Dominion Nuclear Connecticut, Inc.
Millstone Power Station
Rope Ferry Road
Waterford, CT 06385

Dominion

APR 11 2001

Docket No. 50-336
B18352

RE: 10 CFR 50.90

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

Millstone Nuclear Power Station, Unit No. 2
Technical Specifications Change Request 2-3-01
Core Alteration and Refueling Operations

Introduction

Pursuant to 10 CFR 50.90, Dominion Nuclear Connecticut, Inc. (DNC) hereby proposes to amend Operating License, DPR-65, by incorporating the attached proposed changes into the Millstone Unit No. 2 Technical Specifications. DNC is proposing to change Technical Specifications Definition 1.12, "Core Alteration;" 3.9.1, "Refueling Operations - Boron Concentration;" 3.9.2, "Refueling Operations - Instrumentation;" and 3.9.11, "Refueling Operations - Water Level - Reactor Vessel." The Bases for these Technical Specifications will be modified as a result of these proposed changes.

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

DNC has reviewed the proposed license amendment request against the criteria of 10 CFR 51.22 for environmental considerations. These changes will not increase the type and amounts of effluents that may be released offsite. In addition, this amendment request will not increase individual or cumulative occupational radiation exposures. Therefore, DNC has determined the proposed changes will not have a significant effect on the quality of the human environment.

A001

Conclusions

The proposed changes were evaluated and we have concluded that they are safe. The proposed changes do not involve an 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).

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. 2 prior to December 1, 2001, with the amendment to be implemented within 60 days of issuance. This will allow Millstone Unit No. 2 to use the proposed changes during the next refueling outage currently scheduled in early February of 2002.

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,

DOMINION NUCLEAR CONNECTICUT, INC.

Raymond P. Necci
Vice President - Nuclear Technical Services

Sworn to and subscribed before me

this 11th day of April, 2001

Notary Public

My Commission expires

SANDRA J. ANTON
NOTARY PUBLIC
COMMISSION EXPIRES
MAY 31, 2005

Attachments (4)

cc: H. J. Miller, Region I Administrator
D. S. Collins, NRC Project Manager, Unit No. 2
S. R. Jones, Senior Resident Inspector, Unit No. 2

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

Docket No. 50-336
B18352

Attachment 1

Millstone Nuclear Power Station, Unit No. 2

Technical Specifications Change Request 2-3-01
Core Alteration and Refueling Operations
Discussion of Proposed Changes and Safety Summary

**Technical Specifications Change Request 2-3-01**
**Core Alteration and Refueling Operations**
**Discussion of Proposed Changes and Safety Summary**

## Introduction

Dominion Nuclear Connecticut, Inc. (DNC) hereby proposes to amend Operating License, DPR-65, by incorporating the attached proposed changes into the Millstone Unit No. 2 Technical Specifications. DNC is proposing to change Technical Specifications Definition 1.12, "Core Alteration;" 3.9.1, "Refueling Operations - Boron Concentration;" 3.9.2, "Refueling Operations - Instrumentation;" and 3.9.11, "Refueling Operations - Water Level - Reactor Vessel." The Bases for these Technical Specifications will be modified to address the proposed changes. Each proposed change will be discussed.

## Technical Specification Changes

1. Technical Specification Definition 1.12, CORE ALTERATION

   The existing definition for CORE ALTERATION is being revised to clearly define which evolutions are core alterations. The definition of a core alteration will be revised consistent with the definition found in the Combustion Engineering Owners Group Standard Technical Specifications, NUREG-1432, Revision 1. Additionally, the proposed changes incorporate all of the technical changes identified in TSTF 47[1], Revision 0, which DNC proposes to adopt for Millstone Unit No. 2.

   The new definition will read as follows:

   "CORE ALTERATION shall be the movement of any fuel, source or reactivity control components within the reactor vessel with the vessel head removed and fuel in the vessel. Suspension of CORE ALTERATIONS shall not preclude completion of movement of a component to a safe position."

   The primary difference between the existing Millstone Unit No. 2 definition for a core alteration and the NUREG-1432, Revision 1 definition is the general reference to "any components." The Standard Technical Specifications NUREG-1432, Revision 1 definition for a core alteration is specific to components which affect reactivity - fuel, control elements, sources and any other component that impacts reactivity. The basis of core alteration is to require nuclear instrumentation to monitor neutron flux and changes in core reactivity. The Technical Specifications which use this definition are those that protect from or mitigate a reactivity excursion event. In keeping with these concepts, the NUREG-1432, Revision 1 definition reflects movement of components other than fuel, sources, or reactivity control components as not being considered core alterations. Therefore, this change is acceptable.

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[1] TSTF-47, "Eliminate 'manipulation' from the definition of Core Alteration," Revision 0, approved September 18, 1996.

The revised definition also contains an additional statement relating to the suspension of core alterations. The revised definition includes an additional statement which allows core alterations to continue until all components have been moved to a safe position. This change further ensures that if core alterations are required by Technical Specification to be suspended, the time in which components are in a transit location is minimized. Therefore, this change is acceptable. NUREG-1432, Revision 1 includes the phrase "movement or manipulation of," DNC is proposing not to include phrases "manipulation" in the definition of "CORE ALTERATION." The deletion of the term "or manipulation" is acceptable since this term is redundant with "movement," since in order to manipulate components movement is necessary. Therefore, this change is acceptable. Additionally, the proposed changes incorporate all of the technical changes identified in TSTF-47, Revision 0, which DNC proposes to adopt for Millstone Unit No. 2.

2. Technical Specification 3.9.1

   a. In a letter date June 3, 1996,[2] and Supplemented on July 3, 1996,[3] Northeast Nuclear Energy Company proposed to make a one-time change to Technical Specification 3.9.1 by removing a requirement that the boron concentration in "all filled portions" of the Reactor Coolant System (RCS) be "Uniform." This change was proposed to support the cycle 13 mid-cycle core offload/reload activities. The change also requested to add a footnote indicating that it is acceptable for the boron concentration of the water volumes in the steam generators and the connecting piping to be as low as 1300 ppm. Technical Specification bases changes were also proposed to reflect the one-time Technical Specification change. The Nuclear Regulatory Commission (NRC) approved these Technical Specification changes via Amendment 201.[4] Since the activities related to mid-cycle 13 are complete and no longer required, the footnote (**) and Surveillance Requirement 4.9.1.3 will be deleted. In addition, the words "of all filled portions" in front of the words "the Reactor Coolant System" will be added back to the Limiting Condition for Operation (LCO) and Surveillance Requirement 4.9.1.2 to restore the original intent of the Technical Specifications. However, the requirement to maintain "Uniform" boron concentration will not be added. It is not necessary to include a requirement for the boron concentration to be "uniform" since this will occur as a result of diffusion and forced circulation. This will not change the LCO requirement to maintain the boron concentration in the filled portions of the RCS and the refueling canal sufficient to meet the more restrictive of the two conditions specified. In addition, this will not result in any change to the current approach Millstone Unit No. 2 uses to verify compliance with this specification.

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[2] F. C. Rothen letter to Nuclear Regulatory Commission, "Proposed Revision to Technical Specification Refueling Boron Concentration," dated June 3, 1996.

[3] T. C. Feigenbaum letter to Nuclear Regulatory Commission, "Proposed Revision to Technical Specification Refueling Boron Concentration," dated July 7, 1996.

[4] NRC letter to T. C. Feigenbaum, "Issuance of Amendment Relating to Boron Concentration in the Reactor Coolant System During Mode 6 Operation," dated August 13, 1996.

b. The applicability for Technical Specification 3.9.1 is MODE 6, which will not change. The LCO phrase "with the reactor vessel head unbolted or removed" is redundant to the Applicability for Technical Specification 3.9.1 and is not necessary to ensure compliance with this technical specification. Therefore, it will be deleted. This is a non-technical change.

c. The first footnote (*) will be deleted since it repeats the Mode definition. As a result of this, the LCO applicability will be revised from "MODE 6*" to MODE 6." This is a non-technical change.

d. The statement "The provisions of specification 3.0.3 are not applicable," will be deleted. Specification 3.0.3 already acknowledges that the provisions of Specification 3.0.3 are not applicable in Modes 5 or 6. Therefore, it is not necessary to repeat this statement in Specification 3.9.1. This is a non-technical change.

e. Technical Specification 3.9.1 limits the boron concentration of the RCS and the refueling canal to ensure that the reactor remains subcritical during MODE 6. However, when the refueling canal is isolated from the RCS, no potential for dilution exists. Therefore, in this condition it is not necessary to place a limit on the boron concentration of the refueling canal. The Applicability is revised with a note which states that the limits only apply to the refueling canal when this volume is connected to the RCS. This change is consistent with the intent of the specification and eliminates restrictions that have no effect on safety. Additionally, the proposed changes incorporate all of the technical changes identified in TSTF-272[5], Revision 1, which DNC proposes to adopt for Millstone Unit No. 2.

3. Technical Specification 3.9.2

a. The phrase "As a minimum" will be deleted, because the LCO states minimum acceptable requirements. This is a premise which does not have to be repeated. This is not a technical change. In addition, the word "operating" will be replaced by "OPERABLE."

b. Technical Specification 3.9.2 Action currently requires suspension of Core Alterations or positive reactivity changes when one or two source range neutron flux monitors are inoperable. The proposed change will provide two separate Actions for one or two source range neutron flux monitor inoperable. Action "a" will address inoperability of one source range neutron flux monitors and will require suspension of all operations involving core alterations and positive reactivity additions. Action "b" will address inoperability of two source range neutron flux monitors and will require that the boron concentration of the RCS be verified to satisfy the requirements of LCO 3.9.1 within 4 hours and at least once per 12 hours thereafter. These changes will ensure that immediate action is

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[5] TSTF-272, Revision 1, "Refueling Boron Concentration Clarification," dated March 19, 1997.

taken to restore at least one monitor and to ensure that an increased reactivity event (boron dilution) is not occurring. The addition of these actions constitute a more restrictive change.

c. Surveillance requirements (SR) 4.9.2.a and 4.9.2.b will be replaced by one surveillance requirement to perform a channel calibration at least once per 18 months. It is not necessary to perform a channel functional test of this instrumentation since it only provides indication of the neutron flux level in the core. The channel calibration will ensure the instrument channels are properly aligned and the channel check will ensure the channels are functioning. A footnote (*) will be added to exclude the neutron detectors from the channel calibration requirement. The proposed SR is consistent with SR 4.3.1.1.1, Table 4.3-1, "Reactor Protective Instrumentation Surveillance Requirements" functional unit II.

   The LCO specifies two indication channels, so a channel check of indication is required. However, only one audio channel is specified and only one channel can be selected to provide input to the audio count rate circuit at a time. Therefore, an audio count rate channel check is not required. SR 4.9.2.c will be revised to include the phrase "and verification of audible counts." This change will eliminate any confusion associated with the current wording which could be interpreted as requiring the channel check to include audio count rate indication. SR 4.9.2.c will also be revised to delete the phrase "during Core Alterations." This is more restrictive in that the surveillance is required to be performed once per 12 hours while in MODE 6.

   The proposed changes associated with Technical Specification 3.9.2 are also consistent with NUREG-1432, Revision 1, Technical Specification 3.9.2.

4. Technical Specification 3.9.11

   The wording of the LCO and the applicability will be modified. The LCO wording change, combined with the proposed change to the applicability of this specification, will not result in any technical change to the requirements to maintain sufficient reactor vessel water level. The applicability will be expanded to include core alterations, except during latching and unlatching of control rod drive shafts, and the movement of irradiated fuel assemblies within containment. The action requirements will be modified to be consistent with the proposed applicability.

   SR 4.9.11 will be modified to require verification of refueling cavity water level at least once per 24 hours, instead of the current requirements to verify water level 2 hours prior to the start of fuel movement and at least once per 7 days thereafter. This frequency change will not change the requirement that the refueling cavity water level be sufficient or that this water level be verified prior to the start of core alterations or fuel movement inside containment. Since acceptable performance of a SR within the proposed surveillance frequency is required prior to entering the applicability of the specification, and since this is normally done shortly before

entering the applicability of the specification, the proposed removal of "within 2 hours" will not adversely impact the requirement that sufficient reactor vessel water level will be established prior to the technical specification being applicable (during core alterations, except during latching and unlatching of control rod drive shafts, and the movement of irradiated fuel assemblies within containment). In addition, this SR will be performed more often, every 24 hours instead of every 7 days, as a result of the proposed change. The proposed frequency is also consistent with NUREG-1432, Revision 1. Additionally, the proposed changes incorporate all of the technical changes identified in TSTF-20[6], Revision 0, which DNC proposes to adopt for Millstone Unit No. 2.

The proposed changes to this specification are consistent with the analysis of record for a fuel handling accident inside containment. This will ensure that the consequences of this accident are not increased. Therefore, the proposed changes will not adversely affect public safety.

**Safety Summary**

The proposed changes to Millstone Unit No. 2 Technical Specifications 3.9.1, 3.9.2, 3.9.11 and Definition Section 1.12 do not pose a condition adverse to safety and do not create any adverse safety consequences. The rationale for this conclusion is provided below.

1. Definition 1.12, CORE ALTERATION

   Movement of a fuel assembly, source or reactivity control components would still be considered a core alteration under the new definition of "CORE ALTERATION." These actions will be performed under the provision of a senior reactor operator. Therefore, there is no effect on the probability and consequences of a fuel handling accident.

2. Technical Specification 3.9.1

   The changes proposed to Section 3.9.1 are either of non technical nature or will restore the original intent of the technical specification. The proposed change to remove the phrase "Uniform" from the LCO will not change the LCO requirement to maintain the boron concentration in the RCS and refueling canal $\geq$1720 ppm. It is not necessary to include a requirement for the boron concentration to be uniform since this will occur as a result of diffusion. In addition, these changes will not result in any change to the current approach Millstone Unit No. 2 uses to verify compliance with this specification. Therefore, there is no effect on the probability and consequences of a boron dilution event or a fuel handling accident.

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[6] TSTF-20, "Delete extraneous Action from Refueling Cavity Water Level," Revision 0, approved March 13, 1997.

3. Technical Specification 3.9.2

The addition of an action requirement to determine that the RCS boron concentration satisfies the requirements of Technical Specification LCO 3.9.1 within 4 hours if both the source range monitors are inoperable is a more restrictive change. Replacing the requirement to perform a channel functional test with a requirement to perform a channel calibration is appropriate since this instrumentation is only used to provide indication of the neutron flux level in the core when the plant is in Mode 6. The channel calibration will ensure the instrument channels are properly aligned and the channel check will ensure the channels are functioning properly.

The wording change to 4.9.2.c will eliminate any confusion that the channel check includes audio rate indication. Since only one audio channel is specified and only one channel can be selected to provide input to the audio count rate circuit at a time, an audio count rate channel check is not required. The proposed change will not affect the requirement to perform a channel check of each source range channel. In addition, the proposed change will still require that the availability of the audio count rate indication be checked for each channel, which will verify that the LCO requirements for core audio channel operability is met.

Therefore, the proposed changes to Specification 3.9.2 will not increase the probability or consequences of a boron dilution event.

4. Technical Specification 3.9.11

The wording of the LCO and the applicability will be modified. The LCO wording change, combined with the proposed change to the applicability of this specification, will not result in any technical change to the requirements to maintain sufficient reactor vessel water level. The applicability will be expanded to include all core alterations, except during latching and unlatching of control rod drive shafts, and the movement of irradiated fuel assemblies within containment. The action requirements will be modified to be consistent with the proposed applicability.

SR 4.9.11 will be modified to require verification of refueling cavity water level at least once per 24 hours, instead of the current requirements to verify water level 2 hours prior to the start of fuel movement and at least once per 7 days thereafter. This frequency change will not change the requirement that the refueling cavity water level be sufficient or that this water level be verified prior to the start of core alterations or fuel movement inside containment. Since an acceptable performance of a SR within the proposed surveillance frequency is required prior to entering the applicability of the specification, and since this is normally done shortly before entering the applicability of the specification, the proposed removal of "within 2 hours" will not adversely impact the requirement that sufficient reactor vessel water level will be established prior to the technical specification being applicable (during core alterations, except during latching and unlatching of control rod drive shafts, and the movement of irradiated fuel assemblies within containment). In

addition, this SR will be performed more often, every 24 hours instead of every 7 days, as a result of the proposed change. The proposed frequency is also consistent with NUREG-1432, Revision 1.

The proposed changes to this specification are consistent with the analysis of record for a fuel handling accident inside containment. This will ensure this analysis remains valid and the consequences of this accident are acceptable.

In summary, the proposed changes to the Millstone Unit No. 2 Technical Specifications 3.9.1, 3.9.2, 3.9.11 and Definition Section 1.12 do not alter design, functions or operation of systems used to mitigate a fuel handling accident or a boron dilution event. Therefore, there is no increase in the probability or consequences of an accident previously evaluated. The proposed changes are safe and acceptable.

Docket No. 50-336
B18352

Attachment 2

Millstone Nuclear Power Station, Unit No. 2

Technical Specifications Change Request 2-3-01
Core Alteration and Refueling Operations
Significant Hazards Consideration

**Technical Specifications Change Request 2-3-01**
**Core Alterations and Refueling Operations**
**Significant Hazards Consideration**

Description of License Amendment Request

Dominion Nuclear Connecticut, Inc. (DNC) hereby proposes to revise the Millstone Unit No. 2 Technical Specifications as described in this License Amendment Request. The proposed changes are associated with Technical Specification Sections 3.9.1, 3.9.2, 3.9.11 and Definition 1.12. A brief summary of the changes is provided below. Refer to Attachment 1 of this submittal for a detailed discussion of the proposed changes.

Definition 1.12, Core Alteration:

The existing definition for CORE ALTERATION is being revise to clearly define which evolutions are core alterations. This definition is consistent with NUREG-1432, Revision 1. Additionally, the proposed changes incorporate all of the technical changes identified in TSTF-47,[1] Revision 0, which DNC proposes to adopt for Millstone Unit No. 2.

Section 3.9.1

- Remove the phrase "reactor vessel head unbolted or removed" from the limited condition for operation (LCO).

- Remove the footnote "**" since it repeats the mode definition. The LCO applicability will be revised from "MODE 6**" to "MODE 6."

- Delete the statement "The provisions of Specification 3.0.3 are not applicable." Specification 3.0.3 already acknowledges that Specification 3.0.3 is not applicable in Modes 5 and 6. Therefore, it is not necessary to repeat this statement in Section 3.9.1.

- Applicability is revised with a note which states the boron concentration limits only apply to the refueling canal when this volume is connected to the RCS.

- The phrase "all filled portions" is added in front of the RCS in the LCO and Surveillance Requirement 4.9.1.2 to restore the original intent of the technical specification. However, the requirement to maintain "Uniform" boron concentration will not be added back to the LCO.

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[1] TSTF-47, "Eliminate 'manipulation' from the definition of Core Alteration," Revision 0, approved September 18, 1996.

Section 3.9.2

- Require the initial determination of RCS boron concentration to satisfy the requirements of LCO 3.9.1 be done within 4 hours if both source range neutron monitors are inoperable.

- Replace the requirement to perform a channel operational test with a requirement to perform a channel calibration.

- Revise the wording of 4.9.2.c to eliminate any confusion that the channel check includes audio count rate indication.

- Make various non-technical changes (e.g., deletion of "as a minimum" and replace "operating" with "OPERABLE").

Basis for No Significance Hazards Considerations

In accordance with 10 CFR 50.92, DNC 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 10 CFR 50.92(c) are not compromised. The proposed changes do not involve an SHC because the changes do not.

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

   The proposed Technical Specification changes associated with the definition for Core Alteration and LCO, applicability, action requirements and surveillance requirements of Sections 3.9.1, 3.9.2 and 3.9.11 will not cause an accident to occur and will not result in any change in operation of the associated accident mitigation equipment. The design basis accidents (fuel handling and boron dilution event) remain the same postulated events described in the Millstone Unit No. 2 Final Safety Analysis Report (FSAR). Therefore, the proposed changes will not increase the probability of an accident previously evaluated.

   The proposed LCO and Applicability changes are consistent with the design basis accident analyses of record. This will ensure that the accident mitigation equipment functions and associated equipment are available for accident mitigation as assumed in the associated accident analyses. The proposed surveillance requirement changes will continue to provide reasonable assurance of equipment operability. As a result, the accident assumptions and mitigation methods will not be adversely affected by the changes. Therefore, the proposed changes will not result in increase in the consequences of accident previously evaluated.

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

   The proposed changes to the Technical Specifications do not impact any system or component that could cause an accident. 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 proposed changes will not alter the way any structure, system, or component functions, and will not significantly alter the manner in which the plant is operated. There will be no adverse effect on plant operation or accident mitigation equipment. The response of the plant and the operators following an accident will not be different. In addition, the proposed changes do not introduce any new failure modes. Therefore, the proposed changes will 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 LCO and Applicability changes are consistent with the design basis accident analyses of record. The proposed surveillance requirement changes will continue to provide assurance of equipment operability. The proposed changes do not involve any changes in the accident analyses, therefore, the proposed changes do not involve a reduction in a margin of safety.

As described above, this license amendment does not involve a significant increase in the probability of an accident previously evaluated, does not involve a significant increase in the consequences of an accident previously evaluated, does not create the possibility of a new or different kind of accident from any accident previously evaluated, and does not result in a reduction in a margin of safety. Therefore, DNC has concluded that the proposed changes do not involve a SHC.

Docket No. 50-336
B18352

Attachment 3

Millstone Nuclear Power Station, Unit No. 2

Technical Specifications Change Request 2-3-01
Core Alteration and Refueling Operations
Marked Up Pages

## List of Affected Pages

| Technical Specification Section Number | Title of Section | Affected Page with Amendment Number |
|---|---|---|
| Definition 1.12 | CORE ALTERATION | 1-3, Amendment No. 38 |
| 3.9.1 | Refueling Operations - Boron Concentration | 3/4 9-1, Amendment No. 201<br>B 3/4 9-1, Amendment No. 245 |
| 3.9.2 | Refueling Operations - Instrumentation | 3/4 9-2, August 1, 1975 |
| 3.9.11 | Refueling Operations - Water Level - Reactor Vessel | 3/4 9-11, August 1, 1975 |

DEFINITIONS

CORE ALTERATION

Replace with INSERT 'A'

1.12 CORE ALTERATION shall be the movement or manipulation of any component within the reactor pressure vessel with the vessel head removed and fuel in the vessel.

SHUTDOWN MARGIN

1.13 SHUTDOWN MARGIN shall be the instantaneous amount of reactivity by which the reactor is subcritical or would be subcritical from its present condition assuming all full length control element assemblies (shutdown and regulating) are fully inserted except for the single assembly of highest reactivity worth which is assumed to be fully withdrawn.

IDENTIFIED LEAKAGE

1.14 IDENTIFIED LEAKAGE shall be:

a. Leakage into closed systems, such as pump seal or valve packing leaks that are captured, and conducted to a sump or collecting tank, or

b. Leakage into the containment atmosphere from sources that are both specifically located and known either not to interfere with the operation of leakage detection systems or not to be PRESSURE BOUNDARY LEAKAGE.

UNIDENTIFIED LEAKAGE

1.15 UNIDENTIFIED LEAKAGE shall be all leakage which is not IDENTIFIED LEAKAGE or CONTROLLED LEAKAGE.

PRESSURE BOUNDARY LEAKAGE

1.16 PRESSURE BOUNDARY LEAKAGE shall be leakage (except steam generator tube leakage) through a non-isolable fault in a Reactor Coolant System component body, pipe wall or vessel wall.

CONTROLLED LEAKAGE

1.17 CONTROLLED LEAKAGE shall be the water flow from the reactor coolant pump seals.

INSERT 'A' TO PAGE 1-3

1.12 CORE ALTERATION shall be the movement of any fuel, sources, or reactivity control components within the reactor vessel with the vessel head removed and fuel in the vessel. Suspension of CORE ALTERATIONS shall not preclude completion of movement of a component to a safe position.

## 3/4.9.1 BORON CONCENTRATIONS

### LIMITING CONDITION FOR OPERATION

3.9.1 With the reactor vessel head unbolted or removed, the boron concentration of the Reactor Coolant System* and the refueling canal shall be maintained sufficient to ensure that the more restrictive of following reactivity conditions is met:

a. Either a $K_{eff}$ of 0.95 or less, or

b. A boron concentration of greater than or equal to 1720 ppm.

APPLICABILITY: MODE 6*.

ACTION:

With the requirements of the above specification not satisfied, within 15 minutes suspend all operations involving CORE ALTERATIONS or positive reactivity changes and initiate and continue boration at greater than or equal to 40 gpm of boric acid solution at or greater than the required refueling water storage tank concentration (ppm) until $K_{eff}$ is reduced to less than or equal to 0.95 or the boron concentration is restored to greater than or equal to 1720 ppm, whichever is the more restrictive. The provisions of Specification 3.0.3 are not applicable.

### SURVEILLANCE REQUIREMENTS

4.9.1.1 The more restrictive of the above two reactivity conditions shall be determined prior to:

a. Removing or unbolting the reactor vessel head, and

b. Withdrawal of any full length CEA in excess of 3 feet from its fully inserted position within the reactor pressure vessel.

4.9.1.2 The boron concentration of the reactor coolant system** and the refueling canal shall be determined by chemical analysis at least once per 72 hours.

4.9.1.3 The boron concentration in the cold leg side of the steam generators shall be determined to be greater than or equal to 1300 ppm prior to entering MODE 6.

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*The reactor shall be maintained in MODE 6 whenever the reactor vessel head is unbolted or removed and fuel is in the reactor vessel.

**For the Cycle 13 mid-cycle core offload activities, it is acceptable for the boron concentration of the water volumes in the steam generators and connecting piping to be as low as 1300 ppm.

INSERT '1' TO APPLICABILITY Page 3/4 9-1

| NOTE |
| --- |
| Only applicable to the refueling canal when connected to the Reactor Coolant System |

## 3/4.9 REFUELING OPERATIONS

The ACTION requirements to immediately suspend various activities (CORE ALTERATIONS, fuel movement, CEA movement, etc.) do not preclude completion of the movement of a component to a safe position.

### 3/4.9.1 BORON CONCENTRATION

The limitations on reactivity conditions during REFUELING ensure that: 1) the reactor will remain subcritical during CORE ALTERATIONS, and 2) sufficient boron concentration is maintained for reactivity control in the water volume having direct access to the reactor vessel. These limitations are consistent with the initial conditions assumed for the boron dilution incident in the accident analyses. Reactivity control in the water volume having direct access to the reactor vessel is achieved by determining boron concentration in the refueling canal. The refueling canal is defined as the entire length of pool stretching from refuel pool through transfer canal to spent fuel pool.

INSERT 2

Delete

For the Cycle 13 mid-cycle core offload activities, the boron concentration of the water volumes in the steam generators and connecting piping may be as low as 1300 ppm. During REFUELING and/or CORE ALTERATIONS, the water volumes in the steam generators and connecting piping are stagnant and do not readily mix with the water in the reactor vessel. The water volumes in the pressurizer and connecting piping, shutdown cooling system (including reactor vessel and connecting piping), and refueling pool shall be maintained greater than 1950 ppm.

A boron dilution analysis has been performed which accounts for dilution of the shutdown cooling system with the water volumes from the steam generators and connecting piping. This analysis demonstrates that, in the unlikely event in which all of the water in the steam generators and connecting piping mixes with the water in the shutdown cooling system, the resulting shutdown cooling system boron concentration will remain greater than the required refueling boron concentration.

The surveillance requirement to verify that the boron concentration in the steam generators is greater than 1300 ppm prior to entering MODE 6 is consistent with the assumptions of the boron dilution calculation. The sample points are only located on the cold leg side of the steam generators. These sample points are representative of the water volumes in the steam generators (both hot and cold legs) and their connecting piping, based on the fact that uniform mixing of these water volumes at a boron concentration of approximately 1320 ppm had occurred prior to shutting off the reactor coolant pumps. In March 1996, the reactor coolant system was drained and subsequently refilled with water having a boron concentration greater than or equal to 1320 ppm. The boron concentration of the water in the steam generators and connecting piping is greater than 1300 ppm.

### 3/4.9.2 INSTRUMENTATION

The OPERABILITY of the source range neutron flux monitors ensures that redundant monitoring capability is available to detect changes in the reactivity condition of the core.

INSERT '2' TO PAGE B 3/4 9-1

The applicability is modified by a Note. The Note states that the limits on boron concentration are only applicable to the refueling canal when this volume is connected to the Reactor Coolant system (RCS). When the refueling canal is isolated from the RCS, no potential path for boron dilution exists. Prior to re-connecting portions of the refueling canal to the RCS, Surveillance 4.9.1.2 must be met. If any dilution activity has occurred while the refueling canal was disconnected from the RCS, this surveillance ensures the correct boron concentration prior to communication with the RCS.

~~August 1, 1975~~

REFUELING OPERATIONS

INSTRUMENTATION

LIMITING CONDITION FOR OPERATION

3.9.2 As a minimum, two source range neutron flux monitors shall be OPERABLE ~~operating~~, each with continuous visual indication in the control room and one with audible indication in the containment, and control room.

APPLICABILITY: MODE 6.

ACTION:

Replace with INSERT 'B'

With the requirements of the above specification not satisfied, immediately suspend all operations involving CORE ALTERATIONS or positive reactivity changes.

SURVEILLANCE REQUIREMENTS

4.9.2 Each source range neutron flux monitor shall be demonstrated OPERABLE by performance of:

a. A CHANNEL FUNCTIONAL TEST at least once per 7 days. Replace with word "Detected"

b. A CHANNEL FUNCTIONAL TEST within 8 hours prior to the start of CORE ALTERATIONS, and

c. A CHANNEL CHECK at least once per 12 hours and verification of audible counts ~~during CORE ALTERATIONS.~~

A CHANNEL CALIBRATION at least once per 18 months *

* Neutron detectors are excluded from ~~the~~ CHANNEL CALIBRATION

INSERT 'B' TO PAGE 3/4 9-2

a. With one of the above required monitors inoperable, immediately suspend all operations involving CORE ALTERATIONS or positive reactivity additions.

b. With both of the above required monitors inoperable, determine that the boron concentration of the Reactor Coolant System satisfies the requirements of LCO 3.9.1 within 4 hours and at least once per 12 hours thereafter.

REFUELING OPERATIONS

WATER LEVEL - REACTOR VESSEL

LIMITING CONDITION FOR OPERATION

3.9.11 As a minimum, 23.0 feet of water shall be maintained over the top of the reactor ~~pressure~~ vessel ~~while irradiated fuel assemblies seated within the reactor pressure vessel~~.

Plange

APPLICABILITY: DURING MOVEMENT OF FUEL WITHIN THE REACTOR PRESSURE VESSEL.

ACTION:

With the requirements of the above specification not satisfied, suspend all operations involving movement of fuel within the pressure vessel.

INSERT F

SURVEILLANCE REQUIREMENTS

4.9.11 The water level shall be determined to be within its minimum depth ~~within 2 hours prior to the start of fuel movement within the reactor pressure vessel~~ and at least once per ~~7 days thereafter~~.

24 hours

INSERT 'F' - PAGE 3/4 9-11

APPLICABILITY: During CORE ALTERATIONS, except during latching and unlatching of control rod drive shafts.

During movement of irradiated fuel assemblies within containment.

ACTION: Immediately suspend CORE ALTERATIONS and immediately suspend movement of irradiated fuel assemblies within containment.

Docket No. 50-336
B18352

Attachment 4

Millstone Nuclear Power Station, Unit No. 2

Technical Specifications Change Request 2-3-01
Core Alteration and Refueling Operations
Retyped Pages

CORE ALTERATION

1.12 CORE ALTERATION shall be the movement of any fuel, sources, or reactivity control components within the reactor vessel with the vessel head removed and fuel in the vessel. Suspension of CORE ALTERATIONS shall not preclude completion of movement of a component to a safe position.

SHUTDOWN MARGIN

1.13 SHUTDOWN MARGIN shall be the instantaneous amount of reactivity by which the reactor is subcritical or would be subcritical from its present condition assuming all full length control element assemblies (shutdown and regulating) are fully inserted except for the single assembly of highest reactivity worth which is assumed to be fully withdrawn.

IDENTIFIED LEAKAGE

1.14 IDENTIFIED LEAKAGE shall be:

a. Leakage into closed systems, such as pump seal or valve packing leaks that are captured, and conducted to a sump or collecting tank, or

b. Leakage into the containment atmosphere from sources that are both specifically located and known either not to interfere with the operation of leakage detection systems or not to be PRESSURE BOUNDARY LEAKAGE.

UNIDENTIFIED LEAKAGE

1.15 UNIDENTIFIED LEAKAGE shall be all leakage which is not IDENTIFIED LEAKAGE or CONTROLLED LEAKAGE.

PRESSURE BOUNDARY LEAKAGE

1.16 PRESSURE BOUNDARY LEAKAGE shall be leakage (except steam generator tube leakage) through a non-isolated fault in a Reactor Coolant System component body, pipe wall or vessel wall.

CONTROLLED LEAKAGE

1.17 CONTROLLED LEAKAGE shall be the water flow from the reactor coolant pump seals.

## 3/4.9 REFUELING OPERATIONS

### 3/4.9.1 BORON CONCENTRATIONS

**LIMITING CONDITION FOR OPERATION**

3.9.1 The boron concentration of all filled portions of the Reactor Coolant System and the refueling canal shall be maintained sufficient to ensure that the more restrictive of following reactivity conditions is met:

a. Either a $K_{eff}$ of 0.95 or less, or

b. A boron concentration of greater than or equal to 1720 ppm.

APPLICABILITY: MODE 6.

| NOTE |
| --- |
| Only applicable to the refueling canal when connected to the Reactor Coolant System |

ACTION:

With the requirements of the above specification not satisfied, within 15 minutes suspend all operations involving CORE ALTERATIONS or positive reactivity changes and initiate and continue boration at greater than or equal to 40 gpm of boric acid solution at or greater than the required refueling water storage tank concentration (ppm) until $K_{eff}$ is reduced to less than or equal to 0.95 or the boron concentration is restored to greater than or equal to 1720 ppm, whichever is the more restrictive.

**SURVEILLANCE REQUIREMENTS**

4.9.1.1 The more restrictive of the above two reactivity conditions shall be determined prior to:

a. Removing or unbolting the reactor vessel head, and

b. Withdrawal of any full length CEA in excess of 3 feet from its fully inserted position within the reactor pressure vessel.

4.9.1.2 The boron concentration of all filled portions of the reactor coolant system and the refueling canal shall be determined by chemical analysis at least once per 72 hours.

4.9.1.3 Deleted

## 3/4.9 REFUELING OPERATIONS

The ACTION requirements to immediately suspend various activities (CORE ALTERATIONS, fuel movement, CEA movement, etc.) do not preclude completion of the movement of a component to a safe position.

### 3/4.9.1 BORON CONCENTRATION

The limitations on reactivity conditions during REFUELING ensure that: 1) the reactor will remain subcritical during CORE ALTERATIONS, and 2) sufficient boron concentration is maintained for reactivity control in the water volume having direct access to the reactor vessel. These limitations are consistent with the initial conditions assumed for the boron dilution incident in the accident analyses. Reactivity control in the water volume having direct access to the reactor vessel is achieved by determining boron concentration in the refueling canal. The refueling canal is defined as the entire length of pool stretching from refuel pool through transfer canal to spent fuel pool.

The applicability is modified by a Note. The Note states that the limits on boron concentration are only applicable to the refueling canal when this volume is connected to the Reactor Coolant System (RCS). When the refueling canal is isolated from the RCS, no potential path for boron dilution exists. Prior to re-connecting portions of the refueling canal to the RCS, Surveillance 4.9.1.2 must be met. If any dilution activity has occurred while the refueling canal was disconnected from the RCS, this surveillance ensures the correct boron concentration prior to communication with the RCS.

### 3/4.9.2 INSTRUMENTATION

The OPERABILITY of the source range neutron flux monitors ensures that redundant monitoring capability is available to detect changes in the reactivity condition of the core.

**LIMITING CONDITION FOR OPERATION**

3.9.2 Two source range neutron flux monitors shall be OPERABLE each with continuous visual indication in the control room and one with audible indication in the containment, and control room.

APPLICABILITY: MODE 6.

ACTION:

a. With one of the above required monitors inoperable, immediately suspend all operations involving CORE ALTERATIONS or positive reactivity additions.

b. With both of the above required monitors inoperable, determine the boron concentration of the Reactor Coolant System within 4 hours and at least once per 12 hours thereafter.

**SURVEILLANCE REQUIREMENTS**

4.9.2 Each source range neutron flux monitor shall be demonstrated OPERABLE by performance of:

a. Deleted

b. A CHANNEL CALIBRATION at least once per 18 months*

c. A CHANNEL CHECK and verification of audible counts at least once per 12 hours.

**Neutron detectors are excluded from CHANNEL CALIBRATION.

## REFUELING OPERATIONS

## WATER LEVEL - REACTOR VESSEL

### LIMITING CONDITION FOR OPERATION

3.9.11 As a minimum, 23.0 feet of water shall be maintained over the top of the reactor vessel flange.

APPLICABILITY: During CORE ALTERATIONS, except during latching and unlatching of control rod drive shafts.

During movement of irradiated fuel assemblies within containment.

ACTION:

Immediately suspend CORE ALTERATIONS and immediately suspend movement of irradiated fuel assemblies within containment.

### SURVEILLANCE REQUIREMENTS

4.9.11 The water level shall be determined to be within its minimum depth at least once per 24 hours.