATER STORAGE TANK

The OPERABILITY of the demineralized water storage tank with the minimum water volume ensures that sufficient water is available to maintain the RCS at HOT STANDBY conditions for 10 hours with steam discharge to the atmosphere concurrent with total loss-of-offsite power, and with an additional 6-hour cooldown period to reduce reactor coolant temperature to 350°F. The contained water volume limit includes an allowance for water not usable because of tank discharge line location or other physical characteristics.

3/4.7.1.4 SPECIFIC ACTIVITY

← INSERT 1A

The limitations on Secondary Coolant System specific activity ensure that the resultant offsite radiation dose will be limited to a small fraction of 10 CFR Part 100 dose guideline values in the event of a steam line rupture. This dose also includes the effects of a coincident 1 gpm primary-to-secondary tube leak in the steam generator of the affected steam line. These values are consistent with the assumptions used in the safety analyses.

Insert 1A

The OPERABILITY of the demineralized water storage tank (DWST) with a 334,000 gallon minimum measured water volume ensures that sufficient water is available to maintain the reactor coolant system at HOT STANDBY conditions for 10 hours with steam discharge to the atmosphere, concurrent with a total loss-of-offsite power, and with an additional 6-hour cooldown period to reduce reactor coolant temperature to 350°F. The 334,000 gallon required water volume contains an allowance for tank inventory not usable because of tank discharge line location, other tank physical characteristics, and surveillance measurement uncertainty considerations. The inventory requirement is conservatively based on 120°F water temperature which maximizes inventory required to remove RCS decay heat. In the event of a feedline break, this inventory requirement includes an allowance for 30 minutes of spillage before operator action is credited to isolate flow to the line break.

If the combined condensate storage tank (CST) and DWST inventory is being credited, there are 50,000 gallons of unusable CST inventory due to tank discharge line location, other physical characteristics, level measurement uncertainty and potential measurement bias error due to the CST nitrogen blanket. To obtain the Surveillance Requirement 4.7.1.3.2's DWST and CST combined volume, this 50,000 gallons of unusable CST inventory has been added to the 334,000 gallon DWST water volume specified in LCO 3.7.1.3 resulting in a 384,000 gallons requirement ($334,000 + 50,000 = 384,000$ gallons).

Docket No. 50-423
B16532

Attachment 3

Millstone Nuclear Power Station Unit No. 3
Proposed Revision to Technical Specification
Demineralized Water Storage Tank
(PTSCR 3-18-97)
Retyped Pages

June 1997

RETYPE OF PROPOSED REVISION

Refer to the attached retype of the proposed revision to the Technical Specifications. The attached retype reflects the currently issued version of the Technical Specifications. Pending Technical Specification revisions or Technical Specification revisions issued subsequent to this submittal are not reflected in the enclosed retype. The enclosed retype should be checked for continuity with Technical Specifications prior to issuance.

PLANT SYSTEMS

DEMINERALIZED WATER STORAGE TANK

LIMITING CONDITION FOR OPERATION

3.7.1.3 The demineralized water storage tank (DWST) shall be OPERABLE with a water volume of at least 334,000 gallons.

APPLICABILITY: MODES 1, 2, and 3.

ACTION:

With the DWST inoperable, within 4 hours either:

- a. Restore the DWST to OPERABLE status or be in at least HOT STANDBY within the next 6 hours and in HOT SHUTDOWN within the following 6 hours, or
- b. Demonstrate the OPERABILITY of the condensate storage tank (CST) as a backup supply to the auxiliary feedwater pumps and restore the DWST to OPERABLE status within 7 days or be in at least HOT STANDBY within the next 6 hours and in HOT SHUTDOWN within the following 6 hours.

SURVEILLANCE REQUIREMENTS

4.7.1.3.1 The DWST shall be demonstrated OPERABLE at least once per 12 hours by verifying the water volume is within its limits when the tank is the supply source for the auxiliary feedwater pumps.

4.7.1.3.2 The CST shall be demonstrated OPERABLE at least once per 12 hours by verifying that the combined volume of both the DWST and CST is at least 384,000 gallons of water whenever the CST and DWST are the supply source for the auxiliary feedwater pumps.

PLANT SYSTEMS

BASES

SAFETY VALVES (Continued)

w_s = Minimum total steam flow rate capability of the operable MSSVs on any one steam generator at the highest MSSV opening pressure including tolerance and accumulation, as appropriate, in lb/sec. For example, if the maximum number of inoperable MSSVs on any one steam generator is one, then w_s should be a summation of the capacity of the operable MSSVs at the highest operable MSSV operating pressure, excluding the highest capacity MSSV. If the maximum number of inoperable MSSVs per steam generator is three, then w_s should be a summation of the capacity of the operable MSSVs at the highest operable MSSV operating pressure, excluding the three highest capacity MSSVs. The following plant specific safety valve flow rates were used:

SG Safety Valve Number (Bank No.)	Main Steam System	
	Set Pressure (psia)	Flow (lbm/hr per loop)
1	1200	893,160
2	1210	900,607
3	1220	908,055
4	1230	915,502
5	1240	922,950

3/4.7.1.2 AUXILIARY FEEDWATER SYSTEM

The OPERABILITY of the Auxiliary Feedwater (AFW) System ensures a makeup water supply to the steam generators (SGs) to support decay heat removal from the Reactor Coolant System (RCS) upon the loss of normal feedwater supply, assuming the worst case single failure. The AFW System consists of two motor driven AFW pumps and one steam turbine driven AFW pump. Each motor driven AFW pump provides at least 50% of the AFW flow capacity assumed in the accident analysis. After reactor shutdown, decay heat eventually decreases so that one motor driven AFW pump can provide sufficient SG makeup flow. The steam driven AFW pump has a rated capacity approximately double that of a motor driven AFW pump and is thus defined as a 100% capacity pump.

Given the worst case single failure, the AFW System is designed to mitigate the consequences of numerous design basis accidents, including Feedwater Line Break, Loss of Normal Feedwater, Steam Generator Tube Rupture, Main Steam Line Break, and Small Break Loss of Coolant Accident.

PLANT SYSTEMS

BASES

AUXILIARY FEEDWATER SYSTEM (Continued)

In addition, given the worst case failure, the AFW is designed to supply sufficient makeup water to replace SG inventory loss as the RCS is cooled to less than 350°F at which point the Residual Heat Removal System may be placed into operation.

Surveillance Requirement 4.7.1.2.1 verifies that each AFW pump's total head at a recirculation flow test point is greater than or equal to the required total head. This surveillance ensures that the AFW pump performance has not degraded during the operating cycle. Because it is undesirable to introduce cold AFW into the steam generators while they are operating, this testing is performed with recirculation flow. This test confirms one point on the pump curve and is indicative of overall performance. This test confirms component OPERABILITY is used to trend performance and to detect incipient failures by indicating abnormal performance. The total head specified in Surveillance Requirement 4.7.1.2.1 does not include a margin for test measurement uncertainty. This consideration shall be addressed at the implementing procedure level.

3/4.7.1.3 DEMINERALIZED WATER STORAGE TANK

The OPERABILITY of the demineralized water storage tank (DWST) with a 334,000 gallon minimum measured water volume ensures that sufficient water is available to maintain the reactor coolant system at HOT STANDBY conditions for 10 hours with steam discharge to the atmosphere, concurrent with a total loss-of-offsite power, and with an additional 6-hour cooldown period to reduce reactor coolant temperature to 350°F. The 334,000 gallon required water volume contains an allowance for tank inventory not usable because of tank discharge line location, other tank physical characteristics, and surveillance measurement uncertainty considerations. The inventory requirement is conservatively based on 120°F water temperature which maximizes inventory required to remove RCS decay heat. In the event of a feedline break, this inventory requirement includes an allowance for 30 minutes of spillage before operator action is credited to isolate flow to the line break.

If the combined condensate storage tank (CST) and DWST inventory is being credited, there are 50,000 gallons of unusable CST inventory due to tank discharge line location, other physical characteristics, level measurement uncertainty and potential measurement bias error due to the CST nitrogen blanket. To obtain the Surveillance Requirement 4.7.1.3.2's DWST and CST combined volume, this 50,000 gallons of unusable CST inventory has been added to the 334,000 gallon DWST water volume specified in LCO 3.7.1.3 resulting in a 384,000 gallons requirement (334,000 + 50,000 = 384,000 gallons).

PLANT SYSTEMS

BASES

AUXILIARY FEEDWATER SYSTEM (Continued)

3/4.7.1.4 SPECIFIC ACTIVITY

The limitations on Secondary Coolant System specific activity ensure that the resultant offsite radiation dose will be limited to a small fraction of 10 CFR Part 100 dose guideline values in the event of a steam line rupture. This dose also includes the effects of a coincident 1 gpm primary-to-secondary tube leak in the steam generator of the affected steam line. These values are consistent with the assumptions used in the safety analyses.

Docket No. 50-423
B16532

Attachment 4

Millstone Nuclear Power Station Unit No. 3
Proposed Revision to Technical Specification
Demineralized Water Storage Tank
(PTSCR 3-18-97)
Background and Safety Assessment

June 1997

Background

Technical Specification 3/4.7.1.3 requires that sufficient water is available for the Auxiliary Feedwater System to maintain the Reactor Coolant System at Hot Standby conditions for 10 hours with steam discharge to the atmosphere, concurrent with a total loss-of-offsite power, and with an additional 6-hour cool down period to reduce reactor coolant temperature to 350 °F.

Safety Assessment

The proposed change to Technical Specification Surveillance 4.7.1.3.2 will account for the additional unusable inventory when the combined Demineralized Water Storage Tank (DWST) and Condensate Storage Tank (CST) inventory are being credited to provide the inventory for the Auxiliary Feedwater System. The requirement specified in Surveillance 4.7.1.3.2 for combined DWST and CST inventory is being increased by 50,000 gallons from 334,000 gallons to 384,000 gallons, to account for unusable CST volume due to tank discharge line location, other physical characteristics, and measurement uncertainty. Additionally, the associated Bases Section B3/4.7.1.3 is being expanded to better define the bases for 334,000 gallon DWST requirement. Specifically, the bases is being expanded to state that the bases includes an allowance for DWST level measurement uncertainty and a 30 minute spillage due to a feedline break.

The changes to Technical Specification 3/4.7.1.3 and Surveillance 4.7.1.3.1 to eliminate the word "contained" are being proposed because actual contained volume in the tanks may be less than the specified gallons due to level measurement uncertainty.

The proposed changes to Technical Specification 3/4.7.1.3 also includes the rewording of the specification for clarity. Additionally, Bases Section B3/4.7.1.3 is reworded and expanded to improve its description of the specification. These proposed changes are considered administrative changes.

The proposed changes to the AFW System Bases Section B3/4.7.1.2, eliminate a specific AFW flow and steam generator (SG) pressure and expand the bases section. These changes are being done for two reasons:

- The analysis method for Loss of Normal Feedwater (LONF) and Feedline Break (FLB) events is being changed. The previous LONF and FLB analysis was based on a constant AFW flow. A new analysis method is being adopted which uses a graph or table of minimum available steam generator (SG) AFW flow versus SG pressure. Given the SG pressure at any given point in the transient, the computerized transient analysis determines the AFW flow rate based on the

prevailing SG pressure. Therefore, there is no specific AFW flow used in the analysis.

- The Technical Specification bases section is written for the FLB event. However, there are other functional requirements such as LONF and small break LOCA. Therefore, the bases section is being expanded to include these other functional requirements.

Attachment 5

Millstone Nuclear Power Station Unit No. 3
Proposed Revision to Technical Specification
Demineralized Water Storage Tank
(PTSCR 3-18-97)
Significant Hazards Consideration and Environmental Considerations

June 1997

Significant Hazards Consideration

NNECO has reviewed the proposed revision in accordance with 10CFR50.92 and has concluded that the revision does not involve a significant hazards consideration (SHC). The basis for this conclusion is that the three criteria of 10CFR50.92(c) are not satisfied. The proposed revision does not involve an SHC because the revision would not:

1. Involve a significant increase in the probability or consequence of an accident previously evaluated.

The proposed change to Technical Specification Surveillance 4.7.1.3.2 will account for the unusable Condensate Storage Tank (CST) inventory by increasing the required combined CST and Demineralized Water Storage Tank (DWST) inventory to 384,000 gallons. The increased required water volume is consistent with the design of the CST and will provide assurance that sufficient water is available to maintain the reactor coolant system at Hot Standby for 10 hours before cooling down to Hot Shutdown in the next 6 hours.

The proposed changes to reword Technical Specification 3/4.7.1.3, expand the description in Bases Section B3/4.7.1.3 and modify the description in Bases Section B3/4.7.1.2 are to update and clarify the requirements.

Therefore, the proposed revision does not involve a significant increase in the probability or consequence of an accident previously evaluated.

2. Create the possibility of a new or different kind of accident from any accident previously evaluated.

The proposed changes to Technical Specification 3/4.7.1.3 do not change the use of the DWST or CST during normal or accident evaluations.

The proposed changes to reword Technical Specification 3/4.7.1.3, Bases Section B3/4.7.1.3 and Bases Section B3/4.7.1.2 are to update and clarify the requirements.

Therefore, the proposed revision does not create the possibility of a new or different kind of accident from any accident previously evaluated.

3. Involve a significant reduction in a margin of safety.

The proposed change to Technical Specification Surveillance 4.7.1.3.2 will increase the required inventory for the combined CST and DWST to account for an additional 50,000 gallons of unusable inventory due to the CST discharge line location, other physical characteristics, and measurement uncertainty. The proposed change to the surveillance requirement will increase the required

volume of the combined CST and DWST inventory to 384,000 gallons. The proposed change ensures that sufficient water is available to maintain the Reactor Coolant System at Hot Standby conditions for 10 hours with steam discharge to the atmosphere, concurrent with a total loss-of-offsite power, and with an additional 6-hour cool down period to reduce reactor coolant temperature to 350 °F.

The proposed changes to Technical Specification 3/4.7.1.3 and Bases Section 3/4.7.1.3 are to clarify the requirements. The proposed changes to the Bases Section 3/4.7.1.2 update and expands the description of the design bases accidents for which AFW System is credited for accident mitigation. This additional information is consistent with the current AFW System design bases.

Therefore, the proposed revision does not involve a significant reduction in a margin of safety.

In conclusion, based on the information provided, it is determined that the proposed revision does not involve an SHC.

Environmental Considerations

NNECO has reviewed the proposed license amendment against the criteria of 10CFR51.22 for environmental considerations. The proposed revision does not involve an SHC, does not significantly increase the type and amounts of effluents that may be released offsite, nor significantly increase individual or cumulative occupational radiation exposures. Based on the foregoing, NNECO concludes that the proposed revision meets the criteria delineated in 10CFR51.22(c)(9) for categorical exclusion from the requirements of an environmental considerations.