



**Northeast
Nuclear Energy**

Rope Ferry Rd. (Route 156), Waterford, CT 06385

Millstone Nuclear Power Station
Northeast Nuclear Energy Company
P.O. Box 128
Waterford, CT 06385-0128
(860) 447-1791
Fax (860) 444-4277

The Northeast Utilities System

APR 19 2000

Docket No. 50-423
B18093

Re: 10 CFR 50.90

U.S. Nuclear Regulatory Commission
Attention: Document Control Desk
Washington, DC 20555

Millstone Nuclear Power Station, Unit No. 3
Technical Specifications Change Request 3-15-99
Main Steam Line Isolation Valve Testing

Pursuant to 10 CFR 50.90, Northeast Nuclear Energy Company (NNECO) hereby proposes to amend Operating License NPF-49 by incorporating the attached proposed changes into the Technical Specifications of Millstone Unit No. 3. NNECO is proposing to change Technical Specification 3.7.1.5, "Plant Systems - Main Steam Line Isolation Valves." The Bases for this Technical Specification will be modified to address the proposed changes.

The proposed changes will remove the requirement to perform partial stroke testing of the main steam line isolation valves during power operation, modify the Technical Specification wording for clarity, combine two surveillance requirements into one, and modify the associated Bases for consistency.

Attachment 1 provides a discussion of the proposed changes and the Safety Summary. Attachment 2 provides the Significant Hazards Consideration. Attachment 3 provides the marked-up version of the appropriate pages of the current Technical Specifications. Attachment 4 provides the retyped pages of the Technical Specifications.

Environmental Considerations

NNECO has reviewed the proposed License Amendment Request against the criteria of 10 CFR 51.22 for environmental considerations. The proposed changes do not significantly increase the type and amounts of effluents that may be released off site. In addition, this amendment request will not significantly increase individual or cumulative occupational radiation exposures. Therefore, NNECO has determined the proposed changes will not have a significant effect on the quality of the human environment.

Conclusions

The proposed changes do not involve a significant impact on public health and safety (see the Safety Summary provided in Attachment 1) and do not involve a Significant Hazards Consideration pursuant to the provisions of 10 CFR 50.92 (see the Significant Hazards Consideration provided in Attachment 2). In addition, we have concluded the proposed changes are safe.

Plant Operations Review Committee and Nuclear Safety Assessment Board

The Plant Operations Review Committee and Nuclear Safety Assessment Board have reviewed and concurred with the determinations.

Schedule

We request issuance of this amendment for Millstone Unit No. 3 prior to September 30, 2000, with the amendment to be implemented within 30 days of issuance. This will allow Millstone Unit No. 3 to eliminate this high risk test before third quarter main steam line isolation valve partial stroke testing is required.

State Notification

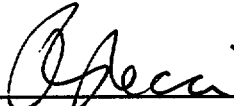
In accordance with 10 CFR 50.91(b), a copy of this License Amendment Request is being provided to the State of Connecticut.

There are no regulatory commitments contained within this letter.

If you should have any questions on the above, please contact Mr. Ravi Joshi at (860) 440-2080.

Very truly yours,

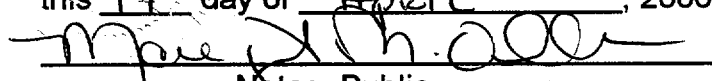
NORTHEAST NUCLEAR ENERGY COMPANY



Raymond P. Necci
Vice President - Nuclear Technical Services

Sworn to and subscribed before me

this 19 day of April, 2000



Notary Public

My Commission expires Jun 30 2004

cc: See next page

Attachments (4)

cc: H. J. Miller, Region I Administrator
V. Nerses, NRC Senior Project Manager, Millstone Unit No. 3
A. C. Cerne, Senior Resident Inspector, Millstone Unit No. 3

Director
Bureau of Air Management
Monitoring and Radiation Division
Department of Environmental Protection
79 Elm Street
Hartford, CT 06106-5127

Docket No. 50-423
B18093

Attachment 1

Millstone Nuclear Power Station, Unit No. 3

Technical Specifications Change Request 3-15-99

Main Steam Line Isolation Valve Testing

Discussion of Proposed Changes

**Technical Specifications Change Request 3-15-99
Main Steam Line Isolation Valve Testing
Discussion of Proposed Changes**

Northeast Nuclear Energy Company (NNECO) hereby proposes to amend Operating License NPF-49 by incorporating the attached proposed changes into the Technical Specifications of Millstone Unit No. 3. NNECO is proposing to change Technical Specification 3.7.1.5, "Plant Systems - Main Steam Line Isolation Valves." The Bases for this Technical Specification will be modified to address the proposed changes.

Surveillance Requirement (SR) 4.7.1.5.1 requires partial stroke testing of the main steam line isolation valves (MSIVs) when the plant is operating in Modes 1 and 2. Partial stroke testing of the MSIVs increases the risk of valve closure when the plant is operating, which can result in a reactor trip. This occurred at Millstone Unit No. 3 on December 11, 1998, as documented in Licensee Event Report 98-045-00.⁽¹⁾

Based on current industry guidance, NNECO is proposing to eliminate the surveillance requirement to perform partial stroke testing of the MSIVs when the plant is operating in Modes 1 and 2. This guidance, which is contained in NUREG-1482⁽²⁾ and NUREG-1431,⁽³⁾ states "MSIVs should not be tested at power, since even a part-stroke exercise increases the risk of valve closure when the unit is generating power."

Main Steam Line Isolation Valve Operation

Each MSIV (total of four) is provided with four sets of redundant solenoid valves which allow both venting and pressurizing of the main valve's upper and lower chambers to allow opening and closing of the main valve. The solenoids control positioning of internal pilot/piston assemblies to allow the admittance of steam or the venting of steam to the main valve's upper and lower chambers. Solenoid positioning allows movement of the main valve to its proper position. Single failure of an MSIV solenoid will not prevent the valve from meeting the required closure time.

The MSIV partial stroke testing verifies that the MSIV actuation solenoid valves operate in the proper amount of time and that the main valve is free to move. Due to past performance difficulties with the MSIV solenoid valves (that did not affect the ability of

⁽¹⁾ C. J. Schwarz letter to the U.S. Nuclear Regulatory Commission, "Millstone Nuclear Power Station Unit No. 3, Licensee Event Report 98-045-00, Reactor Trip Due To Main Steam Line Isolation Valve Closure During Partial Stroke Testing Due To Solenoid Valve Failure," dated January 11, 1999.

⁽²⁾ NUREG-1482, "Guidelines for Inservice Testing at Nuclear Power Plants," Section 4.2.4, April 1995.

⁽³⁾ NUREG-1431, "Standard Technical Specifications Westinghouse Plants," Revision 1, April 1995.

the main valve to close), solenoid stroke time trending has been performed during the partial stroke tests since 1995. Solenoid stroke times have been consistent, ensuring main valve closure within the required time of receipt of a closure signal. Additionally, there has been no evidence of main valve binding in the open direction since the valves were originally installed. During full stroke testing of the MSIVs, each valve has historically closed well within the required 10 second stroke time.

As a result of the valve closure event that occurred on December 11, 1998, design enhancements have been incorporated that have increased the reliability of valve performance. The improvements include larger solenoid piston ports to minimize the chance of clogging which could affect solenoid stroke time and solenoid piston positioning, more powerful solenoid springs to increase solenoid pilot valve lift, upgraded solenoid coils to accommodate the stronger springs, and improved material of solenoid pilot and piston to minimize susceptibility to magnetite formation and subsequent solenoid valve mechanical sticking. Partial stroke testing following incorporation of these design improvements, including stroke time trends and analysis of solenoid valve traces, has demonstrated reliable main valve operation and provided assurance of the ability of the MSIVs to perform their safety function when called upon.

Description of Technical Specification Changes

The following changes are proposed for Technical Specification 3.7.1.5.

1. The Limiting Condition for Operation (LCO) will be modified by replacing the word "Each" with "Four." There are four MSIVs at Millstone Unit No. 3. In addition, this change will require the use of the plural context of valve. There will be no technical change to the LCO requirements.
2. The applicability will be modified by replacing the phrase "a MSIV is" with "all MSIVs are." This is consistent with the intent that this specification should not be applicable in Modes 2, 3, and 4 if all of the MSIVs are closed and deactivated. In addition, the asterisk (*) associated with Mode 4 will be removed. This is consistent with the removal of the footnote which will be discussed.
3. The current footnote (*) will be deleted. The basis for this footnote is an evaluation of MSIV operation that has determined that sufficient steam pressure may not exist below a Reactor Coolant System (RCS) temperature of 320 °F to close the MSIVs within the required Mode 4 isolation time of 120 seconds. Therefore, below 320 °F the MSIVs are not operable, and the valves are required to be closed. This information concerning MSIV operability in Mode 4 will be contained in the associated Bases. The Bases are an appropriate place for information such as this. Any subsequent changes to this information will be evaluated in accordance with 10 CFR 50.59. This change will not result in any technical change to the requirements for MSIV operability.

4. A period will be added at the end of the action requirement for Mode 1. This change will not result in any technical change to the Mode 1 action requirement.
5. The word "are" in the action requirement for Modes 2, 3 and 4 will be replaced with the phrase "is (are)" to be consistent with the use of "valve(s)." This change will not result in any technical change to the Modes 2, 3 and 4 action requirement.
6. An asterisk (*) will be added to the word "closed" in the action requirement for Modes 2, 3 and 4. This asterisk will refer to a new footnote that will be added. This action requirement requires inoperable MSIVs to be closed. The footnote will allow MSIVs, that are closed to comply with the action requirement, to be opened to perform SR 4.7.1.5.2. Performance of this SR may be necessary to demonstrate MSIV operability. This approach, to allow the MSIVs to be opened to perform a SR to verify operability when the valves are closed to comply with an action requirement, is consistent with NUREG-1431 (Technical Specification 3.0.5).
7. SR 4.7.1.5.1 will be deleted. Millstone Unit No. 3 has determined that partial stroke testing of the MSIVs is no longer necessary to ensure valve operability. In addition, current industry guidance (NUREG-1431 and NUREG-1482) recommends that the MSIVs should not be tested during plant operation in Modes 1 and 2.
8. Current SRs 4.7.1.5.2 and 4.7.1.5.3 will be combined into the proposed SR 4.7.1.5.2. This will result in the following changes.
 - a. The Mode 4 valve stroke time requirement (120 seconds) of SR 4.7.1.5.3 will be added to the proposed SR 4.7.1.5.2.
 - b. The phrases "In MODE 3," and "when full stroke tested in MODES 3 and 4" will be removed. It is not necessary to specify a mode when this SR is required to be performed. If this SR has not been successfully performed within the required frequency, the associated MSIV would not be operable. The appropriate action requirement would then apply.
 - c. The statement that the provisions of Technical Specification 4.0.4 are not applicable for entry into Mode 3 will be expanded to include entry into Mode 4 as currently specified in SR 4.7.1.5.3. The valve stroke times must be verified within the required frequency interval for the MSIVs to be operable. If the valve stroke times have not been verified within the required frequency interval, the MSIVs are inoperable and required to be closed. Plant startup can still safely proceed since the MSIVs would be in the required accident condition. This will allow the necessary plant conditions (i.e., sufficient steam pressure) to be established for proper MSIV operation.

9. SR 4.7.1.5.3 will be deleted since the current requirements have been added to the proposed SR 4.7.1.5.2.
10. The associated Bases for this specification will be changed to be consistent with the proposed changes previously discussed.

Safety Summary

The proposed changes to the wording of the LCO, applicability, and action requirements of Technical Specification 3.7.1.5 will not result in any technical changes to the current requirements. Four MSIVs will still be required to be operable when the plant is operating in Modes 1 through 4.

The removal of the current footnote (*) will not change the requirement for the MSIVs to be closed when RCS temperature is below 320 °F. However, the MSIVs will no longer be required to be deactivated when RCS temperature is below 320 °F. Closing the MSIVs and verifying that they are closed on a periodic basis, as specified in the action requirement for Modes 2, 3, and 4 is sufficient to ensure the MSIVs are properly positioned. In addition, the proposed Bases for Technical Specification 3.7.1.5 will discuss this requirement, and plant procedures already include the requirement to close the MSIVs when RCS temperature is below 320 °F.

The addition of the footnote (*) that will allow SR 4.7.1.5.2 to be performed when the MSIVs are closed to comply with action requirements will allow testing to be performed that may be necessary to demonstrate MSIV operability. This would most likely occur during a plant startup following a refueling outage, or after valve repairs in Mode 2 or below. Even though valve operability is expected, successful performance of SR 4.7.1.5.2 may be necessary to verify operability. In addition, this approach is consistent with NUREG-1431 (Technical Specification 3.0.5).

The proposed change to remove the quarterly partial stroke MSIV testing requirement will eliminate a high risk activity that is not necessary to ensure the ability of the MSIVs to perform their safety function. Recent valve design changes and improvements to the MSIV solenoid valves have increased reliability in solenoid performance. Partial stroke tests performed since incorporation of the improved design have demonstrated proper main valve operation. In addition, redundant solenoid valve design precludes a single failure from affecting the ability of the main valve to close within the required time. The elimination of partial stroke MSIV testing while the plant is operating at power is consistent with the guidance contained in NUREG-1431 and in NUREG-1482.

The proposed change to combine SRs 4.7.1.5.2 and 4.7.1.5.3 into one SR will not result in any technical change to the MSIV full stroke test requirements. The acceptance criteria and frequency of performance will not change.

The proposed Bases changes are consistent with the proposed Technical Specification changes.

The proposed changes to the Technical Specifications and associated Bases will not adversely affect the availability or operation of the MSIVs to mitigate the design basis accidents. There will be no adverse effect on plant operation. The plant response to the design basis accidents will not change. Therefore, there will be no adverse impact on public health and safety. Thus, the proposed changes are safe

Attachment 2

Millstone Nuclear Power Station, Unit No. 3

Technical Specifications Change Request 3-15-99

Main Steam Line Isolation Valve Testing

Significant Hazards Consideration

**Technical Specifications Change Request 3-15-99
Main Steam Line Isolation Valve Testing
Significant Hazards Consideration**

Description of License Amendment Request

The proposed changes to Technical Specification 3.7.1.5 will revise the wording of the Limiting Condition for Operation (LCO) and the applicability, but will not result in any technical changes to the current requirements. Four main steam line isolation valves (MSIVs) will still be required to be operable when the plant is operating in Modes 1 through 4. The removal of the current footnote (*) will not change the requirement for the MSIVs to be closed when Reactor Coolant System (RCS) temperature is below 320 °F. The MSIVs will no longer be required to be deactivated when RCS temperature is below 320 °F. Instead, the MSIVs will be verified closed on a periodic basis. This is sufficient to ensure the MSIVs are properly positioned.

The addition of a footnote to allow performance of the full valve stroke surveillance requirement when the MSIVs are closed to comply with action requirements will allow testing to be performed that may be necessary to demonstrate MSIV operability.

The proposed change to remove the quarterly partial stroke testing requirement will eliminate a high risk activity that is not necessary to ensure the ability of the MSIVs to perform their safety function.

The proposed change to combine two surveillance requirements into one will not result in any technical change to the MSIV full stroke test requirements.

Basis for No Significant Hazards Consideration

In accordance with 10CFR50.92, NNECO has reviewed the proposed changes and has concluded that they do not involve a significant hazards consideration (SHC). The basis for this conclusion is that the three criteria of 10CFR50.92(c) are not compromised. The proposed changes do not involve an SHC because the changes would not:

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

The proposed changes to Technical Specification 3.7.1.5 will not affect the operability requirements for the MSIVs during plant operation in Modes 1 through 4. If a MSIV is not operable, restoration of operability is still required, or the valve will be closed. Once closed, the MSIV is performing the accident mitigation function.

The addition of a footnote to allow performance of the full valve stroke

surveillance requirement when the MSIVs are closed to comply with action requirements will allow testing to be performed that may be necessary to demonstrate MSIV operability. Since proper operation of the MSIVs would be expected when utilizing this provision, and this test is used to confirm valve operability, the MSIVs should function properly to mitigate an accident.

The proposed change to remove the requirement to perform partial stroke testing of the MSIVs when the plant is in Modes 1 or 2 will eliminate a high risk activity that is not necessary to ensure the ability of the MSIVs to perform their safety function. Recent valve design changes and improvements to the MSIV solenoid valves have increased reliability in proper main valve operation. Additionally, redundant solenoid valve design precludes a single failure from affecting the ability of the main valve to close within the required time. Thus, the full stroke test is sufficient to ensure operability.

The proposed changes will have no adverse effect on plant operation, or the availability or operation of any accident mitigation equipment. The plant response to the design basis accidents will not change. In addition, the proposed changes can not cause an accident. Therefore, there will be no significant increase in the probability or consequences 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 will not alter the plant configuration (no new or different type of equipment will be installed) or require any new or unusual operator actions. The changes do not alter the way any structure, system, or component functions and do not adversely alter the manner in which the plant is operated. The proposed changes do not introduce any new failure modes. The proposed changes will reduce the likelihood of a transient by eliminating a high risk surveillance. Also, the response of the plant and the operators following these accidents is unaffected by the change. Therefore, the proposed changes will not create the possibility of a new or different kind of accident from any previously analyzed.

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

The proposed changes modify the LCO, applicability, action requirements, and surveillance requirements of Technical Specification 3.7.1.5. These changes have no adverse effect on equipment important to safety. This equipment will continue to function as assumed in the design basis accident analyses. The proposed changes will not result in any plant configuration changes. There will be no adverse effect on plant operation or accident mitigation equipment. The plant response to design basis accidents will not change. Therefore, there will be no significant reduction in a margin of safety.

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Attachment 3

Millstone Nuclear Power Station, Unit No. 3

Technical Specifications Change Request 3-15-99

Main Steam Line Isolation Valve Testing

Marked Up Pages

9/3/97

PLANT SYSTEMS

MAIN STEAM LINE ISOLATION VALVES

LIMITING CONDITION FOR OPERATION

3.7.1.5 Each main steam line isolation valve (MSIV) shall be OPERABLE.

APPLICABILITY:

MODE 1

Four

MODES 2, 3, and 4, except when a MSIV is closed and deactivated.

all MSIVs are

ACTION:

MODE 1:

With one MSIV inoperable, POWER OPERATION may continue provided the inoperable valve is restored to OPERABLE status within 8 hours; otherwise be in MODE 2 within the next 6 hours.

MODES 2, 3, and 4:

With one or more MSIVs inoperable, subsequent operation in MODE 2, or 3, or 4 may proceed provided the inoperable isolation valve(s) are closed within 8 hours and verified closed once per 7 days. Otherwise, be in HOT STANDBY within the next 6 hours and in COLD SHUTDOWN within the following 30 hours. Separate condition entry is allowed for each MSIV.

SURVEILLANCE REQUIREMENTS

DELETED

4.7.1.5.1 In MODES 1 and 2, each MSIV shall be demonstrated OPERABLE, pursuant to Specification 4.0.5, by verifying a partial stroke in MODES 1 or 2, or a full closure per Surveillance 4.7.1.5.2.

4.7.1.5.2 In ^{Each}MODE 3, each MSIV shall be demonstrated OPERABLE, pursuant to Specification 4.0.5, by verifying full closure within 10 seconds on an actual or simulated actuation signal when full stroke tested in MODES 3 or 4. The provisions of Specification 4.0.4 are not applicable for entry into MODE 3.

(120 seconds for MODE 4 only)

4.7.1.5.3 In MODE 4 with the RCS temperature greater than or equal to 320 degrees Fahrenheit*, each MSIV shall be demonstrated OPERABLE, pursuant to Specification 4.0.5, by verifying full closure within 120 seconds on an actual or simulated actuation signal when full stroke tested in MODE 4. The provisions of Specification 4.0.4 are not applicable for entry into MODE 4.

MODE 4 or

INSERT
A

*In MODE 4, the MSIVs are required to be closed and deactivated with RCS temperature less than 320 degrees Fahrenheit.

INSERT A - Page 3/4 7-9

- * The MSIVs may be opened to perform Surveillance Requirement 4.7.1.5.2 when Reactor Coolant System temperature is greater than or equal to 320 °F.

PLANT SYSTEMS

NO CHANGE
FOR INFORMATION
ONLY

BASES

3/4.7.1.5 MAIN STEAM LINE ISOLATION VALVES

BACKGROUND

The main steam line isolation valves (MSIVs) isolate steam flow from the secondary side of the steam generators following a high energy line break (HELB). MSIV closure terminates flow from the unaffected (intact) steam generators.

One MSIV is located in each main steam line outside, but close to, containment. The MSIVs are downstream from the main steam safety valves (MSSVs) and auxiliary feedwater (AFW) pump turbine steam supply, to prevent MSSV and AFW isolation from the steam generators by MSIV closure. Closing the MSIVs isolates each steam generator from the others, and isolates the turbine, Steam Bypass System, and other auxiliary steam supplies from the steam generators.

The MSIVs close on a main steam isolation signal generated by low steam generator pressure, high containment pressure, or steam line pressure negative rate (high). The MSIVs fail closed on loss of control or actuation power.

Each MSIV has an MSIV bypass valve. Although these bypass valves are normally closed, they receive the same emergency closure signal as do their associated MSIVs. The MSIVs may also be actuated manually.

A description of the MSIVs is found in the FSAR, Section 10.3.

APPLICABLE SAFETY ANALYSIS

The design basis of the MSIVs is established by the containment analysis for the large steam line break (SLB) inside containment, discussed in the FSAR, Section 6.2. It is also affected by the accident analysis of the SLB events presented in the FSAR, Section 15.1.5. The design precludes the blowdown of more than one steam generator, assuming a single active component failure (e.g., the failure of one MSIV to close on demand).

The limiting temperature case for the containment analysis is the SLB inside containment, at 75% power with mass and energy releases based on offsite power available following turbine trip, and failure of the MSIV on the affected steam generator to close.

At hot zero power, the steam generator inventory and temperature are at their maximum, maximizing the analyzed mass and energy release to the containment. Due to reverse flow and failure of the MSIV to close, the additional mass and energy in the steam headers downstream from the other MSIV contribute to the total release. With the most reactive rod cluster control assembly assumed stuck in the fully withdrawn position, there is an increased possibility that the core will become critical and return to power. The reactor is ultimately shut down by the boric acid injection delivered by the Emergency Core Cooling System.

NO CHANGE
FOR INFORMATION
ONLY

PLANT SYSTEMSBASES3/4.7.1.5 MAIN STEAM LINE ISOLATION VALVES (continued)

The accident analysis compares several different SLB events against different acceptance criteria. The large SLB outside containment upstream of the MSIVs is limiting for offsite dose, although a break in this short section of main steam header has a very low probability. The large SLB upstream of the MSIV at hot zero power 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 cooldown. With a loss of offsite power, the response of mitigating systems is delayed. Significant single failures considered include failure of an MSIV to close.

The MSIVs serve only a safety function and remain open during power operation. These valves operate under the following situations:

- a. An HELB inside containment. In order to maximize the mass and energy release into containment, the analysis assumes that the MSIV in the affected steam generator remains open. For this accident scenario, steam is discharged into containment from all steam generators until the remaining MSIVs close. After MSIV closure, steam is discharged into containment only from the affected steam generator and from the residual steam in the main steam header downstream of the closed MSIVs in the unaffected loops. Closure of the MSIVs isolates the break from the unaffected steam generators.
- b. A break outside of containment and upstream from the MSIVs is not a containment pressurization concern. The uncontrolled blowdown of more than one steam generator must be prevented to limit the potential for uncontrolled RCS cooldown and positive reactivity addition. Closure of the MSIVs isolates the break and limits the blowdown to a single steam generator.
- c. A break downstream of the MSIVs will be isolated by the closure of the MSIVs.
- d. Following a steam generator tube rupture, closure of the MSIVs isolates the ruptured steam generator from the intact steam generators. In addition to minimizing radiological releases, this enables the operator to maintain the pressure of the steam generator with the ruptured tube below the MSSV setpoints, a necessary step toward isolating the flow through the rupture.
- e. The MSIVs are also utilized during other events, such as a feedwater line break. This event is less limiting so far as MSIV OPERABILITY is concerned.

PLANT SYSTEMSBASES3/4.7.1.5 MAIN STEAM LINE ISOLATION VALVES (continued)LCO

This LCO requires that four MSIVs in the steam lines be OPERABLE. The MSIVs are considered OPERABLE when the isolation times are within limits, and they close on an isolation actuation signal.

This LCO provides assurance that the MSIVs will perform their design safety function to mitigate the consequences of accidents that could result in offsite exposures comparable to the 10CFR100 limits or the NRC Staff approved licensing basis.

APPLICABILITY

The MSIVs must be OPERABLE in MODE 1 and in MODES 2, 3, and 4 except when closed and deactivated when there is significant mass and energy in the RCS and steam generators. When the MSIVs are closed, they are already performing the safety function.

INSERT B

The MSIVs must be OPERABLE in MODE 4 except when closed and deactivated. In MODE 4 with Reactor Coolant System temperature greater than or equal to 320°F, the MSIVs shall close within 120 seconds to ensure that the accident analysis assumptions are met. A temperature greater than or equal to 320°F has been specified because the steam energy is sufficient to provide the motive force to operate the MSIVs.

In MODE 5 or 6, the steam generators do not contain much energy because their temperature is below the boiling point of water; therefore, the MSIVs are not required for isolation of potential high energy secondary system pipe breaks in these MODES.

ACTIONSMODE 1

With one MSIV inoperable in MODE 1, action must be taken to restore OPERABLE status within 8 hours. Some repairs to the MSIV can be made with the unit hot. The 8 hour Completion Time is reasonable, considering the low probability of an accident occurring during this time period that would require a closure of the MSIVs.

The 8 hour Completion Time is greater than that normally allowed for containment isolation valves because the MSIVs are valves that isolate a closed system penetrating containment. These valves differ from other containment isolation valves in that the closed system provides a passive barrier for containment isolation.

INSERT B - Page B 3/4 7-5

In MODES 1, 2, and 3 the MSIVs are required to close within 10 seconds to ensure the accident analysis assumptions are met. In MODE 4 the MSIVs are required to close within 120 seconds to ensure the accident analysis assumptions are met. An engineering evaluation has determined that a Reactor Coolant System (RCS) temperature greater than or equal to 320 °F is required to provide sufficient steam energy to provide the motive force to operate the MSIVs. Therefore, below an RCS temperature of 320 °F the MSIVs are not OPERABLE and are required to be closed.

BASES

3/4.7.1.5 MAIN STEAM LINE ISOLATION VALVES (continued)

If the MSIV cannot be restored to OPERABLE status within 8 hours, the plant must be placed in a MODE in which the LCO does not apply. To achieve this status, the unit must be placed in MODE 2 within 6 hours. The Completion Times are reasonable, based on operating experience, to reach MODE 2 and to close the MSIVs in an orderly manner and without challenging plant systems.

MODES 2, 3, and 4

Since the MSIVs are required to be OPERABLE in MODES 2, 3, and 4, the inoperable MSIVs may either be restored to OPERABLE status or closed. When closed, the MSIVs are already in the position required by the assumptions in the safety analysis.

The 8 hour Completion Time is consistent with that allowed in MODE 1.

The MSIVs may be opened to perform Surveillance Requirement 4.7.1.5.2

For inoperable MSIVs that cannot be restored to OPERABLE status within the specified Completion Time, but are closed, the inoperable MSIVs must be verified on a periodic basis to be closed. This is necessary to ensure that the assumptions in the safety analysis remain valid. The 7 day verification time is reasonable, based on engineering judgment, in view of MSIV status indications available in the control room, and other administrative controls, to ensure that these valves are in the closed position.

If the MSIVs cannot be restored to OPERABLE status or are not closed within the associated Completion Time, the unit must be placed in a MODE in which the LCO does not apply. To achieve this status, the unit must be placed at least in MODE 3 within 6 hours, and in MODE 5 within the next 30 hours. The allowed Completion Times are reasonable, based on operating experience, to reach the required unit conditions from MODE 2 conditions in an orderly manner and without challenging unit systems. The Action Statement is modified by a note indicating that separate condition entry is allowed for each MSIV.

SURVEILLANCE REQUIREMENTS

DELETED

4.7.1.5.1 This surveillance performs a partial stroke test in MODES 1 or 2. The partial stroke test shows that the MSIV's actuation solenoid valves operate in the proper amount of time. In addition, the part stroke test shows that the main valve is free to move. This provides reasonable assurance that the MSIV will operate as assumed in the accident analysis. This surveillance is normally performed during full power operation with the plant at suitable (appropriate) conditions (e.g., pressure and temperature). In addition, if the closure time of the MSIV is less than 10 seconds when verified in accordance with Specification 4.7.1.5.2, the OPERABILITY demonstration of the MSIV in MODES 1 or 2 is not required per Specification 4.7.1.5.1.

BASES

SURVEILLANCE REQUIREMENTS (continued)*(120 seconds for MODE 4 only)*

4.7.1.5.2 This surveillance demonstrates that MSIV closure time is less than 10 seconds on an actual or simulated actuation signal in ~~MODE 3~~, when tested pursuant to Specification 4.0.5. A simulated signal is defined as any of the following engineering safety features actuation system instrumentation functional units per Technical Specifications Table 4.3-2: 4.a.1) manual initiation, individual, 4.a.2) manual initiation system, 4.c. containment pressure high-2, 4.d. steam line pressure low, or 4.e. steam line pressure - negative rate high. The MSIV closure time is assumed in the accident analyses. This surveillance is normally performed upon returning the plant to operation following a refueling outage. The test is normally conducted in MODES 3 or 4 with the plant at suitable (appropriate) conditions (e.g., pressure and temperature).

~~This surveillance requirement is modified by an exception which allows a delay of testing until the proper operating conditions are met, or until it is desired to operate the valves. This exception to Specification 4.0.4 would also allow the MSIVs to be cycled to demonstrate post repair OPERABILITY. In addition, if the closure time of the MSIV is less than 10 seconds when verified in accordance with Specification 4.7.1.5.2, the OPERABILITY demonstration of the MSIV in MODES 1 or 2 is not required per Specification 4.7.1.5.1.~~

INSERT
C

4.7.1.5.3 This surveillance verifies that MSIV closure time is less than 120 seconds on an actual or simulated actuation signal in MODE 4, with the RCS temperature greater than or equal to 320 degrees Fahrenheit, when tested pursuant to Specification 4.0.5. The MSIVs are required to be closed and deactivated with the RCS less than 320 degrees Fahrenheit in MODE 4. A simulated signal is defined as any of the following engineering safety features actuation system instrumentation functional units per Technical Specifications Table 3.4-2: 4.a.1) manual initiation, individual, 4.a.2) manual initiation, system 4.c. containment pressure high-2, 4.d. steam line pressure low, or 4.e. steam line pressure - negative rate high. The MSIV closure time is assumed in the accident analyses.

This surveillance only applies in MODE 4, at an RCS temperature greater than or equal to 320 degrees Fahrenheit, because the MSIVs are steam operated and a minimum steam pressure is required to operate the valve. The test is normally conducted in MODE 4 with the plant at suitable (appropriate) conditions (e.g., pressure and temperature). If the valves are not to be opened or energized in MODE 4, the surveillance is not performed. This surveillance requirement is modified by an exception which allows a delay of testing until the proper operating conditions are met, or until it is desired to operate the valves. This exception to Specification 4.0.4 would also allow the MSIVs to be cycled to demonstrate post repair OPERABILITY. In addition, if the closure time of the MSIV is less than 10 seconds when verified in accordance with Specification 4.7.1.5.3, the OPERABILITY demonstration of the MSIV in MODES 1, 2, or 3 is not required per Specification 4.7.1.5.1 and 4.7.1.5.2.

INSERT C - Page B 3/4 7-6a

The MSIVs should not be tested at power, since even a part stroke exercise increases the risk of valve closure when the unit is generating power.

This surveillance requirement is modified by an exception that will allow entry into and operation in MODES 3 and 4 prior to performing the test to establish conditions consistent with those under which the acceptance criterion was generated. Successful performance of this test within the required frequency is necessary to operate in MODES 3 and 4 with the MSIVs open, to enter MODE 2 from MODE 3, and for plant operation in MODE 1. If this surveillance has not been successfully performed within the required frequency, the MSIVs are inoperable and are required to be closed.

In MODE 4 only, the MSIVs can be considered OPERABLE if the closure time is less than 120 seconds. An engineering evaluation has determined that a RCS temperature greater than or equal to 320 °F is required to provide sufficient steam energy to provide the motive force to operate the MSIVs. Therefore, below an RCS temperature of 320 °F the MSIVs are not OPERABLE and are required to be closed.

Docket No. 50-423
B18093

Attachment 4

Millstone Nuclear Power Station, Unit No. 3

Technical Specifications Change Request 3-15-99

Main Steam Line Isolation Valve Testing

Retyped Pages

PLANT SYSTEMS

MAIN STEAM LINE ISOLATION VALVES

LIMITING CONDITION FOR OPERATION

3.7.1.5 Four main steam line isolation valves (MSIVs) shall be OPERABLE. |

APPLICABILITY: MODE 1

MODES 2, 3, and 4, except when all MSIVs are closed and |
deactivated.

ACTION:

MODE 1:

With one MSIV inoperable, POWER OPERATION may continue provided the inoperable valve is restored to OPERABLE status within 8 hours; otherwise be in MODE 2 within the next 6 hours.

MODES 2, 3, and 4:

With one or more MSIVs inoperable, subsequent operation in MODE 2, or 3, or 4 may proceed provided the inoperable isolation valve(s) is (are) closed* within 8 hours and verified closed once per 7 days. Otherwise, |
be in HOT STANDBY within the next 6 hours and in COLD SHUTDOWN within the following 30 hours. Separate condition entry is allowed for each MSIV.

SURVEILLANCE REQUIREMENTS

4.7.1.5.1 DELETED

4.7.1.5.2 Each MSIV shall be demonstrated OPERABLE, pursuant to Specification 4.0.5, by verifying full closure within 10 seconds (120 seconds for MODE 4 only) on an actual or simulated actuation signal. The provisions of Specification 4.0.4 are not applicable for entry into MODE 4 or MODE 3. |

*The MSIVs may be opened to perform Surveillance Requirement 4.7.1.5.2 when |
Reactor Coolant System temperature is greater than or equal to 320°F.

PLANT SYSTEMS

BASES

3/4.7.1.5 MAIN STEAM LINE ISOLATION VALVES (continued)

LCO

This LCO requires that four MSIVs in the steam lines be OPERABLE. The MSIVs are considered OPERABLE when the isolation times are within limits, and they close on an isolation actuation signal.

This LCO provides assurance that the MSIVs will perform their design safety function to mitigate the consequences of accidents that could result in offsite exposures comparable to the 10CFR100 limits or the NRC Staff approved licensing basis.

APPLICABILITY

The MSIVs must be OPERABLE in MODE 1 and in MODES 2, 3, and 4 except when closed and deactivated when there is significant mass and energy in the RCS and steam generators. When the MSIVs are closed, they are already performing the safety function.

In MODES 1, 2, and 3 the MSIVs are required to close within 10 seconds to ensure the accident analysis assumptions are met. In MODE 4 the MSIVs are required to close within 120 seconds to ensure the accident analysis assumptions are met. An engineering evaluation has determined that a Reactor Coolant System (RCS) temperature greater than or equal to 320°F is required to provide sufficient steam energy to provide the motive force to operate the MSIVs. Therefore, below an RCS temperature of 320°F the MSIVs are not OPERABLE and are required to be closed.

In MODE 5 or 6, the steam generators do not contain much energy because their temperature is below the boiling point of water; therefore, the MSIVs are not required for isolation of potential high energy secondary system pipe breaks in these MODES.

ACTIONS

MODE 1

With one MSIV inoperable in MODE 1, action must be taken to restore OPERABLE status within 8 hours. Some repairs to the MSIV can be made with the unit hot. The 8 hour Completion Time is reasonable, considering the low probability of an accident occurring during this time period that would require a closure of the MSIVs.

The 8 hour Completion Time is greater than that normally allowed for containment isolation valves because the MSIVs are valves that isolate a closed system penetrating containment. These valves differ from other containment isolation valves in that the closed system provides a passive barrier for containment isolation.

PLANT SYSTEMS

BASES

3/4.7.1.5 MAIN STEAM LINE ISOLATION VALVES (continued)

If the MSIV cannot be restored to OPERABLE status within 8 hours, the plant must be placed in a MODE in which the LCO does not apply. To achieve this status, the unit must be placed in MODE 2 within 6 hours. The Completion Times are reasonable, based on operating experience, to reach MODE 2 and to close the MSIVs in an orderly manner and without challenging plant systems.

MODES 2, 3, and 4

Since the MSIVs are required to be OPERABLE in MODES 2, 3, and 4, the inoperable MSIVs may either be restored to OPERABLE status or closed. When closed, the MSIVs are already in the position required by the assumptions in the safety analysis. The MSIVs may be opened to perform Surveillance Requirement 4.7.1.5.2.

The 8 hour Completion Time is consistent with that allowed in MODE 1.

For inoperable MSIVs that cannot be restored to OPERABLE status within the specified Completion Time, but are closed, the inoperable MSIVs must be verified on a periodic basis to be closed. This is necessary to ensure that the assumptions in the safety analysis remain valid. The 7 day verification time is reasonable, based on engineering judgment, in view of MSIV status indications available in the control room, and other administrative controls, to ensure that these valves are in the closed position.

If the MSIVs cannot be restored to OPERABLE status or are not closed within the associated Completion Time, the unit must be placed in a MODE in which the LCO does not apply. To achieve this status, the unit must be placed at least in MODE 3 within 6 hours, and in MODE 5 within the next 30 hours. The allowed Completion Times are reasonable, based on operating experience, to reach the required unit conditions from MODE 2 conditions in an orderly manner and without challenging unit systems. The Action Statement is modified by a note indicating that separate condition entry is allowed for each MSIV.

SURVEILLANCE REQUIREMENTS

4.7.1.5.1 DELETED

PLANT SYSTEMS

BASES

SURVEILLANCE REQUIREMENTS (continued)

4.7.1.5.2 This surveillance demonstrates that MSIV closure time is less than 10 seconds (120 seconds for MODE 4 only) on an actual or simulated actuation signal, when tested pursuant to Specification 4.0.5. A simulated signal is defined as any of the following engineering safety features actuation system instrumentation functional units per Technical Specifications Table 4.3-2: 4.a.1) manual initiation, individual, 4.a.2) manual initiation system, 4.c. containment pressure high-2, 4.d. steam line pressure low, or 4.e. steam line pressure - negative rate high. The MSIV closure time is assumed in the accident analyses. This surveillance is normally performed upon returning the plant to operation following a refueling outage. The test is normally conducted in MODES 3 or 4 with the plant at suitable (appropriate) conditions (e.g., pressure and temperature). The MSIVs should not be tested at power, since even a part stroke exercise increases the risk of valve closure when the unit is generating power.

This surveillance requirement is modified by an exception that will allow entry into and operation in MODES 3 and 4 prior to performing the test to establish conditions consistent with those under which the acceptance criterion was generated. Successful performance of this test within the required frequency is necessary to operate in MODES 3 and 4 with the MSIVs open, to enter MODE 2 from MODE 3, and for plant operation in MODE 1. If this surveillance has not been successfully performed within the required frequency, the MSIVs are inoperable and are required to be closed.

In MODE 4 only, the MSIVs can be considered OPERABLE if the closure time is less than 120 seconds. An engineering evaluation has determined that a RCS temperature greater than or equal to 320°F is required to provide sufficient steam energy to provide the motive force to operate the MSIVs. Therefore, below an RCS temperature of 320°F the MSIVs are not OPERABLE and are required to be closed.