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The Northeast Utilities System

JUN 29 2000

Docket No. 50-423
B18116

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 3-6-00
Fuel Handling Accidents and Ventilation Systems

Introduction

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 Millstone Unit No. 3 Technical Specifications. NNECO is proposing to change Technical Specifications 3.3.2, "Instrumentation - Engineered Safety Features Actuation System Instrumentation;" 3.7.7, "Plant Systems - Control Room Emergency Ventilation System;" 3.7.8, "Plant Systems - Control Room Envelope Pressurization System;" 3.7.9, "Plant Systems - Auxiliary Building Filter System;" 3.9.1.1, "Refueling Operations - Boron Concentration;" 3.9.1.2, "Refueling Operations - Boron Concentration;" 3.9.2, "Refueling Operations - Instrumentation;" 3.9.4, "Refueling Operations - Containment Building Penetrations;" 3.9.9, "Refueling Operations - Containment Purge and Exhaust Isolation System;" 3.9.10, "Refueling Operations - Water Level - Reactor Vessel;" and 3.9.12, "Refueling Operations - Fuel Building Exhaust Filter System." 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. Attachment 5 provides the calculations that support the revised fuel handling accident analyses.

The proposed changes to Technical Specifications 3.7.7, 3.7.9, and 3.9.12 and associated Bases are on the same pages 3/4 7-16, 3/4 7-20, 3/4 9-14, B3/4 7-15, and B3/4 9-8 which have been proposed to be changed in a separate letter dated

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November 29, 1999.[1] The proposed changes to Technical Specifications 3.7.7 and 3.7.8 and associated Bases are on the same pages 3/4 7-15, 3/4 7-16, 3/4 7-18, B3/4 7-13, B3/4 7-15, and B3/4 7-20 which have been proposed to be changed in a separate letter dated February 1, 2000.[2] The proposed changes contained in this letter do not assume approval of any of the previously submitted changes.

Environmental Considerations

NNECO has reviewed the proposed license amendment request against the criteria of 10 CFR 51.22 for environmental considerations. The Technical Specification changes associated with the revised containment fuel handling accident analysis will result in an increase in the consequences of a containment fuel handling accident since the current analysis of a containment fuel handling accident does not assume the release of any radioactive material from containment, while the revised containment analysis now assumes a release of radioactive material. However, the calculated consequences for the revised containment fuel handling accident analysis are bounded by the consequences of the Design Basis Loss of Coolant Accident. In addition, the fuel handling accident inside the spent fuel pool has also been revised resulting in a small increase in the associated consequences. The revised fuel handling accident analyses demonstrate that the radiological consequences are well within the offsite dose limits of 10 CFR 100 and within the 10 CFR 50, Appendix A, General Design Criteria (GDC) 19 limit for Control Room Operators.

In addition to the Technical Specification changes associated with the revised containment fuel handling accident analysis, numerous other changes to the Millstone Unit No. 3 Technical Specifications are proposed. The additional changes will provide enhancements to the current requirements and address the integrity of the Control Room and Fuel Building boundaries. The proposed enhancements will not adversely impact the type and amounts of effluents that may be released off site. The Technical Specification changes to address a loss of Control Room boundary integrity may result in an increase in consequences to Control Room personnel since an allowed outage time of 24 hours is proposed to restore boundary integrity. However, considering the low probability of a design basis accident occurring during this time, the proposed allowed outage time is reasonable to allow the boundary integrity to be restored before requiring a plant shutdown. In addition, the proposed allowed outage time is consistent with Technical Specification 3.6.6.2, "Containment Systems - Secondary Containment," and with generic industry guidance.

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[1] R. P. Necci letter to the NRC, "Millstone Nuclear Power Station, Unit No. 3 Proposed Revision to Technical Specifications Response to Generic Letter 99-02 "Laboratory Testing of Nuclear-Grade Activated Charcoal" and Preparation of Technical Specifications Change Request 3-12-99," dated November 29, 1999.

[2] R. P. Necci letter to the NRC, "Millstone Nuclear Power Station, Unit No. 3 Proposed Revision to Technical Specifications Cable Spreading Room Pressurization Testing (TSCR 3-16-99)," dated February 1, 2000.

These changes do not result in a significant increase in 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 to the fuel handling accident analyses and the Technical Specifications do not result in a significant increase in the type and amounts of effluents that may be released. The calculated values for the doses associated with the fuel handling accident analyses are well within 10 CFR 100 offsite accident dose limits and within the 10 CFR 50, Appendix A, GDC 19 limit for Control Room Operators. Therefore, we have concluded the proposed changes are safe.

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). Therefore, NNECO requests the NRC review and approve the proposed changes to the Millstone Unit No. 3 Technical Specifications through an amendment to Operating License NPF-49, pursuant to 10 CFR 50.90.

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 December 31, 2000, with the amendment to be implemented within 30 days of issuance. This will allow Millstone Unit No. 3 to use the proposed changes during the next refueling outage currently scheduled for February 2001.

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 29 day of June, 2000

Notary Public

My Commission expires _____

DIANE M. PHILLIPO
Notary Public
My Commission Expires Dec. 31, 2000

Attachments (5)

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
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Monitoring and Radiation Division
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Docket No. 50-423
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Attachment 1

Millstone Nuclear Power Station, Unit No. 3

Technical Specifications Change Request 3-6-00
Fuel Handling Accidents and Ventilation Systems
Discussion of Proposed Changes and Safety Summary

Technical Specifications Change Request 3-6-00
Fuel Handling Accidents and Ventilation Systems
Discussion of Proposed Changes and Safety Summary

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 Millstone Unit No. 3 Technical Specifications. NNECO is proposing to change Technical Specifications 3.3.2, "Instrumentation - Engineered Safety Features Actuation System Instrumentation;" 3.7.7, "Plant Systems - Control Room Emergency Ventilation System;" 3.7.8, "Plant Systems - Control Room Envelope Pressurization System;" 3.7.9, "Plant Systems - Auxiliary Building Filter System;" 3.9.1.1, "Refueling Operations - Boron Concentration;" 3.9.1.2, "Refueling Operations - Boron Concentration;" 3.9.2, "Refueling Operations - Instrumentation;" 3.9.4, "Refueling Operations - Containment Building Penetrations;" 3.9.9, "Refueling Operations - Containment Purge and Exhaust Isolation System;" 3.9.10, "Refueling Operations - Water Level - Reactor Vessel;" 3.9.11, "Refueling Operations - Water Level - Reactor Vessel;" and 3.9.12, "Refueling Operations - Fuel Building Exhaust Filter System." The Bases for these Technical Specifications will be modified as a result of these proposed changes.

Design Basis and Licensing Basis

NNECO has revised the Millstone Unit No. 3 analysis of the Fuel Handling Accident Inside Containment (FHAIC). A brief description of the current FHAIC analysis, the revised analysis, the mitigation methods assumed, and the consequences of the accident will be presented. The Fuel Handling Accident Inside the Spent Fuel Pool (FHAISFP) has been updated to include the use of high burnup fuel at Millstone Unit No. 3, the use of different thyroid dose conversion factors, and to assume a 2 hour release instead of a puff release. There are no changes to the assumed plant configuration or mitigation approach for the FHAISFP. Refer to the Safety Summary for a list of significant analyses changes.

Fuel Handling Accident Inside Containment

The current FHAIC assumes that the containment is isolated as required by Technical Specification 3.9.4. Containment purge is in operation with an operable containment purge isolation system that will secure containment purge upon detection of high radiation levels inside containment. Due to the physical design of the containment purge system and associated ducting, the response of the system to isolate upon detection of high radiation levels from a fuel handling accident by the gross activity area radiation monitors will prevent the release of any radioactive material from containment through the containment purge exhaust. As a result, NNECO did not previously calculate any radiological consequences associated with a FHAIC. The current FHAIC analysis is described in Section 15.7.4.2.2 of the Millstone Unit No. 3 Final Safety Analysis Report (FSAR).

NNECO has revised the FHAIC analysis to allow the containment personnel access hatch doors to remain open during core alterations and fuel movement inside containment. The revised analysis assumes at least one containment personnel access hatch door will be closed within 10 minutes after a fuel handling accident. This will result in a release of radioactivity through the containment personnel access hatch door to the Auxiliary Building for 10 minutes. As a result, radioactive material may be released to the environment if a fuel handling accident were to occur inside containment.

The radioactivity released from containment to the environment may be drawn into the Millstone Unit No. 3 Control Building and the Control Room. Radiation monitors in the supply plenum to the Control Building will sense the high radioactivity and initiate a Control Building Isolation (CBI) signal, if necessary. 60 seconds after receipt of a CBI signal, pressurization of the Control Room envelope to 1/8 inch wg by the Control Room Envelope Pressurization System is automatically initiated. The Control Room Envelope Pressurization System will maintain the Control Room envelope pressurized for a minimum of 60 minutes. After 60 minutes, the Control Room Emergency Ventilation System will be manually aligned in the filtered pressurization mode (outside air is manually diverted through filters to the Control Room envelope to maintain a positive pressure).

The radioactivity released from the Millstone Unit No. 3 containment to the environment may also be drawn into the Millstone Unit No. 2 Control Room by the Control Room Emergency Ventilation System. The radiation monitors in the supply plenum will sense the high radioactivity and initiate isolation of the Millstone Unit No. 2 Control Room from outside air, if necessary.

The revised radiological consequences of a FHAIC are summarized in Table 1.

Table 1
Summary of Revised Doses for Fuel Handling Accident Inside Containment

Location	Thyroid (rem)	Whole Body (rem)	Beta Skin (rem)
EAB	6.81E+01	2.80E-01	N/A
LPZ	3.66E+00	1.50E-02	N/A
MP3 Control Room	2.44E+01	3.21E-01	3.44E-01
MP2 Control Room	9.18E+00	1.76E-01	5.30E+00

The radiological consequences of a FHAIC at Millstone Unit No. 3 are well within the Exclusion Area Boundary (EAB) and Low Population Zone (LPZ) dose limits of 10 CFR 100 (300 rem thyroid and 25 rem whole body). Well within is defined by Standard Review Plan (SRP) 15.7.4[1] as 25% or less of the 10 CFR 100 limits. The dose to the

[1] Standard Review Plan 15.7.4, "Radiological Consequences of Fuel Handling Accidents," Revision 1, July 1981.

Control Room Operators is within the 10 CFR 50, Appendix A, General Design Criteria (GDC) 19 limit of 5 rem whole body or its equivalent (30 rem thyroid and 30 rem to the skin as defined by SRP 6.4.[2])

Fuel Handling Accident Inside the Spent Fuel Pool

The Fuel Building Ventilation System removes heat generated by equipment and water vapor from fuel pool evaporation, prevents moisture condensation on interior walls, and provides a suitable environment for equipment operation and personnel. It also limits potential radioactive release to the atmosphere during normal operation, anticipated operational transients, and following a fuel handling accident. During fuel handling or movement of loads within the spent fuel pool, the exhaust air is manually diverted through one of the Fuel Building Exhaust Filter Systems (high efficiency particulate (HEPA) filters and charcoal adsorbers) prior to discharge through the ventilation vent. In addition, the supply air flow is reduced to maintain a slight negative pressure. Fuel Building filtration is required by Technical Specification 3.9.12 during fuel movement within the spent fuel pool or crane operations with loads over the spent fuel pool whenever irradiated fuel that has decayed less than 60 days is in the spent fuel pool.

The revised radiological consequences of a FHAISFP are summarized in Table 2.

Table 2
Summary of Revised Doses for Fuel Handling Accident Inside the Spent Fuel Pool

Location	Thyroid (rem)	Whole Body (rem)	Beta Skin (rem)
EAB	6.87E+00	5.28E-01	N/A
LPZ	4.65E-01	3.57E-02	N/A
MP3 Control Room	4.21E+00	1.10E-01	1.04E+00
MP2 Control Room	2.27E+00	7.08E-01	2.17E+01

The radiological consequences of a FHAISFP at Millstone Unit No. 3 are well within the EAB and LPZ dose limits of 10 CFR 100. The dose to the Control Room Operators is within the GDC 19 limit.

Technical Specification Changes

Numerous changes to the Millstone Unit No. 3 Technical Specifications are proposed. These changes are consistent with the revised FHAIC and FHAISFP analyses. In addition, the proposed changes will address the impact of a loss of Control Room and Fuel Building boundary integrity on the associated ventilation systems, as well as numerous enhancements to the current requirements. Each proposed Technical Specification change will be discussed.

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[2] Standard Review Plan 6.4, "Control Room Habitability System," Revision 2, July 1981.

Technical Specification 3.3.2

Changes to Technical Specification 3.3.2 are necessary to ensure the CBI function will be operable during fuel movement inside containment or the spent fuel pool when the plant is defueled. The current applicability of "All" Modes does not address this condition.

1. The Applicable Modes in Table 3.3-3, "Engineered Safety Features Actuation System Instrumentation," Functional Unit No. 7, "Control Building Isolation," Manual Actuation and Control Building Inlet Ventilation Radiation will be changed to address fuel movement inside containment and the spent fuel pool. This will be accomplished by replacing the word "All" with an asterisk "*." A new table notation (*) will be added that will require these functions to be operable during fuel movement within containment or the spent fuel pool, in addition to the current requirement for Modes 1 through 6.

   The Applicable Modes in Table 3.3-3, "Engineered Safety Features Actuation System Instrumentation," Functional Unit No. 7, "Control Building Isolation," Automatic Actuation Logic and Actuation Relays will be changed from "All" to "1, 2, 3, 4." This change is consistent with the Manual Safety Injection Actuation which is required in Modes 1 through 4. When a manual actuation of safety injection is initiated by the plant operators, the automatic actuation logic and actuation relays of the Solid State Protection System (SSPS) are used to initiate a safety injection. In addition, manual safety injection switch contacts are used to directly actuate isolation of the Control Building. The generation of a CBI signal by the switch contacts does not utilize the SSPS automatic actuation logic and actuation relays. (The manual actuation and the inlet ventilation radiation actuation also do not use the automatic actuation logic and actuation relays of SSPS.) However, for consistency with other functional units covered by this specification, an applicability of Modes 1 through 4 will be used. This is also consistent with the associated surveillance requirements contained in Table 4.3-2, "Engineered Safety Features Actuation System Instrumentation Surveillance Requirements," Functional Unit No. 7, "Control Building Isolation," Automatic Actuation Logic and Actuation Relays.

2. Action 18, which applies to CBI on high inlet ventilation radiation will be replaced. The current requirement to place the Control Room Emergency Air Filtration System in the recirculation mode will not be retained. NNECO has not verified that this action would provide sufficient protection for the Control Room Operators to allow continued plant operation. Therefore, it should be removed until an evaluation is completed.

   The proposed action requirement will become effective when the number of operable channels is one less than the total number of channels. The current action requirement becomes effective when the number of operable channels is less than the minimum channels operable. The proposed terminology (total

number of channels) is consistent with other actions contained in this specification. It will not result in any technical change to the action requirement. The proposed action requirement will be structured to address the proposed applicability for this function and to address one or two inoperable channels. The proposed action requirement will allow 7 days to restore one inoperable channel to operable status. The use of a 7 day allowed outage time is consistent with the allowed outage time for the Control Room Emergency Air Filtration System (Technical Specification 3.7.7) and the Control Room Envelope Pressurization System (Technical Specification 3.7.8). After 7 days, or if no channels are operable, core alterations and fuel movement must be suspended and a plant shutdown will be required. The plant shutdown times are consistent with Technical Specification 3.0.3.

3. The Applicable Modes in Table 4.3-2, "Engineered Safety Features Actuation System Instrumentation Surveillance Requirements," Functional Unit No. 7, "Control Building Isolation," Manual Actuation and Control Building Inlet Ventilation Radiation will be changed to address fuel movement inside containment or the spent fuel pool. This will be accomplished by replacing the word "All" with an asterisk "*." A new table notation (*) will be added that will require these functions to be operable during fuel movement inside containment or the spent fuel pool, in addition to the current requirement for Modes 1 through 6.

Technical Specification 3.7.7

Technical Specification 3.7.7 changes are necessary to ensure the Control Room Emergency Ventilation System will be operable during fuel movement inside containment or the spent fuel pool when the plant is defueled. The current applicability of "ALL MODES" does not address this condition. In addition, changes are proposed to address a loss of the Control Room boundary. The boundary changes are consistent with NUREG-1431[3] (Technical Specification 3.7.10, TSTF-287, Rev. 5).

1. A pound sign (#) will be added to the word "OPERABLE" in the Limiting Condition for Operation (LCO). This pound sign will refer to a footnote that will be added. This footnote will allow the Control Room boundary to be opened intermittently under administrative control.

2. The applicability of this specification will be expanded from the current Modes 1 through 6 to also require the Control Room Emergency Ventilation System to be operable during fuel movement inside containment or the spent fuel pool. Although fuel movement will normally occur when the plant is in Mode 6, it may also occur when the plant is defueled. Expanding the applicability will ensure the Control Room Emergency Ventilation System will be available to respond as assumed in the fuel handling accident analyses.

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[3] Standard Technical Specifications Westinghouse Plants, NUREG-1431, Revision 1, April 1995.

3. The current Modes 1 through 4 action requirement of Technical Specification 3.7.7 will be designated as "a." to allow the addition of two new action requirements. This is a non-technical change.

4. A new action requirement (b.) will be added to address two inoperable Control Room Emergency Air Filtration Systems in Modes 1 through 4, except as a result of an inoperable Control Room boundary. This new action requirement will require a plant shutdown to Mode 5 unless at least one Control Room Emergency Air Filtration System is restored to operable status within one hour. The proposed action times are the same as Technical Specification 3.0.3. This new action requirement will also require immediate suspension of fuel movement within the spent fuel pool.

5. A new action requirement (c.) will be added to address two inoperable Control Room Emergency Air Filtration Systems in Modes 1 through 4 due only to an inoperable Control Room boundary. This new action requirement will allow 24 hours to restore the Control Room boundary before a plant shutdown to Mode 5 is required. This new action requirement will also require immediate suspension of fuel movement within the spent fuel pool.

6. The Modes 5 and 6 action requirements will be expanded by adding the phrase "and fuel movement within containment or the spent fuel pool" to be consistent with the proposed applicability change. The Modes 5 and 6 action requirements will be renumbered as "d." and "e." to distinguish them from the Modes 1 through 4 action requirements. This is a non-technical change.

7. The action requirement for one inoperable Control Room Emergency Air Filtration System in Modes 5 and 6, and during fuel movement will be modified such that after 7 days, the remaining operable Control Room Emergency Air Filtration System does not have to be placed in the recirculation mode. The remaining operable air filtration system would only have to be placed in the recirculation mode if core alterations or fuel movement is to be performed.

8. The action requirement for both inoperable Control Room Emergency Air Filtration Systems in Modes 5 and 6, and during fuel movement will be modified by adding the word "immediately" to the required actions, and expanding the required actions to include the suspension of fuel assembly movement.

   The requirement to suspend positive reactivity additions if both Control Room Emergency Air Filtration Systems are inoperable will not be retained. The Control Room Emergency Air Filtration Systems are required to be operable in Modes 5 and 6 to protect the Control Room Operators from events that result in a rapid release of radioactivity, such as a fuel handling accident. Since the suspension of core alterations and fuel movement are already addressed by action requirements, and there are no other credible methods for a rapid release of radioactivity in Modes 5 and 6 (see Safety Summary for further discussion),

this requirement is not necessary. In addition, this proposed change is consistent with NUREG-1431 (Technical Specification 3.7.10), which does not require positive reactivity additions to be suspended when both trains of the Control Room Emergency Filtration System are inoperable in Modes 5 and 6.

The reference to Action a. will be changed to Action d. to be consistent with the proposed renumbering of the action requirements. This is a non-technical change.

9. Surveillance Requirement (SR) 4.7.7.e.2 will be modified by adding the phrase "and outside atmosphere." The intent of this SR is to verify that the Control Room area is pressurized with respect to surrounding areas. This includes adjacent spaces and the outside atmosphere. The proposed change will clarify this SR and make this SR consistent with SR 4.7.8.c.2, which currently specifies only outside atmosphere. (Changes to SR 4.7.8.c.2 are also proposed.) This change will not result in any technical change to the current requirement or test performance.

Technical Specification 3.7.8

Technical Specification 3.7.8 changes are necessary to ensure the Control Room Envelope Pressurization System will be operable during fuel movement inside containment or the spent fuel pool when the plant is defueled. The current applicability of "ALL MODES" does not address this condition. In addition, changes are proposed to address a loss of the Control Room boundary. The boundary changes are consistent with NUREG-1431 (Technical Specification 3.7.10, TSTF-287, Rev. 5).

1. A pound sign (#) will be added to the word "OPERABLE" in the LCO. This pound sign will refer to a footnote that will be added. This footnote will allow the Control Room boundary to be opened intermittently under administrative control.

2. The applicability of this specification will be expanded from the current Modes 1 through 6 to also require the Control Room Envelope Pressurization System to be operable during fuel movement inside containment or the spent fuel pool. Although fuel movement will normally occur when the plant is in Mode 6, it may also occur when the plant is defueled. Expanding the applicability will ensure the Control Room Envelope Pressurization System will be available to respond as assumed in the fuel handling accident analyses.

3. The current action requirements will be separated into those applicable in Modes 1 through 4 (Actions a., b., c., and d.), and those applicable in Modes 5 and 6 and during fuel movement within containment or the spent fuel pool (Actions e. and f.).

4. Action a. will address one inoperable Control Room Envelope Pressurization System in Modes 1 through 4. The 7 day action requirement is the same as the current Action a.1. The plant shutdown action requirement is the same as the current Action a.3.

   The current action requirement (a.2) to place an operable Control Room Emergency Air Filtration System in the recirculation mode will not be retained. NNECO has not verified that this action would provide sufficient protection for the Control Room Operators to allow continued plant operation. Therefore, it should be removed until an evaluation is completed.

5. A new action requirement (b.) will be added to address two inoperable Control Room Envelope Pressurization Systems in Modes 1 through 4, except as a result of an inoperable Control Room boundary or due to surveillance testing. This new action requirement will require a plant shutdown to Mode 5 unless at least one Control Room Envelope Pressurization System is restored to operable status within 1 hour. The proposed action times are the same as the current Action b.2 and Technical Specification 3.0.3. This new action requirement will also require immediate suspension of fuel movement within the spent fuel pool.

   The current action requirement (b.1) to place an operable Control Room Emergency Air Filtration System in the recirculation mode will not be retained as previously discussed.

6. A new action requirement (c.) will be added to address two inoperable Control Room Envelope Pressurization Systems in Modes 1 through 4 due only to an inoperable Control Room boundary. This new action requirement will allow 24 hours to restore the Control Room boundary before a plant shutdown to Mode 5 is required. This new action requirement will also require immediate suspension of fuel movement within the spent fuel pool.

7. A new action requirement (d.) will be added to address two inoperable Control Room Envelope Pressurization Systems in Modes 1 through 4 as a result of performing SR 4.7.8.c. This new action requirement will require a plant shutdown to Mode 5 unless at least one Control Room Envelope Pressurization System is restored to operable status within 4 hours, provided the system not being tested is under administrative control. The Bases for this specification will provide additional details concerning the acceptable administrative controls. The proposed action times, except the 4 hours, are the same as current Action b.2 and Technical Specification 3.0.3. This new action requirement will also require immediate suspension of fuel movement within the spent fuel pool.

8. The action requirement for one inoperable Control Room Envelope Pressurization System in Modes 5 and 6, and during fuel movement will be modified such that after 7 days, core alterations and fuel movement must be suspended immediately. This is consistent with current Actions a.1 and a.3,

modified to account for plant status and the proposed change in applicability.

9. The action requirement for both inoperable Control Room Envelope Pressurization Systems in Modes 5 and 6, and during fuel movement will be modified such that core alterations and fuel movement must be suspended immediately. This is consistent with current Action b.2, modified to account for plant status and the proposed change in applicability.

   The current action requirement (b.1) to place an operable Control Room Emergency Air Filtration System in the recirculation mode will not be retained as previously discussed.

10. The current Modes 5 and 6 requirement to suspend positive reactivity additions if one Control Room Envelope Pressurization System is inoperable (current Action a.3) or if both Control Room Envelope Pressurization Systems are inoperable (current Action b.2) will not be retained. The Control Room Envelope Pressurization Systems are required to be operable to protect the Control Room Operators from events that result in a rapid release of radioactivity, such as a fuel handling accident. Since the suspension of core alterations and fuel movement are already addressed by action requirements, and there are no other credible methods for a rapid release of radioactivity in Modes 5 and 6 (see Safety Summary for further discussion), this requirement is not necessary. In addition, this proposed change is consistent with NUREG-1431 (Technical Specification 3.7.10), which does not require positive reactivity additions to be suspended when both trains of the Control Room Emergency Filtration System are inoperable in Modes 5 and 6. (NUREG-1431 does not address a Control Room Envelope Pressurization System.)

11. SR 4.7.8.c.2 will be modified by removing the word "the" and adding the phrase "adjacent areas and." The intent of this SR is to verify that the Control Room area is pressurized with respect to surrounding areas. This includes adjacent spaces and the outside atmosphere. The proposed change will clarify this SR and make this SR consistent with SR 4.7.7.e.2, which currently specifies only outside atmosphere. (Changes to SR 4.7.7.e.2 are also proposed.) This change will not result in any technical change to the current requirement or test performance.

Technical Specification 3.7.9

Technical Specification 3.7.9 will be modified by removing the additional information contained in the LCO that specifies what is required for the Auxiliary Building Filter Systems to be operable. This information will be relocated to the Bases of this specification. This will not change the requirement for two Auxiliary Building Filter Systems to be operable.

Technical Specification 3.9.1.1

1. The term "refueling canal" will be replaced with the term "refueling cavity" in the LCO and SR 4.9.1.1.2. This change is consistent with Millstone Unit No. 3 terminology. It will not result in any technical change to this specification.

2. The phrase "uniform and" will be removed from the LCO. 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 Reactor Coolant System (RCS) and the refueling cavity 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. 3 uses to verify compliance with this specification.

Technical Specification 3.9.1.2

Technical Specification 3.9.1.2 will be modified by removing the phrase "maintained uniform and sufficient to ensure that the boron concentration is" from the LCO. 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 spent fuel pool $\geq$ 1750 ppm. In addition, this will not result in any change to the current approach Millstone Unit No. 3 uses to verify compliance with this specification.

Technical Specification 3.9.2

1. The phrase "or not operating" will be removed from Actions a. and b. If the source range monitors are not operating, they are not operable. Therefore, the phrase is redundant and can be removed without any technical change to the current action requirements.

2. Action b. will be modified to require the initial determination of RCS boron concentration to be done within 4 hours if both source range monitors are inoperable. This is a more restrictive change.

3. The word "including" in SR 4.9.2.a will be replaced with the phrase "and verification of." 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. 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. 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 requirement for one audio channel is met.

4. SRs 4.9.2.b and 4.9.2.c will be replaced by one surveillance requirement to perform a channel calibration at least once per 18 months. It is not necessary to perform an analog channel operational 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. This proposed SR is consistent with SR 4.3.1.1, Table 4.3-1, "Reactor Trip System Instrumentation Surveillance Requirements," Functional Unit 6.

Technical Specification 3.9.4

Technical Specification 3.9.4 will be modified to be consistent with the revised FHAIC analysis.

1. The requirement for the airlock in LCO 3.9.4.b will be revised to refer to the personnel access hatch, instead of airlock. This is consistent with Millstone Unit No. 3 terminology. The personnel access hatch door requirement will be modified to allow both access hatch doors to be open, provided administrative controls are in place to ensure that one door can be closed. The Bases will be expanded to discuss the required administrative controls. The provision to allow both access hatch doors to remain open is consistent with NUREG-1431 (Technical Specification 3.9.4, TSTF-68).

2. The format of SR 4.9.4 will be revised to be consistent with the proposed change to this specification. Additional changes will also be made.

    a. SR 4.9.4.a will be revised. The requirement to verify each penetration is in the isolated condition will be changed to verify the required status. This is necessary since the personnel access hatch doors may both be open. The frequency will be modified from within 100 hours and once per 7 days, to just once per 7 days. The proposed frequency is consistent with NUREG-1431 (Technical Specification 3.9.4).

    b. SR 4.9.4.b will be revised. The wording of this SR will be modified as a result of the separation of these two SRs. However, the requirements of this SR will not change.

Technical Specification 3.9.9

Technical Specification 3.9.9 will be modified by removing the phrase "within 100 hours prior to the start and" from SR 4.9.9. Verification of system operability will still be required at least once per 7 days.

Technical Specification 3.9.10

Technical Specification 3.9.10 will be modified by removing the phrases "within 2 hours prior to the start of and" and "thereafter during movement of fuel assemblies or control rods" from SR 4.9.10. Verification of water level will still be required at least once per 24 hours as long as this specification is applicable.

Technical Specification 3.9.12

1. A pound sign (#) will be added to the word "OPERABLE" in the LCO. This pound sign will refer to a footnote that will be added. This footnote will allow the Fuel Building boundary to be opened intermittently under administrative control. This boundary change is consistent with NUREG-1431 (Technical Specification 3.7.13, TSTF-287, Rev. 5).

2. The phrase "within 2 hours prior to the initiation of and" will be removed from SR 4.9.12.2. Verification of Fuel Building Exhaust Filter System operation will still be required at least once per 12 hours.

Technical Specification Bases

The Bases for Technical Specifications 3.7.7, 3.7.8, 3.7.9, 3.9.4, and 3.9.12 will be modified as a result of the proposed Technical Specification changes. These changes are consistent with the revised fuel handling accident analyses and the other proposed Technical Specification changes.

Safety Summary

Analyses Changes

The Millstone Unit No. 3 FHAIC analysis has been revised. Numerous changes to the analysis have been made. The major analysis changes are identified below.

1. The revised containment fuel handling analysis assumes all 264 fuel rods of the dropped fuel assembly, plus an additional 50 fuel rods from the impacted fuel assembly, will be damaged. The current analysis assumes the damage is limited to one fuel assembly.

2. The thyroid dose conversion factors of Regulatory Guide 1.109 have been updated to reflect the guidance contained in International Committee on Radiation Protection (ICRP) 30.

3. The iodine gap fraction has been increased from 10% to 12% of core iodines to account for the use of high burnup fuel.

4. The analysis of a fuel handling accident inside containment was performed with both personnel access hatch doors open. However, it is assumed that at least one access hatch door will be closed within 10 minutes of a fuel handling accident inside containment.

5. Release paths evaluated include containment ground and ventilation vent on the Turbine Building. The ventilation vent release path is more conservative for the Control Room dose analysis. This analysis credits holdup in the Auxiliary Building. The assumed release rates from containment to the Auxiliary Building, and then to the environment, result in the release of the activity over a 2 hour period. The containment ground release path is more conservative for the off site dose analysis (EAB and LPZ).

6. Off site, Control Room, and Technical Support Center (TSC) dose calculations have been performed.

The Millstone Unit No. 3 FHAISFP analysis has been revised. Numerous changes to the analysis have been made. The major analysis changes are identified below.

1. The thyroid dose conversion factors of Regulatory Guide 1.109 have been updated to reflect the guidance contained in ICRP 30.

2. The iodine gap fraction has been increased from 10% to 12% of core iodines to account for the use of high burnup fuel.

3. A two hour exponential release rate is assumed from the Fuel Building instead of a puff release.

4. Control Room and TSC dose calculations have been performed.

The radiological consequences of the revised fuel handling accident analyses at Millstone Unit No. 3 are well within the EAB and LPZ dose limits of 10 CFR 100 (300 rem thyroid and 25 rem whole body). The dose to the Control Room Operators does not exceed the 10 CFR 50, Appendix A, GDC 19 limit of 5 rem whole body or its equivalent (30 rem thyroid and 30 rem to the skin). Therefore, the proposed analyses revisions will not adversely affect public health and safety.

Technical Specification 3.3.2

Isolation of the Control Building following an event which could result in a radiological release (e.g., Loss of Coolant Accident or Fuel Handling Accident) will prevent excessive exposure to Control Room personnel. The current requirements do not address fuel movement inside containment or the spent fuel pool when the plant is defueled. Since this reflects plant conditions where occurrence of a fuel handling accident is credible, the assumed mitigation functions should be available. Expanding the applicability for CBI by manual actuation (Tables 3.3-3 and 4.3-2, Functional

Unit 7.a) and inlet ventilation radiation (Tables 3.3-3 and 4.3-2, Functional Unit 7.e) to include fuel movement inside containment or the spent fuel pool when the plant is defueled will correct this situation. The proposed applicability changes will ensure that the necessary mitigation functions are available as assumed in the associated analyses.

The proposed change to the applicability for the CBI automatic actuation logic and actuation relays (Table 3.3-3, Functional Unit 7.c) from "All" to "1, 2, 3, 4" reflects how a CBI signal is processed. The CBI signal generated by manual safety injection actuation does not use the SSPS automatic actuation logic and actuation relays. Only the CBI on high containment pressure, which is required in Modes 1 through 3, uses SSPS automatic actuation logic and actuation relays. However, for consistency with other functional units covered by this specification, and with the associated SRs for the automatic actuation logic and actuation relays (Table 4.3-3, Functional Unit 7.c), an applicability of Modes 1 through 4 has been proposed. The manual and inlet ventilation radiation actuations do not use the automatic actuation logic and actuation relays of SSPS. Actuation relays associated with these 2 functions are already covered by the requirement for these functions to be operable. The proposed applicability change will ensure that the necessary mitigation functions are available as assumed in the associated analyses.

The proposed change to Action 18 (Table 3.3-3), which applies to CBI on high inlet ventilation radiation, will replace the current requirement to place the Control Room Emergency Air Filtration System in the recirculation mode with a 7 day allowed outage time if one of the two channels is inoperable. The current action requirement has not been verified to ensure sufficient protection for the Control Room Operators. The proposed 7 day allowed outage time is consistent with the Control Room ventilation systems that are actuated following the generation of a CBI signal. Technical Specifications 3.7.7 and 3.7.8 currently allow one train of the respective system to be inoperable for up to 7 days. This allowed outage time ensures the inoperable equipment is restored in a timely manner. It is reasonable to use the same 7 day allowed outage time if 1 of the 2 CBI high inlet ventilation radiation channels is inoperable. If the channel is not restored within 7 days, or if both channels are inoperable, the proposed action requirement will require immediate suspension of core alterations and fuel movement, and require the plant to be shut down. The shutdown time requirements are consistent with Technical Specification 3.0.3.

Technical Specifications 3.7.7 and 3.7.8

Operation of the two systems covered by these specifications, Control Room Emergency Ventilation and Control Room Envelope Pressurization, is integral to protecting the Control Room personnel following an event which results in a radiological release. The current requirements do not address fuel movement inside containment or the spent fuel pool when the plant is defueled. Since this reflects plant conditions where occurrence of a fuel handling accident is credible, this mitigation equipment should be available. The proposed changes to Technical Specifications

3.7.7 and 3.7.8 will correct this situation by expanding the applicability for these systems to include fuel movement inside containment or the spent fuel pool when the plant is defueled. This will ensure these accident mitigation systems are available as assumed in the associated analyses.

The addition of the footnote that the Control Room boundary can be opened intermittently under administrative control, and the new Modes 1 through 4 action requirement that will allow 24 hours to restore the Control Room boundary addresses the impact a loss of Control Room boundary integrity has on the operability of the respective systems. Using administrative controls to restore integrity of the Control Room boundary when required, will ensure the assumed accident mitigation equipment will be able to function as assumed to protect Control Room personnel. This will address routine operations such as normal entry and egress, and other minor evolutions that result in a short term loss of Control Room boundary integrity. Allowing 24 hours to restore the integrity of the Control Room boundary (Technical Specifications 3.7.7 and 3.7.8 Action c.) will allow time for repairs to restore integrity of the Control Room boundary without requiring an immediate plant shutdown. This is acceptable based on the low probability of a design basis accident occurring during the 24 hour allowed outage time. These changes are consistent with Technical Specification 3.6.6.2, "Containment Systems - Secondary Containment," which allows normal entry and egress through associated access openings (SR 4.6.6.2.1) and 24 hours to restore secondary containment. In addition, these changes are consistent with generic industry guidance contained in NUREG-1431 (Technical Specification 3.7.10, TSTF-287, Rev. 5).

The proposed action requirement to address two inoperable Control Room Emergency Air Filtration Systems in Modes 1 through 4, except due to an inoperable Control Room boundary, will require an immediate suspension of fuel movement in the spent fuel pool and a plant shutdown if at least one train is not restored to operable status within one hour. These actions are consistent with the proposed applicability changes previously discussed and with the shutdown times of Technical Specification 3.0.3.

The action requirement for one inoperable Control Room Emergency Air Filtration System in Modes 5 and 6 and during fuel movement will be modified such that after 7 days, the remaining operable Control Room Emergency Air Filtration System does not have to be placed in the recirculation mode. The remaining operable air filtration system would only have to be placed in the recirculation mode if core alterations or fuel movement is to be performed. Unless these evolutions are in progress, there is no need for the one remaining train to be in the recirculation mode of operation since a significant radioactive release is not credible. In addition, the Control Room Envelope Pressurization System is required to be operable to perform core alterations or fuel movement.

The action requirement for one inoperable Control Room Envelope Pressurization System in Modes 5 and 6 and during fuel movement will be modified such that after 7 days, core alterations and fuel movement must be suspended immediately. This is

consistent with current action requirements (a.1 and a.3), modified to account for plant status and the proposed change in applicability.

The current Control Room Envelope Pressurization System action requirement (a.2 and b.1) to place an operable Control Room Emergency Air Filtration System in the recirculation mode will not be retained. The current action requirement has not been verified to ensure sufficient protection for the Control Room Operators.

The addition of a new Control Room Envelope Pressurization System Modes 1 through 4 action requirement (d.) will address two inoperable trains in Modes 1 through 4 as a result of performing SR 4.7.8.c. This new action requirement will allow both trains to be inoperable for up to 4 hours during testing, provided the system not being tested is under administrative control. During performance of this test, the train not being tested is isolated by closure of a manual valve. This is necessary since the method used to generate the CBI signal (manual control board actuation) will send a signal to both trains. Restoration of the train not being tested will only require the manual isolation valve to be opened. The Bases for this specification will provide additional detail concerning the acceptable administrative controls to ensure the train not being tested can be restored to operation, if needed. If at least one train is not restored to operable status within 4 hours, a plant shutdown to Mode 5 will be required. Allowing both trains to be inoperable for 4 hour will provide sufficient time to perform the test without requiring an immediate plant shutdown, and is reasonable based on the administrative controls that will be in place to rapidly restore one train to operable status. The proposed action to immediately suspend fuel movement within the spent fuel pool is consistent with the other action requirements, and the shutdown times are consistent with Technical Specification 3.0.3.

The action requirements for both of these systems have been expanded to include the suspension of fuel assembly movement, where appropriate. This is consistent with the applicability changes previously discussed. In addition, the word "immediately" has been added to the required actions for the suspension of fuel movement and core alterations. This is a more restrictive change.

The current Modes 5 and 6 action requirement to suspend positive reactivity additions if one Control Room Envelope Pressurization System is inoperable (a.3), if both Control Room Emergency Air Filtration Systems are inoperable (b.), or if both Control Room Envelope Pressurization Systems are inoperable (b.2) has been removed. These systems are required to be operable in Modes 5 and 6 to protect the Control Room Operators from events that result in a rapid release of radioactivity, such as a fuel handling accident. Action requirements already contained in these specifications eliminate any positive reactivity addition concerns associated with control rod withdrawal and fuel movement when the plant is in Mode 6. Control rod withdrawal in Mode 5 is not normally done. If cold rod testing is to be performed in Mode 5, an adjustment to RCS boron concentration may be necessary to ensure adequate shutdown margin. The other positive reactivity addition methods of concern are boron dilution and RCS cooldown (negative temperature coefficient). However, both of these

methods will result in slow changes to core reactivity in Modes 5 and 6, and since adequate shutdown margin will have been established prior to entering Mode 5 or 6 (Technical Specifications 3.1.1.1.2, 3.1.1.2, and 3.9.1.1), neither method will result in a rapid release of radioactivity. Therefore, the requirement to suspend positive reactivity additions is not necessary. In addition, this proposed change is consistent with NUREG-1431 (Technical Specification 3.7.10), which does not require positive reactivity additions to be suspended when both trains of the Control Room Emergency Filtration System are inoperable in Modes 5 and 6.

Modifying SR 4.7.7.e.2 by adding the phrase "and outside atmosphere" and SR 4.7.8.c.2 by removing the word "the" and adding the phrase "adjacent areas and" will not change the intent of these SRs to verify that the Control Room area is pressurized with respect to surrounding areas. These changes will simply provide consistency between the two SRs. Test performance will not change.

The administrative changes (e.g., action requirement format and letter designations) will not result in any technical change to the current requirements.

Technical Specification 3.7.9

The proposed change to remove the additional information contained in the LCO will not change the requirement for two Auxiliary Building Filter Systems to be operable. This information will be relocated to the Bases of this specification.

The information added to the Bases will include a discussion of the operation of the Charging Pump/Reactor Plant Component Cooling Water Pump Ventilation System. Past operation of this system resulted in the submittal of Licensee Event Report (LER) 98-015-00.[4] This LER discussed a situation where an Auxiliary Building Filter System operating procedure potentially allowed both trains to be temporarily inoperable during system restoration. This would result in both Auxiliary Building Filter Trains being inoperable. With both Auxiliary Building Filter Trains inoperable, Technical Specification 3.0.3 would apply. NNECO has re-evaluated this event and has determined that entry in Technical Specification 3.0.3, as originally reported, was not necessary since both Auxiliary Building Filter Trains should not have been considered inoperable.

The Charging Pump/Reactor Plant Component Cooling Water Pump Ventilation System is required to be available to support the Auxiliary Building Filter System and the Supplementary Leak Collection and Release System. The Charging Pump/Reactor Plant Component Cooling Water Pump Ventilation System consists of two redundant trains, each capable of providing 100% of the required flow. Each train has a two position, "Off" and "Auto," remote control switch. With the remote control switches for

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[4] G. D. Hicks letter to the NRC, "Millstone Nuclear Power Station Unit 3, Licensee Event Report 98-015-00, Historical Failure To Enter Technical Specifications For Manual Control Of An Automatic Safety Function" dated March 19, 1998.

each train in the "Auto" position, the system is capable of automatically transferring operation to the redundant train in the event of a low flow condition in the operating train. The associated fans do not receive any safety related automatic start signals (e.g. Safety Injection Signal).

LER 98-015-00 identified the following:

> The operating procedure directed that the control for the running train be placed in 'off', from the normal 'auto' position to verify the stopped (inoperable) train would start on low flow in the previously running train. This action would effectively place the previously running train in the inoperable status. Thus both trains would be inoperable during the test.

This situation would occur during post maintenance testing performed to verify the train that had been removed from service for maintenance was fully functional. The concern was that the procedure was authorizing the use of operator action to substitute for a safety related automatic action. Guidance for this issue can be found in the NRC Inspection Manual, Part 9900, Operable/Operability, Ensuring the Functional Capability of a System or Component, Section 6.7, Use of Manual Action in Place of Automatic Action.

> Accordingly, it is not appropriate to take credit for manual action in place of automatic action for protection of safety limits to consider equipment operable.

Operation of the Charging Pump/Reactor Plant Component Cooling Water Pump Ventilation System, which supports operation of the Auxiliary Building Filter System, is important for accident mitigation, but it is not credited for protection of the plant safety limits. Using the remote control switch at Ventilation Panel 1 (VP1), which is located in the Control Room, to start the idle fan by placing the operating fan's control switch in off is consistent with the original plant design. Plant procedures have been established that provide sufficient direction on how to accomplish evolutions like this, and what to do in the event equipment does not respond as expected.

Additional information has been added to the Bases for this specification to discuss system operation. This information states that placing the remote control switch for a Charging Pump/Reactor Plant Component Cooling Water Pump Ventilation Train in the "Off" position to start the redundant train or to perform post maintenance testing to verify availability of the redundant train does not affect the availability of that train, provided appropriate administrative controls have been established to ensure the remote control switch is immediately returned to the "Auto" position after the completion of the specified activities, or in response to plant conditions. The administrative controls include the use of an approved procedure and a designated individual at the control switch for the respective Charging Pump/Reactor Plant Component Cooling Water Pump Ventilation Train who can rapidly respond to instructions contained in procedures, or from control room personnel, based on plant conditions. This will ensure the Charging Pump/Reactor Plant Component Cooling Water Pump Ventilation

System will be available to support operation of the Auxiliary Building Filter System.

Technical Specification 3.9.1.1

The proposed change to use Millstone Unit No. 3 specific terminology for the refueling cavity will have no technical impact on this specification. The proposed change to remove the phrase "uniform and" from the LCO will not change the LCO requirement to maintain the boron concentration in the filled portions of the RCS and the refueling cavity 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. 3 uses to verify compliance with this specification.

Technical Specification 3.9.1.2

The proposed change to remove the phrase "maintained uniform and sufficient to ensure that the boron concentration is" from the LCO will not change the LCO requirement to maintain the boron concentration in the spent fuel pool $\geq$ 1750 ppm. In addition, this will not result in any change to the current approach Millstone Unit No. 3 uses to verify compliance with this specification.

Technical Specification 3.9.2

Removing the phrase "or not operating" from the current action requirements will not result in any technical change. If the source range monitors are not operating, they are not operable. This phrase is redundant, and can be removed.

Requiring the initial determination of RCS boron concentration to be done within 4 hours if both source range monitors are inoperable is a more restrictive change.

The wording change to SR 4.9.2.a will eliminate any confusion that the channel check includes audio count 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 requirement for one audio channel is met.

Replacing the requirement to perform an analog channel operational 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 proposed channel calibration, including the footnote to exclude the neutron detectors from the test is consistent with SR 4.3.1.1, Table 4.3-1, "Reactor Trip System Instrumentation Surveillance Requirements," Functional Unit 6.

Technical Specification 3.9.4

The airlock requirement (LCO 3.9.4.b) will be revised to refer to the personnel access hatch, instead of airlock. This is consistent with Millstone Unit No. 3 terminology. The personnel access hatch door requirement will be modified to allow both access hatch doors to be open, provided administrative controls (as discussed in the Bases) are in place to ensure that one door can be closed within 10 minutes. This is consistent with the revised FHAIC analysis. In addition, allowing both access hatch doors to remain open is consistent with NUREG-1431 (Technical Specification 3.9.4, TSTF-68).

The current SR 4.9.4 will be divided into two separate SRs. SR 4.9.4.a will be revised to verify each penetration is in the required status instead of isolated condition since the personnel access hatch doors may both be open. The frequency will be modified from within 100 hours and once per 7 days, to just once per 7 days. This frequency change will not change the requirement for all penetrations to be in their required positions, and 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 100 hours" will not adversely impact the probability a containment penetration will be in the wrong position. The proposed frequency is consistent with NUREG-1431 (Technical Specification 3.9.4).

The wording of SR 4.9.4.b will be revised to be a stand alone SR. The requirements of this SR will not change.

Technical Specification 3.9.9

The frequency of SR 4.9.9 will be modified from within 100 hours and once per 7 days, to just once per 7 days. This frequency change will not change the requirement to verify system operability 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 100 hours" will not adversely impact the probability the system will be inoperable.

Technical Specification 3.9.10

The frequency of SR 4.9.10 will be modified from within 2 hours and once per 24 hours, to just once per 24 hours. This frequency change will not change the requirement to verify refueling cavity water level prior to the start of fuel assembly or control rod 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 probability of failure to establish the proper water level prior to fuel assembly or control rod movement.

Technical Specification 3.9.12

The addition of the footnote that will allow the Fuel Building boundary to be opened intermittently under administrative control addresses the impact a loss of Fuel Building boundary integrity has on system operability. Using administrative controls to restore integrity of the Fuel Building boundary when required, will ensure the assumed accident mitigation equipment will be able to function as assumed. This will address routine operations such as normal entry and egress, and other minor evolutions that result in a short term loss of Fuel Building boundary integrity. This is consistent with Technical Specification 3.6.6.2 which allows normal entry and egress through associated access openings (SR 4.6.6.2.1), and with generic industry guidance as contained in NUREG-1431 (Technical Specification 3.7.10, TSTF-287, Rev. 5).

The frequency of SR 4.9.12.2 will be modified from within 2 hours and once per 12 hours, to just once per 12 hours. This frequency change will not change the requirement to verify that the system is in operation prior to the start of fuel movement or crane operations inside the spent fuel pool. 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 probability of failure to have an operating system prior to fuel movement or crane operations inside the spent fuel pool.

Technical Specification Bases

The Bases for Technical Specifications 3.7.7, 3.7.8, 3.7.9, 3.9.4, and 3.9.12 will be modified as a result of the proposed Technical Specification changes. These changes are consistent with the revised fuel handling accident analyses and the other proposed Technical Specification changes. The proposed changes to the Technical Specification Bases will provide additional guidance to ensure the requirements of the applicable Technical Specifications are applied correctly. The use of the Bases to contain information such as this is acceptable since NNECO requires a 10 CFR 50.59 evaluation for all Bases only changes. This provides sufficient control to ensure consistency with the accident analyses.

The proposed changes to the Technical Specifications and the associated Bases are consistent with the revised fuel handling accident analyses. This will ensure the analyses remain valid and the consequences of the accidents are acceptable. In addition, the proposed changes will not result in any significant change in, or new approach to, plant operation. The proposed changes will not adversely affect public safety. Therefore, the proposed changes are safe.

Docket No. 50-423
B18116

Attachment 2

Millstone Nuclear Power Station, Unit No. 3

Technical Specifications Change Request 3-6-00
Fuel Handling Accidents and Ventilation Systems
Significant Hazards Consideration

Technical Specifications Change Request 3-6-00
Fuel Handling Accidents and Ventilation Systems
Significant Hazards Consideration

Description of License Amendment Request

Northeast Nuclear Energy Company (NNECO) hereby proposes to revise the Millstone Unit No. 3 Technical Specifications as described in this License Amendment Request. The proposed changes are associated with the revised fuel handling accident analyses, integrity of the Control Room and Fuel Building boundaries, and various enhancements. A brief summary of the changes is provided below. Refer to Attachment 1 of this submittal for a detailed discussion of the proposed changes.

Fuel Handling Accident Inside Containment (FHAIC) Analysis

- Revise the containment fuel handling analysis to assume all 264 fuel rods of the dropped fuel assembly plus an additional 50 fuel rods from the impacted fuel assembly will be damaged. The current analysis assumes the damage is limited to one fuel assembly.

- Use the thyroid dose conversion factors contained in International Committee on Radiation Protection (ICRP) 30.

- Increase the iodine gap fraction from 10% to 12% of core iodines to account for the use of high burnup fuel.

- Assume both personnel access hatch doors open and at least one access hatch door will be closed within 10 minutes of a fuel handling accident inside containment.

- Release paths evaluated include containment ground and ventilation vent on the Turbine Building. The ventilation vent release path is more conservative for the Control Room dose analysis. The containment ground release path is more conservative for the off site dose analysis (EAB and LPZ).

- Calculate off site, Control Room, and Technical Support Center (TSC) doses.

Fuel handling Accident Inside the Spent Fuel Pool (FHAISFP) Analysis

- Use the thyroid dose conversion factors contained in ICRP 30.

- Increase the iodine gap fraction from 10% to 12% of core iodines to account for the use of high burnup fuel.

- Assume a two hour exponential release rate instead of a puff release.

- Calculate Control Room and TSC doses.

Technical Specification 3.3.2

- Modify the applicability (manual actuation and inlet ventilation radiation) to address fuel movement inside containment or the spent fuel pool when the plant is defueled.

- Modify the applicability (automatic actuation logic and actuation relays) to reflect how a Control Building Isolation (CBI) signal is processed, and for consistency with the associated surveillance requirements and other functional units covered by this specification.

- Change the action requirement to provide a 7 day allowed outage time if one of the two CBI inlet ventilation radiation channels is inoperable, instead of the current requirement to place a Control Room Emergency Air Filtration System in the recirculation mode when the channels are inoperable. If the channel is not restored within 7 days, or if both channels are inoperable, the proposed action requirement will require immediate suspension of core alterations and fuel movement, and require the plant to be shut down.

Technical Specifications 3.7.7 and 3.7.8

- Modify the applicability to address fuel movement inside containment or the spent fuel pool when the plant is defueled.

- Add a footnote that the Control Room boundary can be opened intermittently under administrative control, and add a new Modes 1 through 4 action requirement that will allow 24 hours to restore Control Room boundary integrity.

- Add an action requirement to address two inoperable Control Room Emergency Air Filtration Systems in Modes 1 through 4, except due to an inoperable Control Room boundary.

- Modify the action requirement for one inoperable Control Room Emergency Air Filtration System in Modes 5 and 6, and during fuel movement, such that after 7 days the remaining operable Control Room Emergency Air Filtration System does not have to be placed in the recirculation mode unless core alterations or fuel movement will occur.

- Modify the action requirement for one inoperable Control Room Envelope Pressurization System in Modes 5 and 6, and during fuel movement, such that

after 7 days, core alterations and fuel movement must be suspended immediately.

- Remove the current Control Room Envelope Pressurization System action requirements to place an operable Control Room Emergency Air Filtration System in the recirculation mode.

- Add a new action requirement to address two inoperable Control Room Envelope Pressurization Systems in Modes 1 through 4 during performance of Surveillance Requirement (SR) 4.7.8.c.

- Expand the action requirements, consistent with proposed applicability changes, to include the suspension of fuel assembly movement, where appropriate. Add the word "immediately" to the required actions for the suspension of fuel movement and core alterations.

- Remove the current Modes 5 and 6 action requirements to suspend positive reactivity additions.

- Modify the wording of SR 4.7.7.e.2 and SR 4.7.8.c.2 to provide consistency between the two SRs.

- Make various non-technical changes (e.g., action requirement format and letter designations).

Technical Specification 3.7.9

- Relocate information contained in the Limiting Condition for Operation (LCO) to the associated Bases.

Technical Specification 3.9.1.1

- Use Millstone Unit No. 3 specific terminology for refueling cavity.

- Remove the phrase "uniform and" from the LCO.

Technical Specification 3.9.1.2

- Remove the phrase "maintained uniform and sufficient to ensure that the boron concentration is" from the LCO.

Technical Specification 3.9.2

- Remove the phrase "or not operating" from the current action requirements.

- Require the initial determination of Reactor Coolant System (RCS) boron concentration to be done within 4 hours if both source range monitors are inoperable.

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

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

Technical Specification 3.9.4

- Use Millstone Unit No. 3 specific terminology for the personnel access hatch doors.

- Modify the personnel access hatch door requirement to allow both access hatch doors to be open, with one door under administrative control.

- Separate SR 4.9.4 into two separate SRs.

- Modify SR 4.9.4.a to verify each penetration is in the required status instead of isolated condition.

- Modify the frequency for SR 4.9.4.a from within 100 hours and once per 7 days, to just once per 7 days.

- Modify the wording of SR 4.9.4.b to be a stand alone SR.

Technical Specification 3.9.9

- Modify the frequency of SR 4.9.9 from within 100 hours and once per 7 days, to just once per 7 days.

Technical Specification 3.9.10

- Modify the frequency of SR 4.9.10 from within 2 hours and once per 24 hours, to just once per 24 hours.

Technical Specification 3.9.12

- Add a footnote that will allow the Fuel Building boundary to be opened intermittently under administrative control.

- Modify the frequency of SR 4.9.12.2 from within 2 hours and once per 12 hours, to just once per 12 hours.

Basis for No Significant Hazards Consideration

In accordance with 10 CFR 50.92, 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 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.

   Analyses Changes

   The proposed changes to the Millstone Unit No. 3 fuel handling accident analyses will not cause an accident, but they will affect the consequences of the associated accidents. The consequences of the Fuel Handling Accident Inside Containment (FHAIC) are new since containment isolation is assumed by the current analysis. However, the consequences of a FHAIC are bounded by the consequences of the Design Basis Loss of Coolant Accident. The increase in the consequences of the revised Fuel Handling Accident Inside the Spent Fuel Pool (FHAISFP) is small. In addition, the revised analyses results demonstrate that the radiological consequences are still well within the limits of 10 CFR 100, and within the 10 CFR 50, Appendix A, General Design Criteria (GDC) 19 limit. Therefore, the proposed analyses changes will not result in a significant increase in the probability or consequences of an accident previously evaluated.

   Technical Specification Changes

   Various changes to the applicability for the Technical Specifications associated with the Control Building Isolation (CBI) function, Control Room Emergency Air Filtration System, and the Control Room Envelope Pressurization System have been proposed. The proposed changes in applicability will not cause an accident, but they will affect the consequences of the associated accidents. The majority of the applicability changes address fuel movement inside containment or the spent fuel pool when the plant is defueled. Since this reflects plant conditions where occurrence of a fuel handling accident is credible, this mitigation equipment should be available. The proposed changes to these Technical Specifications correct this situation by expanding the applicability for these systems to include fuel movement inside containment or the spent fuel pool when the plant is defueled. One additional applicability change reduces the applicability for a CBI function (automatic actuation logic and actuation relays) to reflect how a CBI signal is processed, for consistency with the associated

Surveillance Requirements (SRs), and for consistency with other functional units covered by this specification. These applicability changes will ensure the CBI function, Control Room Emergency Air Filtration System, and the Control Room Envelope Pressurization System are available for accident mitigation as assumed in the associated analyses.

Various changes to the action requirements for the Technical Specifications associated with the CBI function, Control Room Emergency Air Filtration System, and the Control Room Envelope Pressurization System have been proposed. The proposed changes to the action requirements will not cause an accident, but they may affect the impact failures of equipment important to safety can have on the consequences of the associated accidents. The CBI function and Control Room Envelope Pressurization System action requirements to place the Control Room Emergency Air Filtration System in the recirculation mode have been removed since they have not been verified to ensure sufficient protection for the Control Room Operators. A 7 day allowed outage time for the inlet ventilation high radiation CBI function (one channel) has been proposed. This is consistent with the allowed outage times for one train of the Control Room Emergency Air Filtration System and one train of the Control Room Envelope Pressurization System. The Modes 5 and 6 action requirement to place the one remaining operable Control Room Emergency Air Filtration System in the recirculation mode after 7 days if the other train is still inoperable has been modified to only require this action if core alterations or fuel movement will occur. If these operations are not in progress, it is not credible for a rapid release of radioactivity to occur. Additional action requirement changes have been made to reflect the applicability changes, to address other combinations of inoperable equipment, and to add an immediate time requirement if no time requirement is specified. The proposed action requirement changes provide reasonable times to restore equipment to operable status before requiring a plant shutdown. If the equipment is not restored, the proposed shut down times will allow an orderly shutdown, as applicable, to be performed. The proposed action requirement changes are consistent with current action requirements, Technical Specification 3.0.3, and current industry guidance (NUREG-1431), as applicable. In addition, they are reasonable based on the low probability of a design basis accident occurring during this time.

The action requirements for the Control Room Emergency Air Filtration, the Control Room Envelope Pressurization, and Fuel Building Exhaust Filter Systems have been changed to address the impact a loss of boundary integrity has on the associated system. Allowing the Control Building and Fuel Building boundaries to be opened intermittently under administrative controls will have no adverse impact on the consequences of the design basis accidents since the administrative controls will be able to rapidly restore boundary integrity when required. Allowing 24 hours to restore the Control Building boundary in Modes 1 through 4 could result in an increase in the consequences of a design basis

accident to the Control Room personnel. However, considering the low probability of a design basis accident occurring during this time, the proposed allowed outage time is reasonable to allow the boundary integrity to be restored before requiring a plant shutdown. These changes are consistent with Technical Specification 3.6.6.2, "Containment Systems - Secondary Containment," which allows normal entry and egress through associated access openings (SR 4.6.6.2.1) and 24 hours to restore secondary containment, and with generic industry guidance (NUREG-1431, Technical Specification 3.7.10, TSTF-287, Rev. 5).

The proposed change to add a Control Room Envelope Pressurization System Mode 1 through 4 action requirement will allow four hours to perform SR 4.7.8.c. This new action requirement will allow both trains to be inoperable for up to 4 hours during testing, provided the system not being tested is under administrative control. Allowing both trains to be inoperable for 4 hour will provide sufficient time to perform the test without requiring an immediate plant shutdown, and is reasonable based on the administrative controls that will be in place to rapidly restore one train to operable status. This will have no adverse impact on the consequences of the design basis accidents since the administrative controls that will be required will be able to rapidly restore one train to operable status, if required.

The proposed change to remove the Modes 5 and 6 action requirements to suspend positive reactivity additions from the Control Room Emergency Air Filtration System and Control Room Envelope Pressurization System specifications will not adversely affected the consequences of the design basis accidents. These systems are required to be operable in Modes 5 and 6 to protect the Control Room Operators from events that result in a rapid release of radioactivity, such as a fuel handling accident. Action requirements already contained in these specifications eliminate any positive reactivity addition concerns associated with control rod withdrawal and fuel movement when the plant is in Mode 6. Control rod withdrawal in Mode 5 is not normally done. If cold rod testing is to be performed in Mode 5, an adjustment to Reactor Coolant System (RCS) boron concentration may be necessary to ensure adequate shutdown margin. The other positive reactivity addition methods of concern are boron dilution and RCS cooldown (negative temperature coefficient). However, both of these methods will result in slow changes to core reactivity in Modes 5 and 6, and since adequate shutdown margin will have been established prior to entering Mode 5 or 6 (Technical Specifications 3.1.1.1.2, 3.1.1.2, and 3.9.1.1), neither method will result in a rapid release of radioactivity. Therefore, the removal of the requirement to suspend positive reactivity additions if these systems are inoperable will not adversely affect the consequences of any design basis accident. In addition, this proposed change is consistent with NUREG-1431 (Technical Specification 3.7.10).

The proposed change to relocate information contained in the Auxiliary Building Filter System Limiting Condition for Operation (LCO) to the Bases will not change the requirement for two Auxiliary Building Filter Systems to be operable. The information added to the Bases will include a discussion of the operation of the Charging Pump/Reactor Plant Component Cooling Water Pump Ventilation System, which supports operation of the Auxiliary Building Filter System. This will ensure Charging Pump/Reactor Plant Component Cooling Water Pump Ventilation System will be available to support operation of the Auxiliary Building Filter System during accident mitigation.

The proposed action requirement change to require the initial determination of RCS boron concentration with 4 hours if both source range monitors are inoperable is a more restrictive change that will provide additional assurance the reactor is sufficiently shut down in Mode 6.

The proposed change to clarify that the Mode 6 channel check of the source range monitors does not include the audio count rate indication will not change the LCO requirement for two visual and one audio indications of neutron count rate. Replacing the requirement to perform an analog channel operational test of the source range monitors with a channel calibration requirement is appropriate since in Mode 6 this instrumentation is relied on for indication only. In addition, the channel calibration will provide additional assurance the equipment is operable.

The proposed change to the LCO for containment penetrations to allow both personnel access hatch doors to remain open during core alterations and irradiated fuel movement inside containment will increase the consequences of a fuel handling accident. The current analysis assumes that the containment is isolated before, or will be isolated by the containment purge system in the event of a fuel handling accident. As a result, no release to the environment would occur. Allowing the personnel access hatch doors to remain open will result in a release to the environment and consequences to Control Room personnel and off site. The calculated consequences of a FHAIC are bounded by the consequences of the Design Basis Loss of Coolant Accident, and are within required dose limits. Therefore, this proposed change will not result in a significant increase in the consequences of an accident previously evaluated.

The proposed changes to the frequency of performance for various SRs will remove the initial requirement to perform the SR within a certain time period. It will not change the overall frequency (i.e., once per 7 days) of performance and it will not change the SR acceptance criteria. 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 the requirement to perform the SRs within a certain time period will not adversely

impact the probability of system misalignment, component misalignment, or failure to establish required plant conditions. The accident analysis assumptions and mitigation methods will not be adversely affected by these changes.

The various proposed Technical Specification changes to address format issues, terminology, the removal of additional or unnecessary information (e.g., uniform in reference to boron concentration, or not operating in reference to the source range monitors), and to establish consistency between LCOs, action requirements, and SRs will not result in any technical changes to the current requirements.

The proposed Technical Specification changes will have no adverse effect on plant operation or the operation of accident mitigation equipment, and will not significantly impact the availability of accident mitigation equipment. The plant response to the design basis accidents will not change. In addition, the equipment covered by these specifications are not accident initiators and can not cause an accident. Therefore, the proposed Technical Specification changes will not result in a 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 do not impact any system or component which 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 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 proposed changes do not introduce any new failure modes. Also, the response of the plant and the operators following an accident will not be significantly different as a result of these changes. In addition, the accident mitigation equipment affected by the proposed changes are not accident initiators. 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 Millstone Unit No. 3 analyses of a FHAIC and a FHAISFP have been revised. The consequences of the FHAIC are new since containment isolation is assumed by the current analysis. However, the consequences of a FHAIC are bounded by the consequences of the Design Basis Loss of Coolant Accident. The increase in the consequences of the revised FHAISFP is small. The radiological consequences of these revised analyses are well within the Exclusion Area Boundary (EAB) and Low Population Zone (LPZ) dose limits of

10 CFR 100 (300 rem thyroid and 25 rem whole body). The doses to the Control Room Operators do not exceed the 10 CFR 50, Appendix A, General Design Criteria (GDC) 19 limit of 5 rem whole body or its equivalent (30 rem thyroid and 30 rem to the skin).

The proposed changes to the Technical Specifications are consistent with the Millstone Unit No. 3 design basis accident analyses including the revised FHAIC and FHAISFP analyses. This will ensure the analyses remains valid, and the consequences of the accidents are acceptable. They will provide the necessary control to ensure the required plant conditions are established, and the required plant equipment is available. If the required equipment is not operable, the proposed action requirements will require timely restoration of the equipment, or the plant will be placed in a configuration where there is no adverse impact associated with the inoperable equipment. The proposed allowed outage times provide a reasonable time for repairs before requiring a plant shutdown, as applicable, and reflect the low probability of an event occurring while the equipment is inoperable. The proposed shutdown times will allow an orderly shutdown, as applicable, to be performed. The proposed allowed outage times and shutdown times are consistent with times already contained in the Millstone Unit No. 3 Technical Specifications and with generic industry guidance (NUREG-1431), where applicable.

Additional changes to the Technical Specifications have been proposed that will standardize terminology, relocate information to the Bases, remove extraneous information, and make minor format changes. These proposed Technical Specification and Bases changes will not adversely impact any of the design basis accidents or the associated accident mitigation equipment.

The proposed changes will have no adverse effect on plant operation or equipment important to safety. The plant response to the design basis accidents will not change and the accident mitigation equipment will continue to function as assumed in the design basis accident analyses. Therefore, there will be no significant reduction in a margin of safety.

Docket No. 50-423
B18116

Attachment 3

Millstone Nuclear Power Station, Unit No. 3

Technical Specifications Change Request 3-6-00
Fuel Handling Accidents and Ventilation Systems
Marked Up Pages

NO CHANGE
FOR INFORMATION
ONLY

3/4.3.2 ENGINEERED SAFETY FEATURES ACTUATION SYSTEM INSTRUMENTATION

LIMITING CONDITION FOR OPERATION

3.3.2 The Engineered Safety Features Actuation System (ESFAS) instrumentation channels and interlocks shown in Table 3.3-3 shall be OPERABLE with their Trip Setpoints set consistent with the values shown in the Nominal Trip Setpoint column of Table 3.3-4.

APPLICABILITY: As shown in Table 3.3-3.

ACTION:

a. With an ESFAS Instrumentation Channel or Interlock Channel Nominal Trip Setpoint inconsistent with the value shown in the Nominal Trip Setpoint column of Table 3.3-4, adjust the Setpoint consistent with the Nominal Trip Setpoint value.

b. With an ESFAS Instrumentation Channel or Interlock Channel found to be inoperable, declare the channel inoperable and apply the applicable ACTION statement requirements of Table 3.3-3 until the channel is restored to OPERABLE status.

NO CHANGE
FOR INFORMATION ONLY
January 3, 1995

INSTRUMENTATION

SURVEILLANCE REQUIREMENTS

4.3.2.1 Each ESFAS instrumentation channel and interlock and the automatic actuation logic and relays shall be demonstrated OPERABLE by performance of the ESFAS Instrumentation Surveillance Requirements specified in Table 4.3-2.

4.3.2.2 The ENGINEERED SAFETY FEATURES RESPONSE TIME* of each ESFAS function shall be demonstrated to be within the limit at least once per 18 months. Each test shall include at least one train such that both trains are tested at least once per 36 months and one channel (to include input relays to both trains) per function such that all channels are tested at least once per N times 18 months where N is the total number of redundant channels in a specific ESFAS function as shown in the "Total No. of Channels" column of Table 3.3-3.

*The provisions of Specification 4.0.4 are not applicable for response time testing of steam line isolation for entry into MODE 4 and MODE 3 and turbine driven auxiliary feedwater pump for entry into MODE 3.

TABLE 3.3-3

ENGINEERED SAFETY FEATURES ACTUATION SYSTEM INSTRUMENTATION

FUNCTIONAL UNIT	TOTAL NO. OF CHANNELS	CHANNELS TO TRIP	MINIMUM CHANNELS OPERABLE	APPLICABLE MODES	ACTION
1. Safety Injection (Reactor Trip, Feedwater Isolation, Control Building Isolation (Manual Initiation Only), Start Diesel Generators, and Service Water).					
a. Manual Initiation	2	1	2	1, 2, 3, 4	19
b. Automatic Actuation Logic and Actuation Relays	2	1	2	1, 2, 3, 4	14
c. Containment Pressure--High-1	3	2	2	1, 2, 3	20
d. Pressurizer Pressure--Low	4	2	3	1, 2, 3#	20
e. Steam Line Pressure--Low	3/steam line in each operating loop	2/steam line in any operating loop	2/steam line in each operating loop	1, 2, 3#	20
2. Containment Spray (CDA)					
a. Manual Initiation	2	1 with 2 coincident switches	2	1, 2, 3, 4	19

Amendment No. 57, 70

November 23, 1992

NO CHANGE FOR INFORMATION ONLY

TABLE 3.3-3 (Continued)

ENGINEERED SAFETY FEATURES ACTUATION SYSTEM INSTRUMENTATION

FUNCTIONAL UNIT	TOTAL NO. OF CHANNELS	CHANNELS TO TRIP	MINIMUM CHANNELS OPERABLE	APPLICABLE MODES	ACTION
2. Containment Spray (CDA) (Continued)					
b. Automatic Actuation Logic and Actuation Relays	2	1	2	1, 2, 3, 4	14
c. Containment Pressure--High-3	4	2	3	1, 2, 3, 4	17
3. Containment Isolation					
a. Phase "A" Isolation					
1) Manual Initiation	2	1	2	1, 2, 3, 4	19
2) Automatic Actuation Logic and Actuation Relays	2	1	2	1, 2, 3, 4	14
3) Safety Injection	See Item 1. above for all Safety Injection initiating functions and requirements.				
b. Phase "B" Isolation					
1) Manual Initiation	2	1 with 2 coincident switches	2	1, 2, 3, 4	19
2) Automatic Actuation Logic and Actuation Relays	2	1	2	1, 2, 3, 4	14

NO CHANGE FOR INFORMATION ONLY

TABLE 3.3-3 (Continued)

ENGINEERED SAFETY FEATURES ACTUATION SYSTEM INSTRUMENTATION

FUNCTIONAL UNIT	TOTAL NO. OF CHANNELS	CHANNELS TO TRIP	MINIMUM CHANNELS OPERABLE	APPLICABLE MODES	ACTION
3. Containment Isolation (Continued)					
3) Containment Pressure--High-3	4	2	3	1, 2, 3, 4	17
c. Purge Isolation	2	1	2	5, 6‡	26
4. Steam Line Isolation					
a. Manual Initiation					
1) Individual	1/steam line	1/steam line	1/operating steam line	1, 2, 3, 4	24
2) System	2	1	2	1, 2, 3, 4	23
b. Automatic Actuation Logic and Actuation Relays	2	1	2	1, 2, 3, 4	22
c. Containment Pressure--High-2	3	2	2	1, 2, 3, 4	20
d. Steam Line Pressure--Low	3/steam line in each operating loop	2/steam line in any operating loop	2/steam line in each operating loop	1, 2, 3#	20
e. Steam Line Pressure - Negative Rate--High	3/steam line in each operating loop	2/steam line in any operating loop	2/steam line in each operating loop	3****	20

June 27, 1996

NO CHANGE FOR INFORMATION ONLY

TABLE 3.3-3 (Continued)

ENGINEERED SAFETY FEATURES ACTUATION SYSTEM INSTRUMENTATION

FUNCTIONAL UNIT	TOTAL NO. OF CHANNELS	CHANNELS TO TRIP	MINIMUM CHANNELS OPERABLE	APPLICABLE MODES	ACTION
5. Turbine Trip and Feedwater Isolation					
a. Automatic Actuation Logic and Actuation Relays	2	1	2	1, 2	25
b. Steam Generator Water Level--High-High (P-14)	4/stm. gen. in each operating loop	2/stm. gen. in any operating loop	3/stm. gen. in each operating loop	1, 2, 3	20, 21
c. Safety Injection Actuation Logic	2	1	2	1, 2	22
d. T_{ave} Low Coincident with P-4					
1) Four Loops Operating	1 T_{ave}/loop	1 T_{ave} in any two loops	1 T_{ave} in any three loops	1, 2	20
2) Three Loops Operating	1 T_{ave} operating loop	1 T_{ave} in any two operating loops	1 T_{ave} in any two operating loops	1, 2	16

November 23, 1992

NO CHANGE FOR INFORMATION ONLY

TABLE 3.3-3 (Continued)

ENGINEERED SAFETY FEATURES ACTUATION SYSTEM INSTRUMENTATION

FUNCTIONAL UNIT	TOTAL NO. OF CHANNELS	CHANNELS TO TRIP	MINIMUM CHANNELS OPERABLE	APPLICABLE MODES	ACTION
6. Auxiliary Feedwater					
a. Manual Initiation	2	1	2	1, 2, 3	23
b. Automatic Actuation Logic and Actuation Relays	2	1	2	1, 2, 3	22
c. Stm. Gen. Water Level--Low-Low					
1) Start Motor-Driven Pumps	4/stm. gen.	2/stm. gen. in any operating stm. gen.	3/stm. gen. in each operating stm. gen.	1, 2, 3	20
2) Start Turbine-Driven Pump	4/stm. gen.	2/stm. gen. in any 2 operating stm. gen.	3/stm. gen. in each operating stm. gen.	1, 2, 3	20
d. Safety Injection Start Motor-Driven Pumps	See Item 1. above for all Safety Injection initiating functions and requirements.				
e. Loss-of-Offsite Power Start Motor-Driven Pumps	2	1	2	1, 2, 3	19

NO CHANGE FOR INFORMATION ONLY

TABLE 3.3-3 (Continued)

ENGINEERED SAFETY FEATURES ACTUATION SYSTEM INSTRUMENTATION

FUNCTIONAL UNIT	TOTAL NO. OF CHANNELS	CHANNELS TO TRIP	MINIMUM CHANNELS OPERABLE	APPLICABLE MODES	ACTION
6. Auxiliary Feedwater (Continued)					
f. Containment Depressurization Actuation (CDA) Start Motor-Driven Pumps	See Item 2. above for all CDA functions and requirements.				
7. Control Building Isolation					
a. Manual Actuation	2	1	2	~~All~~ *	19
b. Manual Safety Injection Actuation	2	1	2	1, 2, 3, 4	19
c. Automatic Actuation Logic and Actuation Relays	2	1	2	~~All~~ 1,2,3,4.	14
d. Containment Pressure--High-1	3	2	2	1, 2, 3	16
e. Control Building Inlet Ventilation Radiation	2/intake	1	2/intake	~~All~~ *	18
8. Loss of Power					
a. 4 kV Bus Undervoltage-Loss of Voltage	4/bus	2/bus	3/bus	1, 2, 3, 4	20
b. 4 kV Bus Undervoltage-Grid Degraded Voltage	4/bus	2/bus	3/bus	1, 2, 3, 4	20

TABLE 3.3-3 (Continued)

ENGINEERED SAFETY FEATURES ACTUATION SYSTEM INSTRUMENTATION

FUNCTIONAL UNIT	TOTAL NO. OF CHANNELS	CHANNELS TO TRIP	MINIMUM CHANNELS OPERABLE	APPLICABLE MODES	ACTION
9. Engineering Safety Features Actuation System Interlocks					
a. Pressurizer Pressure, P-11	3	2	2	1, 2, 3	21
b. Low-Low T_{avg}, P-12	4	2	3	1, 2, 3	21
c. Reactor Trip, P-4	2	2	2	1, 2, 3	23
10. Emergency Generator Load Sequencer	2	1	2	1, 2, 3, 4	14

November 23, 1992

NO CHANGE FOR INFORMATION ONLY

INSERT A

TABLE 3.3-3 (Continued)

TABLE NOTATIONS

The Steamline Isolation Logic and Safety Injection Logic for this trip function may be blocked in this MODE below the P-11 (Pressurizer Pressure Interlock) Setpoint.

**** Trip function automatically blocked above P-11 and may be blocked below P-11 when Safety Injection on low steam line pressure is not blocked.

‡ During core alterations or movement of irradiated fuel within the containment. The provisions of Specification 3.0.3 are not applicable.

ACTION STATEMENTS

ACTION 14 - With the number of OPERABLE channels one less than the Minimum Channels OPERABLE requirement, restore the inoperable channel to OPERABLE status within 6 hours or be in at least HOT STANDBY within the next 6 hours and in COLD SHUTDOWN within the following 30 hours; however, one channel may be bypassed for up to 4 hours for surveillance testing per Specification 4.3.2.1, provided the other channel is OPERABLE.

ACTION 15 - (not used).

ACTION 16 - With the number of OPERABLE channels one less than the Total Number of Channels, operation may proceed until performance of the next required ANALOG CHANNEL OPERATIONAL TEST provided the inoperable channel is placed in the tripped condition within 1 hour.

ACTION 17 - With the number of OPERABLE channels one less than the Total Number of Channels, operation may proceed provided the inoperable channel is placed in the bypassed condition and the Minimum Channels OPERABLE requirement is met. One additional channel may be bypassed for up to 4 hours for surveillance testing per Specification 4.3.2.1.

ACTION 18 - With less than the Minimum Channels OPERABLE requirement, within 1 hour initiate and maintain operation of the Control Room Emergency Ventilation System in the recirculation mode of operation.

INSERT B

ACTION 19 - With the number of OPERABLE channels one less than the Minimum Channels OPERABLE requirement, restore the inoperable channel to OPERABLE status within 48 hours or be in at least HOT STANDBY within the next 6 hours and in COLD SHUTDOWN within the following 30 hours.

INSERT A - Page 3/4 3-24

* MODES 1, 2, 3, 4, 5, and 6.
During fuel movement within containment or the spent fuel pool.

INSERT B - Page 3/4 3-24

With the number of OPERABLE channels one less than the Total Number of Channels, restore the inoperable channel to OPERABLE status within 7 days. After 7 days, or if no channels are OPERABLE, immediately suspend CORE ALTERATIONS and fuel movement, if applicable, and be in HOT STANDBY within the next 6 hours and in COLD SHUTDOWN within the following 30 hours.

NO CHANGE FOR INFORMATION ONLY

TABLE 3.3-3 (Continued)

ACTION STATEMENTS (Continued)

ACTION 20 - With the number of OPERABLE channels one less than the Total Number of Channels, STARTUP and/or POWER OPERATION may proceed provided the following conditions are satisfied:

a. The inoperable channel is placed in the tripped condition within 6 hours, and

b. the Minimum Channels OPERABLE requirement is met; however, the inoperable channel may be bypassed for up to 4 hours for surveillance testing of other channels per Specification 4.3.2.1.

ACTION 21 - With less than the Minimum Number of Channels OPERABLE, within 1 hour determine by observation of the associated permissive annunciator window(s) that the interlock is in its required state for the existing plant condition, or apply Specification 3.0.3.

ACTION 22 - With the number of OPERABLE channels one less than the Minimum Channels OPERABLE requirement, restore the inoperable channel to OPERABLE status within 6 hours or be in at least HOT STANDBY within the next 6 hours and in at least HOT SHUTDOWN within the following 6 hours; however, one channel may be bypassed for up to 4 hours for surveillance testing per Specification 4.3.2.1 provided the other channel is OPERABLE.

ACTION 23 - With the number of OPERABLE channels one less than the Total Number of Channels, restore the inoperable channel to OPERABLE status within 48 hours or be in at least HOT STANDBY within 6 hours and in at least HOT SHUTDOWN within the following 6 hours.

ACTION 24 - With the number of OPERABLE channels one less than the Total Number of Channels, restore the inoperable channel to OPERABLE status within 48 hours or declare the associated valve inoperable and take the ACTION required by Specification 3.7.1.5.

ACTION 25 - With the number of OPERABLE channels one less than the Minimum Channels OPERABLE requirement, restore the inoperable channel to OPERABLE status within 6 hours or be in at least HOT STANDBY within the next 6 hours; however, one channel may be bypassed for up to 4 hours for surveillance testing per Specification 4.3.2.1 provided the other channel is OPERABLE.

ACTION 26 - With less than the Minimum Channels OPERABLE requirement, the containment purge and exhaust valves shall be maintained closed. Fuel movement and CORE ALTERATIONS may continue. The containment radiation monitoring channels required for containment area purge and exhaust isolation are not required to be OPERABLE during the performance of Type A containment leakage rate tests.

TABLE 3.3-4

ENGINEERED SAFETY FEATURES ACTUATION SYSTEM INSTRUMENTATION TRIP SETPOINTS

FUNCTIONAL UNIT	NOMINAL TRIP SETPOINT	ALLOWABLE VALUE
1. Safety Injection (Reactor Trip, Feedwater Isolation, Control Building Isolation (Manual Initiation Only), Start Diesel Generators, and Service Water)		
a. Manual Initiation	N.A.	N.A.
b. Automatic Actuation Logic	N.A.	N.A.
c. Containment Pressure--High 1	17.7 psia	≤ 17.9 psia
d. Pressurizer Pressure--Low		
1) Channels I and II	1892 psia	≥ 1889.6 psia
2) Channel III and IV	1892 psia	≥ 1889.6 psia
e. Steam Line Pressure--Low	658.6 psig*	≥ 654.7 psig*
2. Containment Spray (CDA)		
a. Manual Initiation	N.A.	N.A.
b. Automatic Actuation Logic and Actuation Relays	N.A.	N.A.
c. Containment Pressure--High-3	22.7 psia	≤ 22.9 psia
3. Containment Isolation		
a. Phase "A" Isolation		
1) Manual Initiation	N.A.	N.A.

NO CHANGE FOR INFORMATION ONLY

5/26/98

TABLE 3.3-4

ENGINEERED SAFETY FEATURES ACTUATION SYSTEM INSTRUMENTATION TRIP SETPOINTS

FUNCTIONAL UNIT	NOMINAL TRIP SETPOINT	ALLOWABLE VALUE
3. Containment Isolation (Continued)		
2) Automatic Actuation Logic and Actuation Relays	N.A.	N.A
3) Safety Injection	See Item 1. above for all Safety Injection Trip Setpoints and Allowable Values.	
b. Phase "B" Isolation		
1) Manual Initiation	N.A.	N.A.
2) Automatic Actuation Logic and Actuation Relays	N.A.	N.A.
3) Containment Pressure--High-3	22.7 psia	≤ 22.9 psia
c. Purge Isolation	≤ 1 R/h	≤ 1 R/h
4. Steam Line Isolation		
a. Manual Initiation	N.A.	N.A.
b. Automatic Actuation Logic and Actuation Relays	N.A.	N.A.
c. Containment Pressure--High-2	17.7 psia	≤ 17.9 psia
d. Steam Line Pressure--Low	658.6 psig*	≥ 654.7 psig*
e. Steam Line Pressure - Negative Rate--High	100 psi/s**	≤ 103.9 psi/s**

5/26/98

NO CHANGE
FOR INFORMATION
ONLY

TABLE 3.3-4

ENGINEERED SAFETY FEATURES ACTUATION SYSTEM INSTRUMENTATION TRIP SETPOINTS

FUNCTIONAL UNIT	NOMINAL TRIP SETPOINT	ALLOWABLE VALUE
5. Turbine Trip and Feedwater Isolation		
a. Automatic Actuation Logic Actuation Relays	N.A.	N.A.
b. Steam Generator Water Level--High-High (P-14)	80.5% of narrow range instrument span.	≤ 80.8% of narrow range instrument span.
c. Safety Injection Actuation Logic	See Item 1. above for all Safety Injection Trip Setpoints and Allowable Values.	
d. T_{ave} Low Coincident with Reactor Trip (P-4)		
1) Four Loops Operating	564°F	≥ 563.6°F
2) Three Loops Operating	564°F	≥ 563.6°F
6. Auxiliary Feedwater		
a. Manual Initiation	N.A.	N.A.
b. Automatic Actuation Logic and Actuation Relays	N.A.	N.A.
c. Steam Generator Water Level--Low-Low		
1) Start Motor-Driven Pumps	18.1% of narrow range instrument span.	≥ 17.8% of narrow range instrument span.

NO CHANGE FOR INFORMATION ONLY

5/26/98

TABLE 3.3-4 (Continued)
ENGINEERED SAFETY FEATURES ACTUATION SYSTEM INSTRUMENTATION TRIP SETPOINTS

FUNCTIONAL UNIT	NOMINAL TRIP SETPOINT	ALLOWABLE VALUE
6. Auxiliary Feedwater (Continued)		
2) Start Turbine-Driven Pumps	18.1% of narrow range instrument span.	≥ 17.8% of narrow range instrument span.
d. Safety Injection	See Item 1. above for all Safety Injection Trip Setpoints and Allowable Values.	
e. Loss-of-Offsite Power Start Motor-Driven Pumps	2800V	≥ 2720V
f. Containment Depressurization Actuation (CDA) Start Motor-Driven Pumps	See Item 2. above for all CDA Trip Setpoints and Allowable Values.	
7. Control Building Isolation		
a. Manual Actuation	N.A	N.A.
b. Manual Safety Injection Actuation	N.A	N.A.
c. Automatic Actuation Logic and Actuation Relays	N.A.	N.A.
d. Containment Pressure--High 1	17.7 psia	≤ 17.9 psia
e. Control Building Inlet Ventilation Radiation	≤1.5 x 10^{-6} μci/cc	≤1.5 x 10^{-5} μci/cc

5/26/98
NO CHANGE
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TABLE 3.3-4 (Continued)

ENGINEERED SAFETY FEATURES ACTUATION SYSTEM INSTRUMENTATION TRIP SETPOINTS

FUNCTIONAL UNIT	NOMINAL TRIP SETPOINT	ALLOWABLE VALUE
8. Loss of Power		
a. 4 kV Bus Undervoltage (Loss of Voltage)	2800 volts with a ≤ 2 second time delay.	≥ 2720 volts with a ≤ 2 second time delay.
b. 4 kV Bus Undervoltage (Grid Degraded Voltage)	3730 volts with a ≤ 8 second time delay with ESF actuation or ≤ 300 second time delay without ESF actuation.	≥ 3706 volts with a ≤ 8 second time delay with ESF actuation or ≤ 300 second time delay without ESF actuation.
9. Engineered Safety Features Actuation System Interlocks		
a. Pressurizer Pressure, P-11	1999.7 psia	≤ 2002.1 psia
b. Low-Low T_{avg}, P-12	553°F	≥ 552.6°F
c. Reactor Trip, P-4	N.A.	N.A.
10. Emergency Generator Load Sequencer	N.A.	N.A.

NO CHANGE FOR INFORMATION ONLY

5/26/98

March 11, 1997

NO CHANGE
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TABLE 3.3-4 (Continued)

TABLE NOTATIONS

* Time constants utilized in the lead-lag controller for Steam Line Pressure-Low are $\tau_1 \geq 50$ seconds and $\tau_2 \leq 5$ seconds. CHANNEL CALIBRATION shall ensure that these time constants are adjusted to these values.

** The time constant utilized in the rate-lag controller for Steam Line Pressure-Negative Rate-High is greater than or equal to 50 seconds. CHANNEL CALIBRATION shall ensure that this time constant is adjusted to this value.

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TABLE 4.3-2

ENGINEERED SAFETY FEATURES ACTUATION SYSTEM INSTRUMENTATION SURVEILLANCE REQUIREMENTS

FUNCTIONAL UNIT	CHANNEL CHECK	CHANNEL CALIBRATION	ANALOG CHANNEL OPERATIONAL TEST	TRIP ACTUATING DEVICE OPERATIONAL TEST	ACTUATION LOGIC TEST	MASTER RELAY TEST	SLAVE RELAY TEST	MODES FOR WHICH SURVEILLANCE IS REQUIRED
1. Safety Injection (Reactor Trip, Feedwater Isolation, Control Building Isolation (Manual Initiation Only), Start Diesel Generators, and Service Water)								
a. Manual Initiation	N.A.	N.A.	N.A.	R	N.A.	N.A.	N.A.	1, 2, 3, 4
b. Automatic Actuation Logic and Actuation Relays	N.A.	N.A.	N.A.	N.A.	M(1)	M(1)	Q	1, 2, 3, 4
c. Containment Pressure-High-1	S	R	Q	N.A.	N.A.	N.A.	N.A.	1, 2, 3
d. Pressurizer Pressure-Low	S	R	Q	N.A.	N.A.	N.A.	N.A.	1, 2, 3
e. Steam Line Pressure-Low	S	R	Q	N.A.	N.A.	N.A.	N.A.	1, 2, 3
2. Containment Spray								
a. Manual Initiation	N.A.	N.A.	N.A.	R	N.A.	N.A.	N.A.	1, 2, 3, 4
b. Automatic Actuation Logic and Actuation Relays	N.A.	N.A.	N.A.	N.A.	M(1)	M(1)	Q	1, 2, 3, 4
c. Containment Pressure-High-3	S	R	Q	N.A.	N.A.	N.A.	N.A.	1, 2, 3, 4

NO CHANGE FOR INFORMATION ONLY

1/3/95

TABLE 4.3-2 (Continued)

ENGINEERED SAFETY FEATURES ACTUATION SYSTEM INSTRUMENTATION SURVEILLANCE REQUIREMENTS

FUNCTIONAL UNIT	CHANNEL CHECK	CHANNEL CALIBRATION	ANALOG CHANNEL OPERATIONAL TEST	TRIP ACTUATING DEVICE OPERATIONAL TEST	ACTUATION LOGIC TEST	MASTER RELAY TEST	SLAVE RELAY TEST	MODES FOR WHICH SURVEILLANCE IS REQUIRED
3. Containment Isolation								
a. Phase "A" Isolation								
1) Manual Initiation	N.A.	N.A.	N.A.	R	N.A.	N.A.	N.A.	1, 2, 3, 4
2) Automatic Actuation Logic and Actuation Relays	N.A.	N.A.	N.A.	N.A.	M(1)	M(1)	Q	1, 2, 3, 4
3) Safety Injection	See Item 1. above for all Safety Injection Surveillance Requirements.							
b. Phase "B" Isolation								
1) Manual Initiation	N.A.	N.A.	N.A.	R	N.A.	N.A.	N.A.	1, 2, 3, 4
2) Automatic Actuation Logic Actuation Relays	N.A.	N.A.	N.A.	N.A.	M(1)	M(1)	Q	1, 2, 3, 4
3) Containment Pressure-High-3	S	R	Q	N.A.	N.A.	N.A.	N.A.	1, 2, 3, 4
c. Purge Isolation	S	R	Q	N.A.	N.A.	N.A.	N.A.	5, 6#
4. Steam Line Isolation								
a. Manual Initiation								
1) Individual	N.A.	N.A.	N.A.	R	N.A.	N.A.	N.A.	1, 2, 3, 4
2) System	N.A.	N.A.	N.A.	R	N.A.	N.A.	N.A.	1, 2, 3, 4

NO CHANGE FOR INFORMATION ONLY

Amendment No. 66, 79, 79, 129

June 27, 1996

TABLE 4.3-2 (Continued)

ENGINEERED SAFETY FEATURES ACTUATION SYSTEM INSTRUMENTATION SURVEILLANCE REQUIREMENTS

FUNCTIONAL UNIT	CHANNEL CHECK	CHANNEL CALIBRATION	ANALOG CHANNEL OPERATIONAL TEST	TRIP ACTUATING DEVICE OPERATIONAL TEST	ACTUATION LOGIC TEST	MASTER RELAY TEST	SLAVE RELAY TEST	MODES FOR WHICH SURVEILLANCE IS REQUIRED
4. Steam Line Isolation (Continued)								
b. Automatic Actuation Logic and Actuation Relays	N.A.	N.A.	N.A.	N.A.	M(1)	M(1)	Q	1, 2, 3, 4
c. Containment Pressure-High-2	S	R	Q	N.A.	N.A.	N.A.	N.A.	1, 2, 3, 4
d. Steam Line Pressure-Low	S	R	Q	N.A.	N.A.	N.A.	N.A.	1, 2, 3
e. Steam Line Pressure-Negative Rate-High	S	R	Q	N.A.	N.A.	N.A.	N.A.	3
5. Turbine Trip and Feedwater Isolation								
a. Automatic Actuation Logic and Actuation Relays	N.A.	N.A.	N.A.	N.A.	M(1)	M(1)	Q	1, 2
b. Steam Generator Water Level-High-High	S	R	Q	N.A.	M(1)	M(1)	Q	1, 2, 3
c. Safety Injection Actuation Logic	N.A.	N.A.	N.A.	R	N.A.	N.A.	N.A.	1, 2
d. T_{ave} Low Coincident with Reactor Trip (P-4)	N.A.	R	Q	N.A.	N.A.	N.A.	N.A.	1, 2

NO CHANGE FOR INFORMATION ONLY

Amendment No. 44, 79, 79, 100

January 3, 1995

TABLE 4.3-2 (Continued)

ENGINEERED SAFETY FEATURES ACTUATION SYSTEM INSTRUMENTATION SURVEILLANCE REQUIREMENTS

FUNCTIONAL UNIT	CHANNEL CHECK	CHANNEL CALIBRATION	ANALOG CHANNEL OPERATIONAL TEST	TRIP ACTUATING DEVICE OPERATIONAL TEST	ACTUATION LOGIC TEST	MASTER RELAY TEST	SLAVE RELAY TEST	MODES FOR WHICH SURVEILLANCE IS REQUIRED
6. Auxiliary Feedwater								
a. Manual Initiation	N.A.	N.A.	N.A.	R	N.A.	N.A.	N.A.	1, 2, 3
b. Automatic Actuation and Actuation Relays	N.A.	N.A	N.A.	N.A.	M(1)	M(1)	Q	1, 2, 3
c. Steam Generator Water Level-Low-Low	S	R	Q	N.A.	N.A.	N.A.	N.A.	1, 2, 3
d. Safety Injection	See Item 1. above for all Safety Injection Surveillance Requirements.							
e. Loss-of-Offsite Power	See Item 8. below for all Loss of Power Surveillance.							
f. Containment Depressurization Actuation (CDA)	See Item 2. above for all CDA Surveillance Requirements.							
7. Control Building Isolation								
a. Manual Actuation	N.A.	N.A.	N.A.	R	N.A.	N.A.	N.A.	~~All~~ (*)
b. Manual Safety Injection Actuation	N.A.	N.A.	N.A.	R	N.A.	N.A.	N.A.	1, 2, 3, 4
c. Automatic Actuation Logic and Actuation Relays	N.A.	N.A.	N.A.	N.A.	M(1)	M(1)	Q	1, 2, 3, 4
d. Containment Pressure--High-1	S	R	Q	N.A.	N.A.	N.A.	N.A.	1, 2, 3

Amendment No. 55, 79, 79, 79

~~January 3, 1995~~

TABLE 4.3-2 (Continued)

ENGINEERED SAFETY FEATURES ACTUATION SYSTEM INSTRUMENTATION SURVEILLANCE REQUIREMENTS

FUNCTIONAL UNIT	CHANNEL CHECK	CHANNEL CALIBRATION	ANALOG CHANNEL OPERATIONAL TEST	TRIP ACTUATING DEVICE OPERATIONAL TEST	ACTUATION LOGIC TEST	MASTER RELAY TEST	SLAVE RELAY TEST	MODES FOR WHICH SURVEILLANCE IS REQUIRED
7. Control Building Isolation (Continued)								
e. Control Building Inlet Ventilation Radiation	S	R	Q	N.A.	N.A.	N.A.	N.A.	~~All~~ *
8. Loss of Power								
a. 4 kV Bus Undervoltage (Loss of Voltage)	N.A.	R	N.A	M(3)	N.A.	N.A.	N.A.	1, 2, 3, 4
b. 4 kV Bus Undervoltage (Grid Degraded Voltage)	N.A.	R	N.A.	M(3)	N.A.	N.A.	N.A.	1, 2, 3, 4
9. Engineered Safety Features Actuation System Interlocks								
a. Pressurizer Pressure, P-11	N.A.	R	Q	N.A.	N.A.	N.A.	N.A.	1, 2, 3
b. Low-Low T_{avg}, P-12	N.A.	R	Q	N.A.	N.A.	N.A.	N.A.	1, 2, 3
c. Reactor Trip, P-4	N.A.	N.A.	N.A.	R	N.A.	N.A.	N.A.	1, 2, 3
10. Emergency Generator Load Sequencer	N.A.	N.A.	N.A.	N.A.	Q(1, 2)	N.A.	N.A.	1, 2, 3, 4

* ~~January 3, 1995~~

Amendment No. 14, 45, 70, 79, 106

TABLE 4.3-2 (Continued)

TABLE NOTATION

(1) Each train shall be tested at least every 62 days on a STAGGERED TEST BASIS.

(2) This surveillance may be performed continuously by the emergency generator load sequencer auto test system as long as the EGLS auto test system is demonstrated operable by the performance of an ACTUATION LOGIC TEST at least once per 92 days.

(3) On a monthly basis, a loss of voltage condition will be initiated at each undervoltage monitoring relay to verify individual relay operation. Setpoint verification and actuation of the associated logic and alarm relays will be performed as part of the channel calibration required once per 18 months.

During core alterations or movement of irradiated fuel within the containment. The provisions of Specification 3.0.3 are not applicable.

INSERT C

INSERT C - Page 3/4 3-41

* MODES 1, 2, 3, 4, 5, and 6.
During fuel movement within containment or the spent fuel pool.

PLANT SYSTEMS

3/4.7.7 CONTROL ROOM EMERGENCY VENTILATION SYSTEM

LIMITING CONDITION FOR OPERATION

3.7.7 Two independent Control Room Emergency Air Filtration Systems shall be OPERABLE.

(#)

APPLICABILITY: ~~All MODES.~~

INSERT D

ACTION:

MODES 1, 2, 3 and 4:

a. With one Control Room Emergency Air Filtration System inoperable, restore the inoperable system to OPERABLE status within 7 days or be in at least HOT STANDBY within the next 6 hours and in COLD SHUTDOWN within the following 30 hours.

MODES 5 and 6:

a. With one Control Room Emergency Air Filtration System inoperable, restore the inoperable system to OPERABLE status within 7 days or initiate and maintain operation of the remaining OPERABLE Control Room Emergency Air Filtration System in the recirculation mode.

b. With both Control Room Emergency Air Filtration Systems inoperable, or with the OPERABLE Control Room Emergency Air Filtration System required to be in the recirculation mode by ACTION a. not capable of being powered by an OPERABLE emergency power source, suspend all operations involving CORE ALTERATIONS or positive reactivity changes.

INSERT E

SURVEILLANCE REQUIREMENTS

4.7.7 Each Control Room Emergency Air Filtration System shall be demonstrated OPERABLE:

a. At least once per 12 hours by verifying that the control room air temperature is less than or equal to 95°F;

b. At least once per 31 days on a STAGGERED TEST BASIS by initiating, from the control room, flow through the HEPA filters and charcoal adsorbers and verifying a system flow rate of 1,120 cfm +20% and that the system operates for at least 10 continuous hours with the heaters operating;

INSERT F

INSERT D - Page 3/4 7-15

APPLICABILITY: MODES 1, 2, 3, 4, 5, and 6.
During fuel movement within containment or the spent fuel pool.

INSERT E - Page 3/4 7-15

b. With both Control Room Emergency Air Filtration Systems inoperable, except as specified in ACTION c., immediately suspend the movement of fuel assemblies within the spent fuel pool. Restore at least one inoperable system to OPERABLE status within 1 hour or be in HOT STANDBY within the next 6 hours and COLD SHUTDOWN within the following 30 hours.

c. With both Control Room Emergency Air Filtration Systems inoperable due to an inoperable Control Room boundary, immediately suspend the movement of fuel assemblies within the spent fuel pool and restore the Control Room boundary to OPERABLE status within 24 hours or be in HOT STANDBY within the next 6 hours and COLD SHUTDOWN within the following 30 hours.

MODES 5 and 6, and fuel movement within containment or the spent fuel pool:

d. With one Control Room Emergency Air Filtration System inoperable, restore the inoperable system to OPERABLE status within 7 days. After 7 days, either initiate and maintain operation of the remaining OPERABLE Control Room Emergency Air Filtration System in the recirculation mode of operation, or immediately suspend CORE ALTERATIONS and the movement of fuel assemblies.

e. With both Control Room Emergency Air Filtration Systems inoperable, or with the OPERABLE Control Room Emergency Air Filtration System required to be in the recirculation mode by ACTION d. not capable of being powered by an OPERABLE emergency power source, immediately suspend CORE ALTERATIONS and the movement of fuel assemblies.

INSERT F - Page 3/4 7-15

The Control Room boundary may be opened intermittently under administrative control.

SURVEILLANCE REQUIREMENTS (Continued)

c. At least once each REFUELING INTERVAL or (1) after any structural maintenance on the HEPA filter or charcoal adsorber housings, or (2) following painting, fire, or chemical release in any ventilation zone communicating with the system by:

1) Verifying that the system satisfies the in-place penetration and bypass leakage testing acceptance criteria of less than 0.05% and uses the test procedure guidance in Regulatory Position C.5.a, C.5.c, and C.5.d of Regulatory Guide 1.52, Revisions 2, March 1978,* and the system flow rate is 1,120 cfm ±20%;

2) Verifying, within 31 days after removal, that a laboratory analysis of a representative carbon sample obtained in accordance with Regulatory Position C.6.b of Regulatory Guide 1.52, Revision 2, March 1978,* meets the laboratory testing criteria of Regulatory Position C.6.a of Regulatory Guide 1.52, Revision 2, March 1978,* for a methyl iodide penetration of less than 0.175%; and

3) Verifying a system flow rate of 1,120 cfm ±20% during system operation when tested in accordance with ANSI N510-1980.

d. After every 720 hours of charcoal adsorber operation, by verifying, within 31 days after removal, that a laboratory analysis of a representative carbon sample obtained in accordance with Regulatory Position C.6.b of Regulatory Guide 1.52, Revision 2, March 1978,* meets the laboratory testing criteria of Regulatory Position C.6.a of Regulatory Guide 1.52, Revision 2, March 1978,* for a methyl iodide penetration of less than 0.175%;

e. At least once each REFUELING INTERVAL by:

1) Verifying that the pressure drop across the combined HEPA filters and charcoal adsorber banks is less than 6.75 inches Water Gauge while operating the system at a flow rate of 1,120 cfm ±20%;

2) Verifying that the system maintains the control room at a positive pressure of greater than or equal to 1/8 inch Water Gauge at less than or equal to a pressurization flow of 230 cfm relative to adjacent areas and outside atmosphere during system operation; and

3) Verifying that the heaters dissipate 9.4 ±1 kW when tested in accordance with ANSI N510-1980.

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SURVEILLANCE REQUIREMENTS (Continued)

f. After each complete or partial replacement of a HEPA filter bank, by verifying that the cleanup system satisfies the in-place penetration and bypass leakage testing acceptance criteria of less than 0.05% in accordance with ANSI N510-1980 for a DOP test aerosol while operating the system at a flow rate of 1120 cfm ± 20%; and

g. After each complete or partial replacement of a charcoal adsorber bank, by verifying that the cleanup system satisfies the in-place penetration and bypass leakage testing acceptance criteria of less than 0.05% in accordance with ANSI N510-1980 for a halogenated hydrocarbon refrigerant test gas while operating the system at a flow rate of 1120 cfm ± 20%.

*ANSI N510-1980 shall be used in place of ANSI N510-1975 referenced in Regulatory Guide 1.52, Revision 2, March 1978.

3/4.7.8 CONTROL ROOM ENVELOPE PRESSURIZATION SYSTEM

LIMITING CONDITION FOR OPERATION

3.7.8 Two independent Control Room Envelope Pressurization Systems shall be OPERABLE.

(#)

APPLICABILITY: ~~All MODES.~~ INSERT 6

ACTION:

INSERT H

a. With one Control Room Envelope Pressurization System inoperable either:

1. Restore the inoperable system to OPERABLE status within 7 days, or

2. Initiate and maintain operation of an OPERABLE Control Room Emergency Air Filtration System in the recirculation mode, or

3. Be in HOT STANDBY within 6 hours and COLD SHUTDOWN within the next 30 hours and suspend all operations involving CORE ALTERATIONS or positive reactivity changes.

b. With both Control Room Envelope Pressurization Systems inoperable, within one hour initiate action to restore one inoperable system to OPERABLE status and either:

1. Initiate and maintain operation of an OPERABLE Control Room Emergency Air Filtration System in the recirculation mode, or

2. Be in HOT STANDBY within 6 hours and COLD SHUTDOWN within the next 30 hours and suspend all operations involving CORE ALTERATIONS or positive reactivity changes.

SURVEILLANCE REQUIREMENTS

4.7.8 Each Control Room Envelope Pressurization System shall be demonstrated OPERABLE:

a. At least once per 7 days by verifying that the storage air bottles are pressurized to greater than or equal to 2200 psig,

b. At least once per 31 days on a STAGGERED TEST BASIS by verifying that each valve (manual, power operated or automatic) in the flow path not locked, sealed or otherwise secured in position, is in its correct position, and

INSERT I

Amendment No.

INSERT G - Page 3/4 7-18

APPLICABILITY: MODES 1, 2, 3, 4, 5, and 6.
During fuel movement within containment or the spent fuel pool.

INSERT H - Page 3/4 7-18

MODES 1, 2, 3, and 4:

a. With one Control Room Envelope Pressurization System inoperable restore the system to OPERABLE status within 7 days or be in HOT STANDBY within the next 6 hours and COLD SHUTDOWN within the following 30 hours.

b. With both Control Room Envelope Pressurization Systems inoperable, except as specified in ACTION c. or ACTION d., immediately suspend the movement of fuel assemblies within the spent fuel pool. Restore at least one inoperable system to OPERABLE status within 1 hour or be in HOT STANDBY within the next 6 hours and COLD SHUTDOWN within the following 30 hours.

c. With both Control Room Envelope Pressurization Systems inoperable due to an inoperable Control Room boundary, immediately suspend the movement of fuel assemblies within the spent fuel pool. Restore the Control Room boundary to OPERABLE status within 24 hours or be in HOT STANDBY within the next 6 hours and COLD SHUTDOWN within the following 30 hours.

d. With both Control Room Envelope Pressurization Systems inoperable during the performance of Surveillance Requirement 4.7.8.c and the system not being tested under administrative control, immediately suspend the movement of fuel assemblies within the spent fuel pool. Restore at least one inoperable system to OPERABLE status within 4 hours or be in HOT STANDBY within the next 6 hours and COLD SHUTDOWN within the following 30 hours.

MODES 5 and 6, and fuel movement within containment or the spent fuel pool:

e. With one Control Room Envelope Pressurization System inoperable, restore the inoperable system to OPERABLE status within 7 days. After 7 days, immediately suspend CORE ALTERATIONS and the movement of fuel assemblies.

f. With both Control Room Envelope Pressurization Systems inoperable, immediately suspend CORE ALTERATIONS and the movement of fuel assemblies.

INSERT I - Page 3/4 7-18

The Control Room boundary may be opened intermittently under administrative control.

PLANT SYSTEMS

SURVEILLANCE REQUIREMENTS (Continued)

c. At least once each REFUELING INTERVAL or following a major alteration of the control room envelope pressure boundary by:

1. Verifying that the control room envelope is isolated in response to a Control Building Isolation test signal,

2. Verifying that after a 60 second time delay following a Control Building Isolation test signal, the control room envelope pressurizes to greater than or equal to 1/8 inch W.G. relative to the outside atmosphere, and

3. Verifying that the positive pressure of Specification 4.7.8.c.2 is maintained for greater than or equal to 60 minutes.

adjacent areas and

PLANT SYSTEMS

3/4.7.9 AUXILIARY BUILDING FILTER SYSTEM

LIMITING CONDITION FOR OPERATION

3.7.9 Two independent Auxiliary Building Filter Systems shall be OPERABLE with each system comprised of:

a. one OPERABLE filter and fan, and

b. one OPERATIONAL Charging Pump/Reactor Plant Component Cooling Water Pump Ventilation System.

APPLICABILITY: MODES 1, 2, 3, and 4.

ACTION:

With one Auxiliary Building Filter System inoperable, restore the inoperable system to OPERABLE status within 7 days or be in at least HOT STANDBY within the next 6 hours and in COLD SHUTDOWN within the following 30 hours. In addition, comply with the ACTION requirements of Specification 3.6.6.1.

SURVEILLANCE REQUIREMENTS

4.7.9 Each Auxiliary Building Filter System shall be demonstrated OPERABLE:

a. At least once per 31 days on a STAGGERED TEST BASIS by initiating, from the control room, flow through the HEPA filters and charcoal adsorbers and verifying a system flow rate of 30,000 cfm ±10% and that the system operates for at least 10 continuous hours with the heaters operating;

b. At least once each REFUELING INTERVAL or (1) after any structural maintenance on the HEPA filter or charcoal adsorber housings, or (2) following painting, fire, or chemical release in any ventilation zone communicating with the system by:

1) Verifying that the cleanup system satisfies the in-place penetration and bypass leakage testing acceptance criteria of less than 0.05% and uses the test procedure guidance in Regulatory Positions C.5.a, C.5.c, and C.5.d of Regulatory Guide 1.52, Revision 2, March 1978,* and the system flow rate is 30,000 cfm ±10%;

2) Verifying, within 31 days after removal, that a laboratory analysis of a representative carbon sample obtained in accordance with Regulatory Position C.6.b of Regulatory Guide 1.52, Revision 2, March 1978,* meets the laboratory

testing criteria of Regulatory Position C.6.a of Regulatory Guide 1.52, Revision 2, March 1978,* for a methyl iodide penetration of less than 0.175%; and

3) Verifying a system flow rate of 30,000 cfm ±10% during system operation when tested in accordance with ANSI N510-1980.

c. After every 720 hours of charcoal adsorber operation, by verifying, within 31 days after removal, that a laboratory analysis of a representative carbon sample obtained in accordance with Regulatory Position C.6.b of Regulatory Guide 1.52, Revision 2, March 1978,* meets the laboratory testing criteria of Regulatory Position C.6.a of Regulatory Guide 1.52, Revision 2, March 1978*, for a methyl iodide penetration of less than 0.175%;

d. At least once each REFUELING INTERVAL by:

1) Verifying that the pressure drop across the combined HEPA filters and charcoal adsorber banks is less than 6.8 inches Water Gauge while operating the system at a flow rate of 30,000 cfm ±10%,

2) Verifying that the system starts on a Safety Injection test signal, and

3) Verifying that the heaters dissipate 180 ±18 kW when tested in accordance with ANSI N510-1980.

e. After each complete or partial replacement of a HEPA filter bank, by verifying that the cleanup system satisfies the in-place penetration and bypass leakage testing acceptance criteria of less than 0.05% in accordance with ANSI N510-1980 for a DOP test aerosol while operating the system at a flow rate of 30,000 cfm ±10%; and

f. After each complete or partial replacement of a charcoal adsorber bank, by verifying that the cleanup system satisfies the in-place penetration and bypass leakage testing acceptance criteria of less than 0.05% in accordance with ANSI N510-1980 for a halogenated hydrocarbon refrigerant test gas while operating the system at a flow rate of 30,000 cfm ±10%.

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* ANSI N510-180 shall be used in place of ANSI N510-1975 referenced in Regulatory Guide 1.52, Revision 2, March 1978.

3/4.9.1 BORON CONCENTRATION

LIMITING CONDITION FOR OPERATION

3.9.1.1 The boron concentration of all filled portions of the Reactor Coolant System and the refueling ~~canal~~ cavity, shall be maintained ~~uniform and~~ sufficient to ensure that the more restrictive of the following reactivity conditions is met; either:

a. A K_{eff} of 0.95 or less, or
b. A boron concentration of greater than or equal to 2600 ppm.

Additionally, the CVCS valves of Specification 4.1.1.2.2 shall be closed and secured in position.

APPLICABILITY: MODE 6.*

ACTION:

a. With the requirements of the above specification not satisfied, immediately suspend all operations involving CORE ALTERATIONS or positive reactivity changes and initiate and continue boration at greater than or equal to 33 gpm of a solution containing greater than or equal to 6600 ppm boron or its equivalent 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 2600 ppm, whichever is the more restrictive.

b. With any of the CVCS valves of Specification 4.1.1.2.2 not closed** and secured in position, immediately close and secure the valves.

SURVEILLANCE REQUIREMENTS

4.9.1.1.1 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 control rod in excess of 3 feet from its fully inserted position within the reactor vessel.

4.9.1.1.2 The boron concentration of the Reactor Coolant System and the refueling ~~canal~~ cavity shall be determined by chemical analysis at least once per 72 hours.

4.9.1.1.3 The CVCS valves of Specification 4.1.1.2.2 shall be verified closed and locked at least once per 31 days.

*The reactor shall be maintained in MODE 6 whenever fuel is in the reactor vessel with the vessel head closure bolts less than fully tensioned or with the head removed.

**Except those opened under administrative control.

~~4/9/98~~

REFUELING OPERATIONS

BORON CONCENTRATION

LIMITING CONDITION FOR OPERATION

3.9.1.2 The boron concentration of the Spent Fuel Pool shall be ~~maintained uniform and sufficient to ensure that the boron concentration is~~ greater than or equal to 1750 ppm.

Applicability

Whenever fuel assemblies are in the spent fuel pool.

Action

a. With the boron concentration less than 1750 ppm, initiate action to bring the boron concentration in the fuel pool to at least 1750 ppm within 72 hours, and

b. With the boron concentration less than 1750 ppm, suspend the movement of all fuel assemblies within the spent fuel pool and loads over the spent fuel racks.

SURVEILLANCE REQUIREMENTS

4.9.1.2 Verify that the boron concentration in the fuel pool is greater than or equal to 1750 ppm every 72 hours.

3/4.9.2 INSTRUMENTATION

LIMITING CONDITION FOR OPERATION

3.9.2 Two Source Range Neutron Flux Monitors shall be OPERABLE 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 ~~or not operating~~, immediately suspend all operations involving CORE ALTERATIONS or positive reactivity changes.

b. With both of the above required monitors inoperable ~~or not operating~~, determine the boron concentration of the Reactor Coolant System at least once per 12 hours. thereafter within 4 hours and

SURVEILLANCE REQUIREMENTS

4.9.2 Each Source Range Neutron Flux Monitor shall be demonstrated OPERABLE by performance of:

a. A CHANNEL CHECK ~~including~~ audible counts and verification of at least once per 12 hours,

b. An ANALOG CHANNEL OPERATIONAL TEST within 12 hours prior to the initial start of CORE ALTERATIONS, and

c. An ANALOG CHANNEL OPERATIONAL TEST at least once per 7 days.

A CHANNEL CALIBRATION at least once per 18 months.*

* Neutron detectors are excluded from CHANNEL CALIBRATION.

~~JAN 31 1986~~

3/4.9.4 CONTAINMENT BUILDING PENETRATIONS

LIMITING CONDITION FOR OPERATION

3.9.4 The containment building penetrations shall be in the following status:

a. The equipment access hatch closed and held in place by a minimum of four bolts,

INSERT J

b. ~~A minimum of one door in each airlock is closed, and~~

c. Each penetration providing direct access from the containment atmosphere to the outside atmosphere shall be either:

1) Closed by an isolation valve, blind flange, or manual valve, or

2) Be capable of being closed by an OPERABLE automatic containment purge and exhaust isolation valve.

APPLICABILITY: During CORE ALTERATIONS or movement of irradiated fuel within the containment.

ACTION:

With the requirements of the above specification not satisfied, immediately suspend all operations involving CORE ALTERATIONS or movement of irradiated fuel in the containment building.

SURVEILLANCE REQUIREMENTS

4.9.4 Each of the above required containment building penetrations shall be determined to be either in its closed/isolated condition or capable of being closed by an OPERABLE automatic containment purge and exhaust isolation valve within 100 hours prior to the start of and at least once per 7 days during CORE ALTERATIONS or movement of irradiated fuel in the containment building by:

a. Verifying the penetrations are in their closed/isolated condition, or

b. Testing the containment purge and exhaust isolation valves per the applicable portions of Specification 4.6.3.2.

INSERT K

Amendment No.

INSERT J - Page 3/4 9-4

b. The personnel access hatch shall be either:

1. closed by one personnel access hatch door, or

2. capable of being closed by an OPERABLE personnel access hatch door, under administrative control, and

INSERT K - Page 3/4 9-4

4.9.4.a Verify each required containment penetration is in the required status at least once per 7 days.

4.9.4.b Verify each required containment purge and exhaust valve actuates to the isolation position per the applicable portions of Specification 4.6.3.2.

REFUELING OPERATIONS

3/4.9.9 CONTAINMENT PURGE AND EXHAUST ISOLATION SYSTEM

LIMITING CONDITION FOR OPERATION

3.9.9 The Containment Purge and Exhaust Isolation System shall be OPERABLE.

APPLICABILITY: During CORE ALTERATIONS or movement of irradiated fuel within the containment.

ACTION:

a. With the Containment Purge and Exhaust Isolation System inoperable, close each of the purge and exhaust penetrations providing direct access from the containment atmosphere to the outside atmosphere.

b. The provisions of Specification 3.0.3 are not applicable.

SURVEILLANCE REQUIREMENTS

4.9.9 The Containment Purge and Exhaust Isolation System shall be demonstrated OPERABLE ~~within 100 hours prior to the start of and~~ at least once per 7 days during CORE ALTERATIONS by verifying that containment purge and exhaust isolation occurs on manual initiation and on a High Radiation test signal from each of the containment radiation monitoring instrumentation channels.

3/4.9.10 WATER LEVEL - REACTOR VESSEL

LIMITING CONDITION FOR OPERATION

3.9.10 At least 23 feet of water shall be maintained over the top of the reactor vessel flange.

APPLICABILITY: During movement of fuel assemblies or control rods within the containment when either the fuel assemblies being moved or the fuel assemblies seated within the reactor vessel are irradiated while in MODE 6.

ACTION:

With the requirements of the above specification not satisfied, suspend all operations involving movement of fuel assemblies or control rods within the reactor vessel.

SURVEILLANCE REQUIREMENTS

4.9.10 The water level shall be determined to be at least its minimum required depth ~~within 2 hours prior to the start of and~~ at least once per 24 hours ~~thereafter during movement of fuel assemblies or control rods.~~

3/4.9.12 FUEL BUILDING EXHAUST FILTER SYSTEM

LIMITING CONDITION FOR OPERATION

(#)

3.9.12 Two independent Fuel Building Exhaust Filter Systems shall be OPERABLE. At least one Fuel Building Exhaust Filter System shall be in operation whenever any evolution involving movement of fuel within the storage pool or crane operations with loads over the storage pool is in progress.

APPLICABILITY: Whenever irradiated fuel with less than 60 days decay is in the storage pool.

ACTION:

a. With one Fuel Building Exhaust Filter System inoperable, fuel movement within the storage pool or crane operation with loads over the storage pool may proceed provided the OPERABLE Fuel Building Exhaust Filter System is capable of being powered from an OPERABLE emergency power source and is in operation and discharging through at least one train of HEPA filters and charcoal adsorbers.

b. With no Fuel Building Exhaust Filter System OPERABLE, suspend all operations involving movement of fuel within the storage pool or crane operation with loads over the storage pool until at least one Fuel Building Exhaust Filter System is restored to OPERABLE status.

c. The provisions of Specifications 3.0.3 are not applicable.

SURVEILLANCE REQUIREMENTS

4.9.12.1 The above required Fuel Building Exhaust Filter Systems shall be demonstrated OPERABLE:

a. Within 31 days prior to moving fuel within or loads over the storage pool when irradiated fuel with less than 60 days decay is present by initiating, from the control room, flow through the HEPA filters and charcoal adsorbers, and verifying a system flow rate of 20,700 cfm ±10% and that the system operates for at least 10 continuous hours with the heaters operating;

b. At least once each REFUELING INTERVAL or (1) after any structural maintenance on the HEPA filter or charcoal adsorber housings, or (2) following painting, fire, or chemical release in any ventilation zone communicating with the system by:

INSERT L

INSERT L - Page 3/4 9-13

The Fuel Building boundary may be opened intermittently under administrative control.

1) Verifying that the cleanup system satisfies the in-place penetration and bypass leakage testing acceptance criteria of less than 0.05% and uses the test procedure guidance in Regulatory Positions C.5.a, C.5.c, and C.5.d of Regulatory Guide 1.52, Revision 2, March 1978,* and the system flow rate is 20,700 cfm ±10%;

2) Verifying, within 31 days after removal, that a laboratory analysis of a representative carbon sample obtained in accordance with Regulatory Position C.6.b of Regulatory Guide 1.52, Revision 2, March 1978,* meets the laboratory testing criteria of Regulatory Position C.6.a of Regulatory Guide 1.52, Revision 2, March 1978,* for a methyl iodide penetration of less than 0.175%; and

3) Verifying a system flow rate of 20,700 cfm ±10% during system operation when tested in accordance with ANSI N510-1980.

c. After every 720 hours of charcoal adsorber operation by verifying, within 31 days after removal, that a laboratory analysis of a representative carbon sample obtained in accordance with Regulatory Position C.6.b of Regulatory Guide 1.52, Revision 2, March 1978,* meets the laboratory testing criteria of Regulatory Position C.6.a of Regulatory Guide 1.52, Revision 2, March 1978,* for a methyl iodide penetration of less than 0.175%;

d. At least once each REFUELING INTERVAL by:

1) Verifying that the pressure drop across the combined HEPA filters and charcoal adsorber banks is less than 6.8 inches Water Gauge while operating the system at a flow rate of 20,700 cfm ±10%.

SURVEILLANCE REQUIREMENTS (Continued)

2) Verifying that the system maintains the spent fuel storage pool area at a negative pressure of greater than or equal to 1/4 inch Water Gauge relative to the outside atmosphere during system operation, and

3) Verifying that the heaters dissipate 150 ±15 kW when tested in accordance with ANSI N510-1980.

e. After each complete or partial replacement of a HEPA filter bank, by verifying that the cleanup system satisfies the in-place penetration and bypass leakage testing acceptance criteria of less than 0.05% in accordance with ANSI N510-1980 for a DOP test aerosol while operating the system at a flow rate of 20,700 cfm ±10%; and

f. After each complete or partial replacement of a charcoal adsorber bank, by verifying that the cleanup system satisfies the in-place penetration and bypass leakage testing acceptance criteria of less than 0.05% in accordance with ANSI N510-1980 for a halogenated hydrocarbon refrigerant test gas while operating the system at a flow rate of 20,700 cfm ±10%.

4.9.12.2 The Fuel Building Exhaust Filter System shall be verified to be operating ~~within 2 hours prior to the initiation of and~~ at least once per 12 hours during either fuel movement within the fuel storage pool or crane operations with loads over the fuel storage pool whenever irradiated fuel with less than 60 days decay is in the storage pool.

*ANSI N510-1980 shall be used in place of ANSI N510-1975 referenced in Regulatory Guide 1.52, Revision 2, March 1978.

7/28/97
NO CHANGE
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SURVEILLANCE REQUIREMENTS

For the surveillance requirements, the UHS temperature is measured at the locations described in the LCO write-up provided in this section.

Surveillance Requirement 4.7.5.a verifies that the UHS is capable of providing a 30-day cooling water supply to safety-related equipment without exceeding its design basis temperature. The 24-hour frequency is based on operating experience related to trending of the parameter variations during the applicable modes. This surveillance requirement verifies that the average water temperature of the UHS is less than or equal to 75°F.

Surveillance Requirement 4.7.5.b requires that the UHS temperature be monitored on an increased frequency whenever the UHS temperature is greater than 70°F during the applicable modes. The intent of this Surveillance Requirement is to increase the awareness of plant personnel regarding UHS temperature trends above 70°F. The frequency is based on operating experience related to trending of the parameter variations during the applicable modes.

3/4.7.6 FLOOD PROTECTION

The limitation on flood protection ensures that the service water pump cubicle watertight doors will be closed and the pump cubicle sump drain valves will be closed before the water level reaches the critical elevation of 14.5 feet Mean Sea Level. Elevation 14.5 feet MSL is the floor elevation of the service water pump cubicle.

3/4.7.7 CONTROL ROOM EMERGENCY VENTILATION SYSTEM

BACKGROUND

The control room emergency ventilation system provides a protected environment from which operators can control the unit following an uncontrolled release of radioactivity. Additionally, the system provides temperature control for the control room during normal and post-accident operations.

The control room emergency ventilation system is comprised of the control room emergency air filtration system and a temperature control system.

The control room emergency air filtration system consists of two redundant systems that recirculate and filter the control room air. Each control room emergency air filtration system consists of a moisture separator, electric heater, prefilter, upstream high efficiency particulate air (HEPA) filter, charcoal adsorber, downstream HEPA filter, and fan. Additionally, ductwork, valves or dampers, and instrumentation form part of the system.

Normal Operation

A portion of the control room emergency ventilation system is required to operate during normal operations to ensure the temperature of the control room is maintained at or below 95°F.

3/4.7.7 CONTROL ROOM EMERGENCY VENTILATION SYSTEM (Continued)

BACKGROUND (Continued)

Post Accident Operation

The control room emergency ventilation system is required to operate during post-accident operations to ensure the temperature of the control room is maintained and to ensure the control room will remain habitable during and following accident conditions.

The following sequence of events occurs upon receipt of a control building isolation (CBI) signal or a signal indicating high radiation in the air supply duct to the control room envelope.

1. The control room boundary is isolated to prevent outside air from entering the control room to prevent the operators from being exposed to the radiological conditions that may exist outside the control room. The analysis for a loss of coolant accident assumes that the highest releases occur in the first hour after a loss of coolant accident.

2. After 60 seconds, the control room envelope pressurizes to 1/8 inch water gauge by the control room emergency pressurization system. This action provides a continuous purge of the control room envelope and prevents inleakage from the outside environment. Technical Specification 3/4.7.8 provides the requirements for the control room envelope pressurization system.

3. Control room pressurization continues for the first hour.

4. After one hour, the control room emergency ventilation system will be placed in service in either the 100% recirculation mode (isolated from the outside environment) or filtered pressurization mode (outside air is diverted through the filters to the control room envelope to maintain a positive pressure). The mode of service for the filtration will be based on the radiological conditions that exist outside the control room. To run the control room emergency air filtration system in the filtered pressurization mode, the air supply line must be manually opened.

APPLICABLE SAFETY ANALYSIS

The OPERABILITY of the Control Room Emergency Ventilation System ensures that: (1) the ambient air temperature does not exceed the allowable temperature for continuous-duty rating for the equipment and instrumentation cooled by this system, and (2) the control room will remain habitable for operations personnel during and following all credible accident conditions. The OPERABILITY of this system in conjunction with control room design provisions is based on limiting the radiation exposure to personnel occupying the control room to 5 rems or less whole body, or its equivalent for the duration of the accident. This limitation is consistent with the requirements of General Design Criterion 19 of Appendix A, 10 CFR Part 50.

3/4.7.7 CONTROL ROOM EMERGENCY VENTILATION SYSTEM (Continued)

LIMITING CONDITION FOR OPERATION

Two independent control room emergency air filtration systems are required to be operable to ensure that at least one is available in the event the other system is disabled.

A control room emergency air filtration system is OPERABLE when the associated:

a. Fan is OPERABLE;

b. HEPA filters and charcoal adsorbers are not excessively restricting flow and are capable of performing their filtration functions; and

c. moisture separator, heater, ductwork, valves, and dampers are OPERABLE, and air circulation can be maintained.

The integrity of the control room habitability boundary (i.e., walls, floors, ceilings, ductwork, and access doors) must be maintained such that the control building habitability zone can be maintained at its design positive pressure if required to be aligned in the filtration pressurization mode.

INSERT M

APPLICABILITY

~~In~~ MODES 1, 2, 3, 4, 5, and 6. During fuel movement within containment or the spent fuel pool.

ACTIONS (MODES)

~~Modes~~ 1, 2, 3, and 4

a. With one control room emergency air filtration system inoperable, action must be taken to restore the inoperable system to an OPERABLE status within 7 days. In this condition, the remaining control room emergency air filtration system is adequate to perform the control room protection function. However, the overall reliability is reduced because a single failure in the OPERABLE train could result in a loss of the control room emergency air filtration system function. The 7-day completion time is based on the low probability of a DBA occurring during this time period, and the ability of the remaining train to provide the required capability.

If the inoperable train cannot be restored to an OPERABLE status within 7 days, the unit must be placed in at least HOT STANDBY within the next 6 hours and ~~with~~in COLD SHUTDOWN within the following 30 hours. These completion times are reasonable, based on operating experience, to reach the required unit conditions from full power conditions in an orderly manner and without challenging unit systems.

With the control room habitability boundary not intact in accordance with design requirements, both trains of the Control Room Emergency Air Filtration System are inoperable and entry into Specification 3.0.3 is required.

INSERT N

INSERT M - Page B 3/4 7-12

However, the LCO is modified by a footnote allowing the control room boundary to be opened intermittently under administrative controls. For entry and exit through doors the administrative control of the opening is performed by the person(s) entering or exiting the area. For other openings, these controls consist of stationing a dedicated individual at the opening who is in constant communication with the control room. This individual will have a method to rapidly close the opening when a need for control room isolation is indicated.

INSERT N - Page B 3/4 7-12

b. With both control room emergency air filtration systems inoperable, except due to an inoperable control room boundary, the movement of fuel assemblies within the spent fuel pool must be immediately suspended. At least one control room emergency air filtration system must be restored to OPERABLE status within 1 hour, or the unit must be in HOT STANDBY within the next 6 hours and in COLD SHUTDOWN within the following 30 hours. These completion times are reasonable, based on operating experience, to reach the required unit conditions from full power conditions in an orderly manner and without challenging unit systems.

c. With both control room emergency air filtration systems inoperable due to an inoperable control room boundary, the movement of fuel assemblies within the spent fuel pool must be immediately suspended. The control room boundary must be restored to OPERABLE status within 24 hours, or the unit must be in HOT STANDBY within the next 6 hours and in COLD SHUTDOWN within the following 30 hours.

If the control room boundary is inoperable in MODES 1, 2, 3, and 4, the control room emergency air filtration systems cannot perform their intended functions. Actions must be taken to restore an OPERABLE control room boundary within 24 hours. During the period that the control room boundary is inoperable, appropriate compensatory measures (consistent with the intent of GDC 19) should be utilized to protect control room operators from potential hazards such as radioactive contamination, toxic chemicals, smoke, temperature and relative humidity, and physical security. Preplanned measures should be available to address these concerns for intentional and unintentional entry into this condition. The 24 hour allowed outage time is reasonable based on the low probability of a DBA occurring during this time period, and the use of compensatory measures. The 24 hour allowed outage time is a typically reasonable time to diagnose, plan, and possibly repair, and test most problems with the control room boundary.

3/4.7.7 CONTROL ROOM EMERGENCY VENTILATION SYSTEM (Continued)

ACTIONS (Continued) MODES

~~Modes~~ 5 and 6 and fuel movement within containment or the spent fuel pool or suspend CORE ALTERATIONS and the movement of fuel assemblies

d

a. With one control room emergency air filtration system inoperable, action must be taken to restore the inoperable system to an OPERABLE status within 7 days ~~or to~~ initiate and maintain operation of the remaining OPERABLE control room emergency air filtration system in the recirculation mode. Initiating and maintaining operation of the OPERABLE train in the recirculation mode ensures: (i) operability of the train will not be compromised by a failure of the automatic actuation logic; and (ii) active failures will be readily detected.

After 7 days, either

d

b. With both control room emergency air filtration systems inoperable, or with the train required by ACTION 'a' not capable of being powered by an OPERABLE emergency power source, actions must be taken to suspend all operations involving CORE ALTERATIONS ~~or positive reactivity changes~~. This action places the unit in a condition that minimizes risk. This action does not preclude the movement of fuel to a safe position.

e

and the movement of fuel assemblies

SURVEILLANCE REQUIREMENTS

4.7.7.a

The control room environment should be checked periodically to ensure that the control room temperature control system is functioning properly. Verifying that the control room air temperature is less than or equal to 95°F at least once per 12 hours is sufficient. It is not necessary to cycle the control room ventilation chillers. The control room is manned during operations covered by the technical specifications. Typically, temperature aberrations will be readily apparent.

4.7.7.b

Standby systems should be checked periodically to ensure that they function properly. As the environment and normal operating conditions on this system are not too severe, testing the trains once every 31 days on a STAGGERED TEST BASIS provides an adequate check of this system. This surveillance requirement verifies a system flow rate of 1,120 cfm ± 20%. Additionally, the system is required to operate for at least 10 continuous hours with the heaters energized. These operations are sufficient to reduce the buildup of moisture on the adsorbers and HEPA filters due to the humidity in the ambient air.

3/4.7.7 CONTROL ROOM EMERGENCY VENTILATION SYSTEM (Continued)

SURVEILLANCE REQUIREMENTS (Continued)

4.7.7.c

The performance of the control room emergency filtration systems should be checked periodically by verifying the HEPA filter efficiency, charcoal adsorber efficiency, minimum flow rate, and the physical properties of the activated charcoal. The frequency is at least once per REFUELING INTERVAL or (1) after any structural maintenance on the HEPA filter or charcoal adsorber housings, or (2) following painting, fire, or chemical release in any ventilation zone communicating with the system.

ANSI N510-1980 will be used as a procedural guide for surveillance testing.

4.7.7.c.1

This surveillance verifies that the system satisfies the in-place penetration and bypass leakage testing acceptance criterion of less than 0.05% in accordance with Regulatory Position C.5.a, C.5.c, and C.5.d of Regulatory Guide 1.52, Revision 2, March 1978, while operating the system at a flow rate of 1,120 cfm ± 20%. ANSI N510-1980 is used in lieu of ANSI N510-1975 referenced in the regulatory guide.

4.7.7.c.2

This surveillance requires that a representative carbon sample be obtained in accordance with Regulatory Position C.6.b of Regulatory Guide 1.52, Revision 2, March 1978 and that a laboratory analysis verify that the representative carbon sample meets the criteria of Regulatory Position C.6.a of Regulatory Guide 1.52, Revision 2, March 1978 (Ref. 1) and MP3 UFSAR, Table 1.8-1, NRC Regulatory Guide 1.52 (Ref. 2), for a methyl iodide penetration of less than 0.175%. The laboratory analysis is required to be performed within 31 days after removal of the sample. ANSI N510-1980 is used in lieu of ANSI N510-1975 referenced in Revision 2 of Regulatory Guide 1.52.

4.7.7.c.3

This surveillance verifies that a system flow rate of 1,120 cfm ± 20%, during system operation when testing in accordance with ANSI N510-1980.

4.7.7.d

After 720 hours of charcoal adsorber operation, a representative carbon sample must be obtained in accordance with Regulatory Position C.6.b of Regulatory Guide 1.52, Revision 2, March 1978, and a laboratory analysis must verify that the representative carbon sample meets the criteria of Regulatory position C.6.a of Regulatory Guide 1.52, Revision 2, March 1978, for a methyl

3/4.7.7 CONTROL ROOM EMERGENCY VENTILATION SYSTEM (Continued)

SURVEILLANCE REQUIREMENTS (Continued)

iodide penetration of less than 0.175%. The laboratory analysis is required to be performed within 31 days after removal of the sample. ANSI N510-1980 is used in lieu of ANSI N510-1975 referenced in Revision 2 of Regulatory Guide 1.52.

The maximum surveillance interval is 900 hours, per Surveillance Requirement 4.0.2. The 720 hours of operation requirement originates from Nuclear Regulatory Guide 1.52, Table 2, Note C. This testing ensures that the charcoal adsorbency capacity has not degraded below acceptable limits as well as providing trending data.

4.7.7.e.1

This surveillance verifies that the pressure drop across the combined HEPA filters and charcoal adsorbers banks at less than 6.75 inches water gauge when the system is operated at a flow rate of 1,120 cfm ± 20%. The frequency is at least once per REFUELING INTERVAL.

4.7.7.e.2

and outside atmosphere

This surveillance verifies that the system maintains the control room at a positive pressure of greater than or equal to 1/8 inch water gauge at less than or equal to a pressurization flow of 230 cfm relative to adjacent areas during system operation. The frequency is at least once per REFUELING INTERVAL.

The intent of this surveillance is to verify the ability of the control room emergency air filtration system to maintain a positive pressure while running in the filtered pressurization mode.

3/4.7.7 CONTROL ROOM EMERGENCY VENTILATION SYSTEM (Continued)

SURVEILLANCE REQUIREMENTS (Continued)

During the first hour, the control room pressurization system creates and maintains the positive pressure in the control room. This capability is verified by Surveillance Requirement 4.7.8.C, independent of Surveillance Requirement 4.7.7.e.2. Furthermore, ACTIONS A.2 and B.1 of Limiting Condition for Operation 3.7.8 requires that an OPERABLE control room emergency air filtration system be initiated and maintained in the recirculation mode following both control room envelope pressurization systems becoming inoperable (e.g., a breech in the control room envelope). Running the control room air filtration system in the recirculation mode with the control room emergency pressurization inoperable would prohibit the ability to create and maintain a positive pressure in the control room envelope, because no source of air would be available to pressurize the control room envelope. A CBI signal will automatically align an operating filtration system into the recirculation mode of operation due to the isolation of the air supply line to the filter.

After the first hour of an event with the potential for a radiological release, the control room emergency ventilation system will be ~~placed in service~~ aligned in either the recirculation mode (isolated from the outside environment) or filtered pressurization mode (outside air is diverted through the filters to the control room envelope to maintain a positive pressure). The mode of service for the control room emergency air filtration system will be based on the radiological conditions that exist outside the control room. Alignment to the filtered pressurization mode requires manual operator action to open the air supply line.

4.7.7.e.3

This surveillance verifies that the heaters can dissipate 9.4 ± 1 kW at 480V when tested in accordance with ANSI N510-1980. The frequency is at least once per REFUELING INTERVAL. The heater kW measured must be corrected to its nameplate rating. Variations in system voltage can lead to measurements of kW which cannot be compared to the nameplate rating because the output kW is proportional to the square of the voltage.

4.7.7.f

Following the complete or partial replacement of a HEPA filter bank, the operability of the cleanup system should be confirmed. This is accomplished by verifying that the cleanup system satisfies the in-place penetration and bypass leakage testing acceptance criterion of less than 0.05% in accordance with ANSI N510-1980 for a DOP test aerosol while operating the system at a flow rate of 1,120 cfm ± 20%.

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3/4.7.7 CONTROL ROOM EMERGENCY VENTILATION SYSTEM (Continued)

SURVEILLANCE REQUIREMENTS (Continued)

4.7.7.g

Following the complete or partial replacement of a charcoal adsorber bank, the operability of the cleanup system should be confirmed. This is accomplished by verifying that the cleanup system satisfied the in-place penetration and bypass leakage testing acceptance criterion of less than 0.05% in accordance with ANSI N510-1980 for a halogenated hydrocarbon refrigerant test gas while operating the system at a flow of 1,120 cfm ± 20%.

References:

(1) Nuclear Regulatory Guide 1.52, Revision 2
(2) MP3 UFSAR, Table 1.8-1, NRC Regulatory Guide 1.52
(3) NRC Generic Letter 91-04
(4) Condition Report (CR) #M3-99-0271

3/4.7.8 CONTROL ROOM ENVELOPE PRESSURIZATION SYSTEM

BACKGROUND

The control room envelope pressurization system provides a protected environment from which operators can control the unit following an uncontrolled release of radioactivity.

The control room envelope pressurization system consists of two banks of air bottles with its associated piping, instrumentation, and controls. Each bank is capable of providing the control room area with one-hour of air following any event with the potential for radioactive releases.

Normal Operation

During normal operations, the control room envelope pressurization system is required to be on standby.

Post Accident Operation

The control room envelope pressurization system is required to operate during post-accident operations to ensure the control room will remain habitable during and following accident conditions.

The sequence of events which occurs upon receipt of a control building isolation (CBI) signal or a signal indicating high radiation in the air supply duct to the control room envelope is described in Bases Section 3/4.7.7.

3/4.7.8 CONTROL ROOM ENVELOPE PRESSURIZATION SYSTEM (Continued)

APPLICABLE SAFETY ANALYSIS

The OPERABILITY of the control room envelope pressurization system ensures that: (1) breathable air is supplied to the control room, instrumentation rack room, and computer room, and (2) a positive pressure is created and maintained within the control room envelope during control building isolation for the first hour following any event with the potential for radioactive releases. Each system is capable of providing an adequate air supply to the control room for one hour following an initiation of a control building isolation signal. After one hour, operation of the control room emergency ventilation system would be initiated.

LIMITING CONDITION FOR OPERATION

Two independent control room envelope pressurization systems are required to be operable to ensure that at least one is available in the event the other system is disabled.

A control room envelope pressurization system is OPERABLE when the associated:

a. air storage bottles are OPERABLE; and

b. piping and valves are OPERABLE.

The integrity of the control room habitability boundary (i.e., walls, floors, ceilings, ductwork, and access doors) must be maintained.

INSERT O

APPLICABILITY

~~In~~ MODES 1, 2, 3, 4, 5, and 6.

During fuel movement within containment or the spent fuel pool.

ACTIONS

MODES 1, 2, 3, and 4

a. With one control room envelope pressurization system inoperable, action must be taken either: ~~(1)~~ to restore the inoperable system to an OPERABLE status within 7 days, or ~~(2) to initiate and maintain operation of an OPERABLE control room emergency air filtration system in the recirculation mode, or (3) to~~ place the unit in HOT STANDBY within six hours and COLD SHUTDOWN within the next 30 hours ~~and suspend all operations involving CORE ALTERATIONS or positive reactivity changes~~.

~~For ACTION 3.7.8.a.1, the~~ The remaining control room envelope pressurization system is adequate to perform the control room protection function. However, the overall reliability is reduced because a single failure in

INSERT O - Page B 3/4 7-18

However, the LCO is modified by a footnote allowing the control room boundary to be opened intermittently under administrative controls. For entry and exit through doors the administrative control of the opening is performed by the person(s) entering or exiting the area. For other openings, these controls consist of stationing a dedicated individual at the opening who is in constant communication with the control room. This individual will have a method to rapidly close the opening when a need for control room isolation is indicated.

3/4.7.8 CONTROL ROOM ENVELOPE PRESSURIZATION SYSTEM (Continued)

ACTIONS (Continued)

the OPERABLE train could result in a loss of the control room envelope pressurization system. The 7-day completion time is based on the low probability of a design basis accident occurring during this time period and the ability of the remaining train to provide the required capability.

For ACTION 3.7.8.a.2, initiating and maintaining operation of an OPERABLE train of the control room emergency air filtration system in the recirculation mode ensures that (i) any inleakage, as a result of loss pressurization, will be filtered from the initiation of the event, and (ii) active failures of that train will be readily detected. To meet the requirements of this action statement, the control room emergency air filtration system could be manually placed in either the 100% recirculation mode or the recirculation with makeup air mode. The recirculation with makeup air mode is used to refresh the control room air supply. While in the recirculation with makeup air mode, if a CBI signal is received, the fresh air makeup would be automatically isolated and the filters aligned to the 100% recirculation mode.

The

~~For ACTION 3.7.8.a.3, the~~ completion times for the unit to be placed in HOT STANDBY and COLD SHUTDOWN are reasonable. They are based on operating experience, and they permit the unit to be placed in the required conditions from full power conditions in an orderly manner and without challenging unit systems.

Stud tensioning may continue in MODE 6 and a MODE change to MODE 5 is permitted with a control room envelope pressurization system inoperable (Reference 1).

b. With both control room envelope pressurization systems inoperable, action must be initiated within one hour to restore one inoperable system to an OPERABLE status and either (1) initiate and maintain operation of an OPERABLE control room emergency air filtration system in the recirculation mode, or (2) place the unit in HOT STANDBY within six hours and COLD SHUTDOWN within the next 30 hours and suspend all operations involving CORE ALTERATIONS or positive reactivity changes.

The rationale for ACTIONS 3.7.8.b.1 and 3.7.8.b.2 are the same as those for ACTIONS 3.7.8.a.2 and 3.7.8.a.3, respectively.

Inoperability of both trains of the control room envelope pressurization system is independent from the requirements regarding the control room emergency ventilation system contained in LCO 3.7.7.

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b. With both control room envelope pressurization systems inoperable, except due to an inoperable control room boundary or during performance of Surveillance Requirement 4.7.8.c, the movement of fuel assemblies within the spent fuel pool must be immediately suspended. At least one control room envelope pressurization system must be restored to OPERABLE status within 1 hour, or the unit must be in HOT STANDBY within the next 6 hours and in COLD SHUTDOWN within the following 30 hours. These completion times are reasonable, based on operating experience, to reach the required unit conditions from full power conditions in an orderly manner and without challenging unit systems.

c. With both control room envelope pressurization systems inoperable due to an inoperable control room boundary, the movement of fuel assemblies within the spent fuel pool must be immediately suspended. The control room boundary must be restored to OPERABLE status within 24 hours, or the unit must be in HOT STANDBY within the next 6 hours and in COLD SHUTDOWN within the following 30 hours.

If the control room boundary is inoperable in MODES 1, 2, 3, and 4, the control room envelope pressurization systems cannot perform their intended functions. Actions must be taken to restore an OPERABLE control room boundary within 24 hours. During the period that the control room boundary is inoperable, appropriate compensatory measures (consistent with the intent of GDC 19) should be utilized to protect control room operators from potential hazards such as radioactive contamination, toxic chemicals, smoke, temperature and relative humidity, and physical security. Preplanned measures should be available to address these concerns for intentional and unintentional entry into this condition. The 24 hour allowed outage time is reasonable based on the low probability of a DBA occurring during this time period, and the use of compensatory measures. The 24 hour allowed outage time is a typically reasonable time to diagnose, plan, and possibly repair, and test most problems with the control room boundary.

INSERT P - Page B 3/4 7-19 (Page 2 of 2)

d. With both control room envelope pressurization systems inoperable during the performance of Surveillance Requirement 4.7.8.c and the system not being tested under administrative control, the movement of fuel assemblies within the spent fuel pool must be immediately suspended. At least one control room envelope pressurization system must be restored to OPERABLE status within 4 hours, or the unit must be in HOT STANDBY within the next 6 hours and in COLD SHUTDOWN within the following 30 hours. The administrative controls for the system not being tested consist of a dedicated operator, in constant communication with the control room, who can rapidly restore this system to OPERABLE status. Allowing both control room envelope pressurization systems to be inoperable for 4 hours under administrative control is acceptable since the system not being tested is inoperable only because it is isolated. Therefore, the system can be rapidly restored if needed. The other completion times are reasonable, based on operating experience, to reach the required unit conditions from full power conditions in an orderly manner and without challenging unit systems.

MODES 5 and 6, and fuel movement within containment or the spent fuel pool

e. With one control room envelope pressurization system inoperable, action must be taken to restore the inoperable system to an OPERABLE status within 7 days. After 7 days, immediately suspend CORE ALTERATIONS and the movement of fuel assemblies. This action places the unit in a condition that minimizes potential radiological exposure to Control Room personnel. This action does not preclude the movement of fuel to a safe position.

The remaining control room envelope pressurization system is adequate to perform the control room protection function. However, the overall reliability is reduced because a single failure in the OPERABLE train could result in a loss of the control room envelope pressurization system. The 7-day completion time is based on the low probability of a design basis accident occurring during this time period and the ability of the remaining train to provide the required capability.

Stud tensioning may continue in MODE 6 and a MODE change to MODE 5 is permitted with a control room envelope pressurization system inoperable (Reference 1).

f. With both control room envelope pressurization systems inoperable, immediately suspend CORE ALTERATIONS and the movement of fuel assemblies. This action places the unit in a condition that minimizes potential radiological exposure to Control Room personnel. This action does not preclude the movement of fuel to a safe position.

3/4.7.8 CONTROL ROOM ENVELOPE PRESSURIZATION SYSTEM (Continued)

ACTIONS (Continued)

ACTIONS a.2 and b.1 of Limiting Condition for Operation 3.7.8 require that an OPERABLE control room emergency filtration system be placed in the recirculation mode. Under normal plant conditions to meet this requirement, the system would be placed in service in the recirculation with makeup air. This makeup air is used to refresh the control room envelope. In the event of a design basis accident (including control building isolation), with the filtration system operating in the recirculation with makeup air mode, the makeup air is automatically isolated and the filtration system goes into a 100% recirculation mode. Although no positive pressure is maintained in this alignment, it ensures that unfilterable noble gases are not forced into the envelope. The recirculation mode ensures that radioiodines introduced to the envelope are continuously filtered out. After one hour, the filters could be manually placed in the pressurization mode if radiological conditions permit.

With the control room habitability boundary not intact in accordance with design requirements, both trains of the Control Room Envelope Pressurization System are inoperable and entry into 3.0.3 is required.

SURVEILLANCE REQUIREMENTS

4.7.8.a

This surveillance requires verification that the air bottles are properly pressurized. Verifying that the air bottles are pressurized to greater than or equal to 2200 psig will ensure that a control room envelope pressurization system will be capable of supplying the required flow rate. The frequency of the surveillance is at least once per 7 days. It is based on engineering judgment and has been shown to be appropriate through operating experience.

4.7.8.b

This surveillance requires verification of the correct position of each valve (manual, power operated, or automatic) in the control room envelope pressurization system flow path. It helps ensure that the control room envelope pressurization system is capable of performing its intended safety function by verifying that an appropriate flow path will exist. The surveillance applies to those valves that could be mispositioned. This surveillance does not apply to valves that have been locked, sealed, or secured in position, because these positions are verified prior to locking, sealing, or securing.

The frequency of the surveillance is at least once per 31 days on a STAGGERED TEST BASIS. It is based on engineering judgment and has been shown to be appropriate through operating experience.

3/4.7.8 CONTROL ROOM ENVELOPE PRESSURIZATION SYSTEM (Continued)

SURVEILLANCE REQUIREMENTS (Continued)

4.7.8.c

The performance of the control room envelope pressurization system should be checked periodically. The frequency is at least once per REFUELING INTERVAL and following any major alteration of the control room envelope pressure boundary.

A major alteration is a change to the control room envelope pressure boundary that: (1) results in a breach greater than analyzed for acceptable pressurization and requires nonroutine work evolutions to restore the boundary. A nonroutine work evolution is one which makes it difficult to determine As-Found and As-Left conditions. Examples of routine work evolution include: (1) opening and closing a door, and (2) repairing cable and pipe penetrations because the repairs are conducted in accordance with procedures and are verified via inspections. For these two examples, there is a high level of assurance that the boundary is restored to the As-Found condition.

This surveillance requires at least once per REFUELING INTERVAL or following a major alteration of the control room envelope pressure boundary by:

- Verifying the control room envelope is isolated in response to a Control Building Isolation Test signal,
- Verifying, after a 60 second time delay following a Control Building Isolation Test signal, the control room envelope pressurizes to greater than or equal to 0.125 inch water gauge relative to adjacent areas and outside atmosphere; and
- Verifying the positive pressure of Technical Specification 4.7.8.c.2 is maintained for greater than or equal to 60 minutes.

Changes in conditions outside the control room envelope cause pressure spikes which are reflected on the differential pressure indicator, 3HVC-PDI 113.

Pressure spikes or fluctuations which result in the differential pressure momentarily dropped below the 0.125 inch water gauge acceptance criteria are acceptable providing the following conditions are met:

1. Differential pressure remains positive at all times.
2. Differential pressure is only transitorily below the acceptance criteria.
3. Differential pressure returns to a value above the acceptance criteria.

April 10, 1997
NO CHANGE
FOR INFORMATION ONLY

3/4.7.8 CONTROL ROOM ENVELOPE PRESSURIZATION SYSTEM (Continued)

SURVEILLANCE REQUIREMENTS (Continued)

The control room envelope pressurization system design basis criteria is set at ≥ 0.125 inch water gauge criteria to account for wind effects, thermal column effects, and barometric pressure changes. Pressurizing the control room envelope of 0.125 inch water gauge above the initial atmospheric pressure ensures it will remain at a positive pressure during subsequent changes in outside conditions over the next 60 minutes. Since the surveillance requirement is verified by actual reference to outside pressure, allowances are provided for differential pressure fluctuations caused by external forces. The 0.125 inch water gauge acceptance criteria provides the margin for these fluctuations. This meets the requirements of Regulatory Guide 1.78 and NUREG-800, Section 6.4 and is consistent with the assumptions in the Control Room Operator DBA dose calculation.

4.7.8.c.1

This surveillance verifies that the control room envelope is isolated following a control building isolation (CBI) test signal.

4.7.8.c.2

This surveillance verifies that the control room envelope pressurizes to greater than or equal to 1/8 inch water gauge, relative to the outside atmosphere, after 60 seconds following receipt of a CBI test signal.

4.7.8.c.3

This surveillance verifies that the positive pressure developed in accordance with Surveillance Requirement 4.7.8.c.2 is maintained for greater than or equal to 60 minutes. This capability is independent from the requirements regarding the control room emergency filtration system contained in Technical Specification 3/4.7.7. Also, following the first hour, the control room emergency ventilation system is responsible for ensuring that the control room envelope remains habitable.

References:

(1) NRC Routine Inspection Report 50-423/87-33, dated February 10, 1988.

(2) NRC Generic Letter 91-04.

3/4.7.9 AUXILIARY BUILDING FILTER SYSTEM

, and associated filters and fans,

The OPERABILITY of the Auxiliary Building Filter System ensures that radioactive materials leaking from the equipment within the charging pump, component cooling water pump and heat exchanger areas following a LOCA are filtered prior to reaching the environment. The charging pump/reactor plant component cooling water pump ventilation system must be operational to ensure operability of the auxiliary building filter system and the supplementary leak collection and release system. Operation of the system with the heaters operating for at least 10 continuous hours in a 31-day period is sufficient to reduce the buildup of moisture on the adsorbers and HEPA filters. The operation of this system and the resultant effect on offsite dosage calculations was assumed in the safety analyses. ANSI N510-1980 will be used as a procedural guide for surveillance testing. The heater kW measured must be corrected to its nameplate rating. Variations in system voltage can lead to measurements of kW which cannot be compared to the nameplate rating because the output kW is proportional to the square of the voltage.

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3/4.7.10 SNUBBERS

All snubbers are required OPERABLE to ensure that the structural integrity of the Reactor Coolant System and all other safety-related systems is maintained during and following a seismic or other event initiating dynamic loads. For the purpose of declaring the affected system OPERABLE with the inoperable snubber(s), an engineering evaluation may be performed, in accordance with Section 50.59 of 10 CFR Part 50.

Snubbers are classified and grouped by design and manufacturer but not by size. Snubbers of the same manufacturer but having different internal mechanisms are classified as different types. For example, mechanical snubbers utilizing the same design features of the 2-kip, 10-kip and 100-kip capacity manufactured by Company "A" are of the same type. The same design mechanical snubbers manufactured by Company "B" for the purposes of this Technical Specification would be of a different type, as would hydraulic snubbers from either manufacturer.

A list of individual snubbers with detailed information of snubber location and size and of system affected shall be available at the plant in accordance with Section 50.71(c) of 10 CFR Part 50. The accessibility of each snubber shall be determined and approved by the Plant Operations Review Committee. The determination shall be based upon the existing radiation levels and the expected time to perform a visual inspection in each snubber location as well as other factors associated with accessibility during plant operations (e.g.,

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The Charging Pump/Reactor Plant Component Cooling Water Pump Ventilation System is required to be available to support the Auxiliary Building Filter System and the Supplementary Leak Collection and Release System (SLCRS). The Charging Pump/Reactor Plant Component Cooling Water Pump Ventilation System consists of two redundant trains, each capable of providing 100% of the required flow. Each train has a two position, "Off" and "Auto," remote control switch. With the remote control switches for each train in the "Auto" position, the system is capable of automatically transferring operation to the redundant train in the event of a low flow condition in the operating train. The associated fans do not receive any safety related automatic start signals (e.g. Safety Injection Signal).

Placing the remote control switch for a Charging Pump/Reactor Plant Component Cooling Water Pump Ventilation Train in the "Off" position to start the redundant train or to perform post maintenance testing to verify availability of the redundant train will not affect the availability of that train, provided appropriate administrative controls have been established to ensure the remote control switch is immediately returned to the "Auto" position after the completion of the specified activities or in response to plant conditions. These administrative controls include the use of an approved procedure and a designated individual at the control switch for the respective Charging Pump/Reactor Plant Component Cooling Water Pump Ventilation Train who can rapidly respond to instructions from procedures, or control room personnel, based on plant conditions.

NO CHANGE FOR INFORMATION ONLY

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) a uniform boron concentration is maintained for reactivity control in the water volume having direct access to the reactor vessel. The value of 0.95 or less for K_{eff} includes a 1% $\Delta k/k$ conservative allowance for uncertainties. Similarly, the boron concentration value of 2600 ppm or greater includes a conservative uncertainty allowance of 50 ppm boron. The 2600 ppm provides for boron concentration measurement uncertainty between the spent fuel pool and the RWST. The locking closed of the required valves during refueling operations precludes the possibility of uncontrolled boron dilution of the filled portion of the RCS. This action prevents flow to the RCS of unborated water by closing flow paths from sources of unborated water.

3/4.9.1.2 Boron Concentration in Spent Fuel Pool

During normal Spent Fuel Pool operation, the spent fuel racks are capable of maintaining K_{eff} at less than or equal to 0.95 in an unborated water environment due to the geometry of the rack spacing and the presence of Boraflex neutron absorber in the spent fuel racks. Seismic analysis has shown that there is a possibility that the Boraflex absorber could degrade following a seismic event greater in magnitude than an Operating Basis Earthquake (OBE). At least 1500 ppm boron in Spent Fuel Pool is required in anticipation that a seismic event could cause a loss of Boraflex integrity. If, in addition to a loss of Boraflex, a single misplaced fuel assembly is postulated, then a minimum of 1750 ppm boron is required. The 1750 ppm boron concentration requirement bounds conditions for a loss of all Boraflex in the fuel racks.

The boron requirement in the spent fuel pool also ensures that in the event of a fuel assembly handling accident involving either a dropped or misplaced fuel assembly, the K_{eff} of the spent fuel storage rack will remain less than or equal to 0.95.

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.

3/4.9.3 DECAY TIME

The minimum requirement for reactor subcriticality prior to movement of irradiated fuel assemblies in the reactor vessel ensures that sufficient time has elapsed to allow the radioactive decay of the short-lived fission products. This decay time is consistent with the assumptions used in the safety analyses.

3/4.9.4 CONTAINMENT BUILDING PENETRATIONS

The requirements on containment building penetration closure and OPERABILITY ensure that a release of radioactive material within containment will be restricted from leakage to the environment. The OPERABILITY and closure restrictions are sufficient to restrict radioactive material release from a fuel element rupture based upon the lack of containment pressurization potential while in the REFUELING MODE.

3/4.9.5 COMMUNICATIONS

The requirement for communications capability ensures that refueling station personnel can be promptly informed of significant changes in the facility status or core reactivity conditions during CORE ALTERATIONS.

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Both containment personnel access hatch doors can be open during CORE ALTERATIONS and the movement of irradiated fuel assemblies inside containment provided at least one personnel access hatch door is under administrative control such that the door can be closed within 10 minutes. This will allow hoses and cables to be run through the personnel access hatch, provided they can be rapidly removed to allow the door to be closed within the required time period. In addition, a designated individual must be continuously available for door closure.

3/4.9.10 and 3/4.9.11 WATER LEVEL - REACTOR VESSEL and STORAGE POOL

The restrictions on minimum water level ensure that sufficient water depth is available to remove 99% of the assumed 10% iodine gap activity released from the rupture of an irradiated fuel assembly. The minimum water depth is consistent with the assumptions of the safety analysis.

3/4.9.12 FUEL BUILDING EXHAUST FILTER SYSTEM

The limitations on the Fuel Building Exhaust Filter System ensure that all radioactive iodine released from an irradiated fuel assembly and storage pool water will be filtered through the HEPA filters and charcoal adsorber prior to discharge to the atmosphere. Operation of the system with the heaters operating for at least 10 continuous hours in a 31-day period is sufficient to reduce the buildup of moisture on the adsorbers and HEPA filters. The OPERABILITY of this system and the resulting iodine removal capacity are consistent with the assumptions of the safety analyses. ANSI N510-1980 will be used as a procedural guide for surveillance testing. The heater kW measured must be corrected to its nameplate rating. Variations in system voltage can lead to measurements of kW which cannot be compared to the nameplate rating because the output kW is proportional to the square of the voltage. The filtration system removes radioiodine following a fuel handing or heavy load drop accident. Noble gases would not be removed by the system. Other radionuclides would be scrubbed by the storage pool water. Iodine-131 has the longest half-life: ~8 days. After 60 days decay time, there is essentially negligible iodine and filtration is unnecessary.

3/4.9.13 SPENT FUEL POOL - REACTIVITY

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The limitations described by Figure 3.9-1 ensure that the reactivity of fuel assemblies introduced into Region II are conservatively within the assumptions of the safety analysis.

Administrative controls have been developed and instituted to verify that the enrichment and burn-up limits of Figure 3.9-1 have been maintained for the fuel assembly.

During normal Spent Fuel Pool operation, the spent fuel racks are capable of maintaining k_{eff} at less than 0.95 in an unborated water environment due to the geometry of the rack spacing and the presence of Boraflex neutron absorber in the spent fuel racks. Due to radiation induced embrittlement, there is a possibility that the Boraflex absorber could degrade following a seismic event. At least 1500 ppm boron in the Spent Fuel Pool is required in anticipation that a seismic event could cause a complete loss of all Boraflex. If, in addition to a loss of Boraflex, a single misplaced fuel assembly is postulated, then a minimum of 1750 ppm boron is required. The 1750 ppm boron concentration requirement bounds conditions for a loss of all Boraflex in the fuel racks.

The action requirements of this specification recognize the possibility of a seismic event which could degrade the Boraflex neutron absorber in the spent fuel racks. Seismic analysis has shown that there is a possibility that the Boraflex absorber could degrade following a seismic event greater in magnitude than an

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The LCO is modified by a footnote allowing the Fuel Building boundary to be opened intermittently under administrative controls. For entry and exit through doors the administrative control of the opening is performed by the person(s) entering or exiting the area. For other openings, these controls consist of stationing a dedicated individual at the opening who is in constant communication with the control room. This individual will have a method to rapidly close the opening when a need for Fuel Building isolation is indicated.

3/4.9.13 SPENT FUEL POOL - REACTIVITY (continued)

Operating Basis Earthquake (OBE). The action statement specifies that following a seismic event at the OBE level or greater, which is approximately one-half the Safe Shutdown Earthquake (SSE) level, action will be taken to determine the condition of the Boraflex. Once a seismic event of greater than or equal to an OBE has occurred, then the boron in the Spent Fuel Pool will be credited to maintain k_{eff} less than or equal to 0.95. The specification requires that dilution paths to the Spent Fuel Pool be closed and administratively controlled until the racks can be inspected and the condition of the Boraflex can be determined. The specification also assumes that piping systems external to the Spent Fuel Pool are mounted such that they remain leak tight following an earthquake up to the level of an SSE, or will not direct water into the Spent Fuel Pool should they leak, or have been isolated from flow to prevent leakage into the Spent Fuel Pool.

3/4.9.14 SPENT FUEL POOL - STORAGE PATTERN

The limitations of this specification ensure that the reactivity conditions of the Region I storage racks and spent fuel pool k_{eff} will remain less than or equal to 0.95.

The Cell Blocking Devices in the 4th location of the Region I storage racks are designed to prevent inadvertent placement and/or storage of fuel assemblies in the blocked locations. The blocked location remains empty to provide the flux trap to maintain reactivity control for fuel assemblies in adjacent and diagonal locations of the STORAGE PATTERN.

STORAGE PATTERN for the Region I storage racks will be established and expanded from the walls of the spent fuel pool per Figure 3.9-2 to ensure definition and control of the Region I/Region II boundary and minimize the number of boundaries where a fuel misplacement incident can occur.

Docket No. 50-423
B18116

Attachment 4

Millstone Nuclear Power Station, Unit No. 3

Technical Specifications Change Request 3-6-00
Fuel Handling Accidents and Ventilation Systems
Retyped Pages

TABLE 3.3-3 (Continued)

ENGINEERED SAFETY FEATURES ACTUATION SYSTEM INSTRUMENTATION

FUNCTIONAL UNIT	TOTAL NO. OF CHANNELS	CHANNELS TO TRIP	MINIMUM CHANNELS OPERABLE	APPLICABLE MODES	ACTION	
6. Auxiliary Feedwater (Continued)						
f. Containment Depressurization Actuation (CDA) Start Motor-Driven Pumps	See Item 2. above for all CDA functions and requirements.					
7. Control Building Isolation						
a. Manual Actuation	2	1	2	*	19	I
b. Manual Safety Injection Actuation	2	1	2	1, 2, 3, 4	19	
c. Automatic Actuation Logic and Actuation Relays	2	1	2	1, 2, 3, 4	14	I
d. Containment Pressure--High-1	3	2	2	1, 2, 3	16	
e. Control Building Inlet Ventilation Radiation	2/intake	1	2/intake	*	18	I
8. Loss of Power						
a. 4 kV Bus Undervoltage-Loss of Voltage	4/bus	2/bus	3/bus	1, 2, 3, 4	20	
b. 4 kV Bus Undervoltage-Grid Degraded Voltage	4/bus	2/bus	3/bus	1, 2, 3, 4	20	

TABLE 3.3-3 (Continued)

TABLE NOTATIONS

The Steamline Isolation Logic and Safety Injection Logic for this trip function may be blocked in this MODE below the P-11 (Pressurizer Pressure Interlock) Setpoint.

* MODES 1, 2, 3, 4, 5, and 6.
During fuel movement within containment or the spent fuel pool.

**** Trip function automatically blocked above P-11 and may be blocked below P-11 when Safety Injection on low steam line pressure is not blocked.

‡ During core alterations or movement of irradiated fuel within the containment. The provisions of Specification 3.0.3 are not applicable.

ACTION STATEMENTS

ACTION 14 - With the number of OPERABLE channels one less than the Minimum Channels OPERABLE requirement, restore the inoperable channel to OPERABLE status within 6 hours or be in at least HOT STANDBY within the next 6 hours and in COLD SHUTDOWN within the following 30 hours; however, one channel may be bypassed for up to 4 hours for surveillance testing per Specification 4.3.2.1, provided the other channel is OPERABLE.

ACTION 15 - (not used).

ACTION 16 - With the number of OPERABLE channels one less than the Total Number of Channels, operation may proceed until performance of the next required ANALOG CHANNEL OPERATIONAL TEST provided the inoperable channel is placed in the tripped condition within 1 hour.

ACTION 17 - With the number of OPERABLE channels one less than the Total Number of Channels, operation may proceed provided the inoperable channel is placed in the bypassed condition and the Minimum Channels OPERABLE requirement is met. One additional channel may be bypassed for up to 4 hours for surveillance testing per Specification 4.3.2.1.

ACTION 18 - With the number of OPERABLE channels one less than the Total Number of Channels, restore the inoperable channel to OPERABLE status within 7 days. After 7 days, or if no channels are OPERABLE, immediately suspend CORE ALTERATIONS and fuel movement, if applicable, and be in HOT STANDBY within the next 6 hours and in COLD SHUTDOWN within the following 30 hours.

ACTION 19 - With the number of OPERABLE channels one less than the Minimum Channels OPERABLE requirement, restore the inoperable channel to OPERABLE status within 48 hours or be in at least HOT STANDBY within the next 6 hours and in COLD SHUTDOWN within the following 30 hours.

TABLE 4.3-2 (Continued)

ENGINEERED SAFETY FEATURES ACTUATION SYSTEM INSTRUMENTATION SURVEILLANCE REQUIREMENTS

FUNCTIONAL UNIT	CHANNEL CHECK	CHANNEL CALIBRATION	ANALOG CHANNEL OPERATIONAL TEST	TRIP ACTUATING DEVICE OPERATIONAL TEST	ACTUATION LOGIC TEST	MASTER RELAY TEST	SLAVE RELAY TEST	MODES FOR WHICH SURVEILLANCE IS REQUIRED
6. Auxiliary Feedwater								
a. Manual Initiation	N.A.	N.A.	N.A.	R	N.A.	N.A.	N.A.	1, 2, 3
b. Automatic Actuation and Actuation Relays	N.A.	N.A	N.A.	N.A.	M(1)	M(1)	Q	1, 2, 3
c. Steam Generator Water Level-Low-Low	S	R	Q	N.A.	N.A.	N.A.	N.A.	1, 2, 3
d. Safety Injection	See Item 1. above for all Safety Injection Surveillance Requirements.							
e. Loss-of-Offsite Power	See Item 8. below for all Loss of Power Surveillance.							
f. Containment Depressurization Actuation (CDA)	See Item 2. above for all CDA Surveillance Requirements.							
7. Control Building Isolation								
a. Manual Actuation	N.A.	N.A.	N.A.	R	N.A.	N.A.	N.A.	*
b. Manual Safety Injection Actuation	N.A.	N.A.	N.A.	R	N.A.	N.A.	N.A.	1, 2, 3, 4
c. Automatic Actuation Logic and Actuation Relays	N.A.	N.A.	N.A.	N.A.	M(1)	M(1)	Q	1, 2, 3, 4
d. Containment Pressure--High-1	S	R	Q	N.A.	N.A.	N.A.	N.A.	1, 2, 3

Amendment No. 45, 70, 79, 199

TABLE 4.3-2 (Continued)

ENGINEERED SAFETY FEATURES ACTUATION SYSTEM INSTRUMENTATION SURVEILLANCE REQUIREMENTS

FUNCTIONAL UNIT	CHANNEL CHECK	CHANNEL CALIBRATION	ANALOG CHANNEL OPERATIONAL TEST	TRIP ACTUATING DEVICE OPERATIONAL TEST	ACTUATION LOGIC TEST	MASTER RELAY TEST	SLAVE RELAY TEST	MODES FOR WHICH SURVEILLANCE IS REQUIRED
7. Control Building Isolation (Continued)								
e. Control Building Inlet Ventilation Radiation	S	R	Q	N.A.	N.A.	N.A.	N.A.	*
8. Loss of Power								
a. 4 kV Bus Undervoltage (Loss of Voltage)	N.A.	R	N.A	M(3)	N.A.	N.A.	N.A.	1, 2, 3, 4
b. 4 kV Bus Undervoltage (Grid Degraded Voltage)	N.A.	R	N.A.	M(3)	N.A.	N.A.	N.A.	1, 2, 3, 4
9. Engineered Safety Features Actuation System Interlocks								
a. Pressurizer Pressure, P-11	N.A.	R	Q	N.A.	N.A.	N.A.	N.A.	1, 2, 3
b. Low-Low T_{avg}, P-12	N.A.	R	Q	N.A.	N.A.	N.A.	N.A.	1, 2, 3
c. Reactor Trip, P-4	N.A.	N.A.	N.A.	R	N.A.	N.A.	N.A.	1, 2, 3
10. Emergency Generator Load Sequencer	N.A.	N.A.	N.A.	N.A.	Q(1, 2)	N.A.	N.A.	1, 2, 3, 4

Amendment No. 14, 45, 70, 79, 100

TABLE 4.3-2 (Continued)

TABLE NOTATION

(1) Each train shall be tested at least every 62 days on a STAGGERED TEST BASIS.

(2) This surveillance may be performed continuously by the emergency generator load sequencer auto test system as long as the EGLS auto test system is demonstrated operable by the performance of an ACTUATION LOGIC TEST at least once per 92 days.

(3) On a monthly basis, a loss of voltage condition will be initiated at each undervoltage monitoring relay to verify individual relay operation. Setpoint verification and actuation of the associated logic and alarm relays will be performed as part of the channel calibration required once per 18 months.

\# During core alterations or movement of irradiated fuel within the containment. The provisions of Specification 3.0.3 are not applicable.

* MODES 1, 2, 3, 4, 5, and 6.
During fuel movement within containment or the spent fuel pool.

3/4.7.7 CONTROL ROOM EMERGENCY VENTILATION SYSTEM

LIMITING CONDITION FOR OPERATION

3.7.7 Two independent Control Room Emergency Air Filtration Systems shall be OPERABLE.#

APPLICABILITY: MODES 1, 2, 3, 4, 5, and 6.
During fuel movement within containment or the spent fuel pool.

ACTION:

MODES 1, 2, 3 and 4:

a. With one Control Room Emergency Air Filtration System inoperable, restore the inoperable system to OPERABLE status within 7 days or be in at least HOT STANDBY within the next 6 hours and in COLD SHUTDOWN within the following 30 hours.

b. With both Control Room Emergency Air Filtration Systems inoperable, except as specified in ACTION c., immediately suspend the movement of fuel assemblies within the spent fuel pool. Restore at least one inoperable system to OPERABLE status within 1 hour or be in HOT STANDBY within the next 6 hours and COLD SHUTDOWN within the following 30 hours.

c. With both Control Room Emergency Air Filtration Systems inoperable due to an inoperable Control Room boundary, immediately suspend the movement of fuel assemblies within the spent fuel pool and restore the Control Room boundary to OPERABLE status within 24 hours or be in HOT STANDBY within the next 6 hours and COLD SHUTDOWN within the following 30 hours.

MODES 5 and 6, and fuel movement within containment or the spent fuel pool:

d. With one Control Room Emergency Air Filtration System inoperable, restore the inoperable system to OPERABLE status within 7 days. After 7 days, either initiate and maintain operation of the remaining OPERABLE Control Room Emergency Air Filtration System in the recirculation mode of operation, or immediately suspend CORE ALTERATIONS and the movement of fuel assemblies.

e. With both Control Room Emergency Air Filtration Systems inoperable, or with the OPERABLE Control Room Emergency Air Filtration System required to be in the recirculation mode by ACTION d. not capable of being powered by an OPERABLE emergency power source, immediately suspend CORE ALTERATIONS and the movement of fuel assemblies.

The Control Room boundary may be opened intermittently under administrative control.

SURVEILLANCE REQUIREMENTS

4.7.7 Each Control Room Emergency Air Filtration System shall be demonstrated OPERABLE:

a. At least once per 12 hours by verifying that the control room air temperature is less than or equal to 95°F;

b. At least once per 31 days on a STAGGERED TEST BASIS by initiating, from the control room, flow through the HEPA filters and charcoal adsorbers and verifying a system flow rate of 1,120 cfm ±20% and that the system operates for at least 10 continuous hours with the heaters operating;

c. At least once each REFUELING INTERVAL or (1) after any structural maintenance on the HEPA filter or charcoal adsorber housings, or (2) following painting, fire, or chemical release in any ventilation zone communicating with the system by:

1) Verifying that the system satisfies the in-place penetration and bypass leakage testing acceptance criteria of less than 0.05% and uses the test procedure guidance in Regulatory Position C.5.a, C.5.c, and C.5.d of Regulatory Guide 1.52, Revisions 2, March 1978,* and the system flow rate is 1,120 cfm ±20%;

2) Verifying, within 31 days after removal, that a laboratory analysis of a representative carbon sample obtained in accordance with Regulatory Position C.6.b of Regulatory Guide 1.52, Revision 2, March 1978,* meets the laboratory testing criteria of Regulatory Position C.6.a of Regulatory Guide 1.52, Revision 2, March 1978,* for a methyl iodide penetration of less than 0.175%; and

3) Verifying a system flow rate of 1,120 cfm ±20% during system operation when tested in accordance with ANSI N510-1980.

d. After every 720 hours of charcoal adsorber operation, by verifying, within 31 days after removal, that a laboratory analysis of a representative carbon sample obtained in accordance with Regulatory Position C.6.b of Regulatory Guide 1.52, Revision 2, March 1978,* meets the laboratory testing criteria of Regulatory Position C.6.a of Regulatory Guide 1.52, Revision 2, March 1978,* for a methyl iodide penetration of less than 0.175%;

e. At least once each REFUELING INTERVAL by:

1) Verifying that the pressure drop across the combined HEPA filters and charcoal adsorber banks is less than 6.75 inches Water Gauge while operating the system at a flow rate of 1,120 cfm ±20%;

SURVEILLANCE REQUIREMENTS (Continued)

2) Verifying that the system maintains the control room at a positive pressure of greater than or equal to 1/8 inch Water Gauge at less than or equal to a pressurization flow of 230 cfm relative to adjacent areas and outside atmosphere during system operation; and

3) Verifying that the heaters dissipate 9.4 ±1 kW when tested in accordance with ANSI N510-1980.

f. After each complete or partial replacement of a HEPA filter bank, by verifying that the cleanup system satisfies the in-place penetration and bypass leakage testing acceptance criteria of less than 0.05% in accordance with ANSI N510-1980 for a DOP test aerosol while operating the system at a flow rate of 1120 cfm ±20%; and

g. After each complete or partial replacement of a charcoal adsorber bank, by verifying that the cleanup system satisfies the in-place penetration and bypass leakage testing acceptance criteria of less than 0.05% in accordance with ANSI N510-1980 for a halogenated hydrocarbon refrigerant test gas while operating the system at a flow rate of 1120 cfm ±20%.

*ANSI N510-1980 shall be used in place of ANSI N510-1975 referenced in Regulatory Guide 1.52, Revision 2, March 1978.

3/4.7.8 CONTROL ROOM ENVELOPE PRESSURIZATION SYSTEM

LIMITING CONDITION FOR OPERATION

3.7.8 Two independent Control Room Envelope Pressurization Systems shall be OPERABLE.#

APPLICABILITY: MODES 1, 2, 3, 4, 5, and 6.
During fuel movement within containment or the spent fuel pool.

ACTION:

MODES 1, 2, 3, and 4:

a. With one Control Room Envelope Pressurization System inoperable restore the system to OPERABLE status within 7 days or be in HOT STANDBY within the next 6 hours and COLD SHUTDOWN within the following 30 hours.

b. With both Control Room Envelope Pressurization Systems inoperable, except as specified in ACTION c. or ACTION d., immediately suspend the movement of fuel assemblies within the spent fuel pool. Restore at least one inoperable system to OPERABLE status within 1 hour or be in HOT STANDBY within the next 6 hours and COLD SHUTDOWN within the following 30 hours.

c. With both Control Room Envelope Pressurization Systems inoperable due to an inoperable Control Room boundary, immediately suspend the movement of fuel assemblies within the spent fuel pool. Restore the Control Room boundary to OPERABLE status within 24 hours or be in HOT STANDBY within the next 6 hours and COLD SHUTDOWN within the following 30 hours.

d. With both Control Room Envelope Pressurization Systems inoperable during the performance of Surveillance Requirement 4.7.8.c and the system not being tested under administrative control, immediately suspend the movement of fuel assemblies within the spent fuel pool. Restore at least one inoperable system to OPERABLE status within 4 hours or be in HOT STANDBY within the next 6 hours and COLD SHUTDOWN within the following 30 hours.

MODES 5 and 6, and fuel movement within containment or the spent fuel pool:

e. With one Control Room Envelope Pressurization System inoperable, restore the inoperable system to OPERABLE status within 7 days. After 7 days, immediately suspend CORE ALTERATIONS and the movement of fuel assemblies.

f. With both Control Room Envelope Pressurization Systems inoperable, immediately suspend CORE ALTERATIONS and the movement of fuel assemblies.

The Control Room boundary may be opened intermittently under administrative control.

SURVEILLANCE REQUIREMENTS

4.7.8 Each Control Room Envelope Pressurization System shall be demonstrated OPERABLE:

a. At least once per 7 days by verifying that the storage air bottles are pressurized to greater than or equal to 2200 psig,

b. At least once per 31 days on a STAGGERED TEST BASIS by verifying that each valve (manual, power operated or automatic) in the flow path not locked, sealed or otherwise secured in position, is in its correct position, and

c. At least once each REFUELING INTERVAL or following a major alteration of the control room envelope pressure boundary by:

1. Verifying that the control room envelope is isolated in response to a Control Building Isolation test signal,

2. Verifying that after a 60 second time delay following a Control Building Isolation test signal, the control room envelope pressurizes to greater than or equal to 1/8 inch W.G. relative to adjacent areas and outside atmosphere, and

3. Verifying that the positive pressure of Specification 4.7.8.c.2 is maintained for greater than or equal to 60 minutes.

3/4.7.9 AUXILIARY BUILDING FILTER SYSTEM

LIMITING CONDITION FOR OPERATION

3.7.9 Two independent Auxiliary Building Filter Systems shall be OPERABLE.

APPLICABILITY: MODES 1, 2, 3, and 4.

ACTION:

With one Auxiliary Building Filter System inoperable, restore the inoperable system to OPERABLE status within 7 days or be in at least HOT STANDBY within the next 6 hours and in COLD SHUTDOWN within the following 30 hours. In addition, comply with the ACTION requirements of Specification 3.6.6.1.

SURVEILLANCE REQUIREMENTS

4.7.9 Each Auxiliary Building Filter System shall be demonstrated OPERABLE:

a. At least once per 31 days on a STAGGERED TEST BASIS by initiating, from the control room, flow through the HEPA filters and charcoal adsorbers and verifying a system flow rate of 30,000 cfm ±10% and that the system operates for at least 10 continuous hours with the heaters operating;

b. At least once each REFUELING INTERVAL or (1) after any structural maintenance on the HEPA filter or charcoal adsorber housings, or (2) following painting, fire, or chemical release in any ventilation zone communicating with the system by:

1) Verifying that the cleanup system satisfies the in-place penetration and bypass leakage testing acceptance criteria of less than 0.05% and uses the test procedure guidance in Regulatory Positions C.5.a, C.5.c, and C.5.d of Regulatory Guide 1.52, Revision 2, March 1978,* and the system flow rate is 30,000 cfm ±10%;

2) Verifying, within 31 days after removal, that a laboratory analysis of a representative carbon sample obtained in accordance with Regulatory Position C.6.b of Regulatory Guide 1.52, Revision 2, March 1978,* meets the laboratory

3/4.9 REFUELING OPERATIONS

3/4.9.1 BORON CONCENTRATION

LIMITING CONDITION FOR OPERATION

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

a. A K_{eff} of 0.95 or less, or
b. A boron concentration of greater than or equal to 2600 ppm.

Additionally, the CVCS valves of Specification 4.1.1.2.2 shall be closed and secured in position.

APPLICABILITY: MODE 6.*

ACTION:

a. With the requirements of the above specification not satisfied, immediately suspend all operations involving CORE ALTERATIONS or positive reactivity changes and initiate and continue boration at greater than or equal to 33 gpm of a solution containing greater than or equal to 6600 ppm boron or its equivalent 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 2600 ppm, whichever is the more restrictive.

b. With any of the CVCS valves of Specification 4.1.1.2.2 not closed** and secured in position, immediately close and secure the valves.

SURVEILLANCE REQUIREMENTS

4.9.1.1.1 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 control rod in excess of 3 feet from its fully inserted position within the reactor vessel.

4.9.1.1.2 The boron concentration of the Reactor Coolant System and the refueling cavity shall be determined by chemical analysis at least once per 72 hours. I

4.9.1.1.3 The CVCS valves of Specification 4.1.1.2.2 shall be verified closed and locked at least once per 31 days.

*The reactor shall be maintained in MODE 6 whenever fuel is in the reactor vessel with the vessel head closure bolts less than fully tensioned or with the head removed.

**Except those opened under administrative control.

REFUELING OPERATIONS

BORON CONCENTRATION

LIMITING CONDITION FOR OPERATION

3.9.1.2 The boron concentration of the Spent Fuel Pool shall be greater than or equal to 1750 ppm.

Applicability

Whenever fuel assemblies are in the spent fuel pool.

Action

a. With the boron concentration less than 1750 ppm, initiate action to bring the boron concentration in the fuel pool to at least 1750 ppm within 72 hours, and

b. With the boron concentration less than 1750 ppm, suspend the movement of all fuel assemblies within the spent fuel pool and loads over the spent fuel racks.

SURVEILLANCE REQUIREMENTS

4.9.1.2 Verify that the boron concentration in the fuel pool is greater than or equal to 1750 ppm every 72 hours.

3/4.9.2 INSTRUMENTATION

LIMITING CONDITION FOR OPERATION

3.9.2 Two Source Range Neutron Flux Monitors shall be OPERABLE 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 changes.

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

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

* Neutron detectors are excluded from CHANNEL CALIBRATION.

REFUELING OPERATIONS

3/4.9.4 CONTAINMENT BUILDING PENETRATIONS

LIMITING CONDITION FOR OPERATION

3.9.4 The containment building penetrations shall be in the following status:

a. The equipment access hatch closed and held in place by a minimum of four bolts,

b. The personnel access hatch shall be either:

1. closed by one personnel access hatch door, or

2. capable of being closed by an OPERABLE personnel access hatch door, under administrative control, and

c. Each penetration providing direct access from the containment atmosphere to the outside atmosphere shall be either:

1) Closed by an isolation valve, blind flange, or manual valve, or

2) Be capable of being closed by an OPERABLE automatic containment purge and exhaust isolation valve.

APPLICABILITY: During CORE ALTERATIONS or movement of irradiated fuel within the containment.

ACTION:

With the requirements of the above specification not satisfied, immediately suspend all operations involving CORE ALTERATIONS or movement of irradiated fuel in the containment building.

SURVEILLANCE REQUIREMENTS

4.9.4.a Verify each required containment penetration is in the required status at least once per 7 days.

4.9.4.b. Verifying each required containment purge and exhaust valve actuates to the isolation position per the applicable portions of Specification 4.6.3.2.

REFUELING OPERATIONS

3/4.9.9 CONTAINMENT PURGE AND EXHAUST ISOLATION SYSTEM

LIMITING CONDITION FOR OPERATION

3.9.9 The Containment Purge and Exhaust Isolation System shall be OPERABLE.

APPLICABILITY: During CORE ALTERATIONS or movement of irradiated fuel within the containment.

ACTION:

a. With the Containment Purge and Exhaust Isolation System inoperable, close each of the purge and exhaust penetrations providing direct access from the containment atmosphere to the outside atmosphere.

b. The provisions of Specification 3.0.3 are not applicable.

SURVEILLANCE REQUIREMENTS

4.9.9 The Containment Purge and Exhaust Isolation System shall be demonstrated OPERABLE at least once per 7 days during CORE ALTERATIONS by verifying that containment purge and exhaust isolation occurs on manual initiation and on a High Radiation test signal from each of the containment radiation monitoring instrumentation channels.

REFUELING OPERATIONS

3/4.9.10 WATER LEVEL - REACTOR VESSEL

LIMITING CONDITION FOR OPERATION

3.9.10 At least 23 feet of water shall be maintained over the top of the reactor vessel flange.

APPLICABILITY: During movement of fuel assemblies or control rods within the containment when either the fuel assemblies being moved or the fuel assemblies seated within the reactor vessel are irradiated while in MODE 6.

ACTION:

With the requirements of the above specification not satisfied, suspend all operations involving movement of fuel assemblies or control rods within the reactor vessel.

SURVEILLANCE REQUIREMENTS

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

3/4.9.12 FUEL BUILDING EXHAUST FILTER SYSTEM

LIMITING CONDITION FOR OPERATION

3.9.12 Two independent Fuel Building Exhaust Filter Systems shall be OPERABLE.# At least one Fuel Building Exhaust Filter System shall be in operation whenever any evolution involving movement of fuel within the storage pool or crane operations with loads over the storage pool is in progress.

APPLICABILITY: Whenever irradiated fuel with less than 60 days decay is in the storage pool.

ACTION:

a. With one Fuel Building Exhaust Filter System inoperable, fuel movement within the storage pool or crane operation with loads over the storage pool may proceed provided the OPERABLE Fuel Building Exhaust Filter System is capable of being powered from an OPERABLE emergency power source and is in operation and discharging through at least one train of HEPA filters and charcoal adsorbers.

b. With no Fuel Building Exhaust Filter System OPERABLE, suspend all operations involving movement of fuel within the storage pool or crane operation with loads over the storage pool until at least one Fuel Building Exhaust Filter System is restored to OPERABLE status.

c. The provisions of Specifications 3.0.3 are not applicable.

SURVEILLANCE REQUIREMENTS

4.9.12.1 The above required Fuel Building Exhaust Filter Systems shall be demonstrated OPERABLE:

a. Within 31 days prior to moving fuel within or loads over the storage pool when irradiated fuel with less than 60 days decay is present by initiating, from the control room, flow through the HEPA filters and charcoal adsorbers, and verifying a system flow rate of 20,700 cfm ±10% and that the system operates for at least 10 continuous hours with the heaters operating;

b. At least once each REFUELING INTERVAL or (1) after any structural maintenance on the HEPA filter or charcoal adsorber housings, or (2) following painting, fire, or chemical release in any ventilation zone communicating with the system by:

The Fuel Building boundary may be opened intermittently under administrative control.

2) Verifying that the system maintains the spent fuel storage pool area at a negative pressure of greater than or equal to 1/4 inch Water Gauge relative to the outside atmosphere during system operation, and

3) Verifying that the heaters dissipate 150 ±15 kW when tested in accordance with ANSI N510-1980.

e. After each complete or partial replacement of a HEPA filter bank, by verifying that the cleanup system satisfies the in-place penetration and bypass leakage testing acceptance criteria of less than 0.05% in accordance with ANSI N510-1980 for a DOP test aerosol while operating the system at a flow rate of 20,700 cfm ±10%; and

f. After each complete or partial replacement of a charcoal adsorber bank, by verifying that the cleanup system satisfies the in-place penetration and bypass leakage testing acceptance criteria of less than 0.05% in accordance with ANSI N510-1980 for a halogenated hydrocarbon refrigerant test gas while operating the system at a flow rate of 20,700 cfm ±10%.

4.9.12.2 The Fuel Building Exhaust Filter System shall be verified to be operating at least once per 12 hours during either fuel movement within the fuel storage pool or crane operations with loads over the fuel storage pool whenever irradiated fuel with less than 60 days decay is in the storage pool.

*ANSI N510-1980 shall be used in place of ANSI N510-1975 referenced in Regulatory Guide 1.52, Revision 2, March 1978.

3/4.7.7 CONTROL ROOM EMERGENCY VENTILATION SYSTEM (Continued)

LIMITING CONDITION FOR OPERATION

Two independent control room emergency air filtration systems are required to be operable to ensure that at least one is available in the event the other system is disabled.

A control room emergency air filtration system is OPERABLE when the associated:

a. Fan is OPERABLE;

b. HEPA filters and charcoal adsorbers are not excessively restricting flow and are capable of performing their filtration functions; and

c. moisture separator, heater, ductwork, valves, and dampers are OPERABLE, and air circulation can be maintained.

The integrity of the control room habitability boundary (i.e., walls, floors, ceilings, ductwork, and access doors) must be maintained such that the control building habitability zone can be maintained at its design positive pressure if required to be aligned in the filtration pressurization mode. However, the LCO is modified by a footnote allowing the control room boundary to be opened intermittently under administrative controls. For entry and exit through doors the administrative control of the opening is performed by the person(s) entering or exiting the area. For other openings, these controls consist of stationing a dedicated individual at the opening who is in constant communication with the control room. This individual will have a method to rapidly close the opening when a need for control room isolation is indicated.

APPLICABILITY

MODES 1, 2, 3, 4, 5, and 6.
During fuel movement within containment or the spent fuel pool.

ACTIONS

MODES 1, 2, 3, and 4

a. With one control room emergency air filtration system inoperable, action must be taken to restore the inoperable system to an OPERABLE status within 7 days. In this condition, the remaining control room emergency air filtration system is adequate to perform the control room protection function. However, the overall reliability is reduced because a single failure in the OPERABLE train could result in a loss of the control room emergency air filtration system function. The 7-day completion time is based on the low probability of a DBA occurring during this time period, and the ability of the remaining train to provide the required capability.

If the inoperable train cannot be restored to an OPERABLE status within 7 days, the unit must be placed in at least HOT STANDBY within the next 6 hours and in COLD SHUTDOWN within the following 30 hours. These completion times are reasonable, based on operating experience, to reach the required unit conditions from full power conditions in an orderly manner and without challenging unit systems.

3/4.7.7 CONTROL ROOM EMERGENCY VENTILATION SYSTEM (Continued)

ACTIONS (Continued)

b. With both control room emergency air filtration systems inoperable, except due to an inoperable control room boundary, the movement of fuel assemblies within the spent fuel pool must be immediately suspended. At least one control room emergency air filtration system must be restored to OPERABLE status within 1 hour, or the unit must be in HOT STANDBY within the next 6 hours and in COLD SHUTDOWN within the following 30 hours. These completion times are reasonable, based on operating experience, to reach the required unit conditions from full power conditions in an orderly manner and without challenging unit systems.

c. With both control room emergency air filtration systems inoperable due to an inoperable control room boundary, the movement of fuel assemblies within the spent fuel pool must be immediately suspended. The control room boundary must be restored to OPERABLE status within 24 hours, or the unit must be in HOT STANDBY within the next 6 hours and in COLD SHUTDOWN within the following 30 hours.

If the control room boundary is inoperable in MODES 1, 2, 3, and 4, the control room emergency air filtration systems cannot perform their intended functions. Actions must be taken to restore on OPERABLE control room boundary within 24 hours. During the period that the control room boundary is inoperable, appropriate compensatory measures (consistent with the intent of GDC 19) should be utilized to protect control room operators from potential hazards such as radioactive contamination, toxic chemicals, smoke, temperature and relative humidity, and physical security. Preplanned measures should be available to address these concerns for intentional and unintentional entry into this condition. The 24 hour allowed outage time is reasonable based on the low probability of a DBA occuring during this time period, and the use of compensatory measure. The 24 hour allowed outage time is a typically reasonable time to diagnose, plan, and possible repair, and test most problems with the control room boundary.

MODES 5 AND 6, and fuel movement within containment or the spent fuel pool

d. With one control room emergency air filtration system inoperable, action must be taken to restore the inoperable system to an OPERABLE status within 7 days. After 7 days, either initiate and maintain operation of the remaining OPERABLE control room emergency air filtration system in the recirculation mode or suspend CORE ALTERATIONS and the movement of fuel assemblies. Initiating and maintaining operation of the OPERABLE train in the recirculation mode ensures: (i) operability of the train will not be compromised by a failure of the automatic actuation logic; and (ii) active failures will be readily detected.

e. With both control room emergency air filtration systems inoperable, or with the train required by ACTION 'd' not capable of being powered by an OPERABLE emergency power source, actions must be taken to suspend all operations involving CORE ALTERATIONS and the movment of fuel assemblies. This action places the unit in a condition that minimizes risk. This action does not preclude the movement of fuel to a safe position.

SURVEILLANCE REQUIREMENTS

4.7.7.a

The control room environment should be checked periodically to ensure that the control room temperature control system is functioning properly. Verifying that the control room air temperature is less than or equal to 95°F at least once per 12 hours is sufficient. It is not necessary to cycle the control room ventilation chillers. The control room is manned during operations covered by the technical specifications. Typically, temperature aberrations will be readily apparent.

4.7.7.b

Standby systems should be checked periodically to ensure that they function properly. As the environment and normal operating conditions on this system are not too severe, testing the trains once every 31 days on a STAGGERED TEST BASIS provides an adequate check of this system. This surveillance requirement verifies a system flow rate of 1,120 cfm ± 20%. Additionally, the system is required to operate for at least 10 continuous hours with the heaters energized. These operations are sufficient to reduce the buildup of moisture on the adsorbers and HEPA filters due to the humidity in the ambient air.

3/4.7.7 CONTROL ROOM EMERGENCY VENTILATION SYSTEM (Continued)

SURVEILLANCE REQUIREMENTS (Continued)

iodide penetration of less than 0.175%. The laboratory analysis is required to be performed within 31 days after removal of the sample. ANSI N510-1980 is used in lieu of ANSI N510-1975 referenced in Revision 2 of Regulatory Guide 1.52.

The maximum surveillance interval is 900 hours, per Surveillance Requirement 4.0.2. The 720 hours of operation requirement originates from Nuclear Regulatory Guide 1.52, Table 2, Note C. This testing ensures that the charcoal adsorbency capacity has not degraded below acceptable limits as well as providing trending data.

4.7.7.e.1

This surveillance verifies that the pressure drop across the combined HEPA filters and charcoal adsorbers banks at less than 6.75 inches water gauge when the system is operated at a flow rate of 1,120 cfm ± 20%. The frequency is at least once per REFUELING INTERVAL.

4.7.7.e.2

This surveillance verifies that the system maintains the control room at a positive pressure of greater than or equal to 1/8 inch water gauge at less than or equal to a pressurization flow of 230 cfm relative to adjacent areas and outside atmosphere during system operation. The frequency is at least once per REFUELING INTERVAL.

The intent of this surveillance is to verify the ability of the control room emergency air filtration system to maintain a positive pressure while running in the filtered pressurization mode.

3/4.7.7 CONTROL ROOM EMERGENCY VENTILATION SYSTEM (Continued)

SURVEILLANCE REQUIREMENTS (Continued)

During the first hour, the control room pressurization system creates and maintains the positive pressure in the control room. This capability is verified by Surveillance Requirement 4.7.8.C, independent of Surveillance Requirement 4.7.7.e.2. A CBI signal will automatically align an operating filtration system into the recirculation mode of operation due to the isolation of the air supply line to the filter.

After the first hour of an event with the potential for a radiological release, the control room emergency ventilation system will be aligned in either the recirculation mode (isolated from the outside environment) or filtered pressurization mode (outside air is diverted through the filters to the control room envelope to maintain a positive pressure). The mode of service for the control room emergency air filtration system will be based on the radiological conditions that exist outside the control room. Alignment to the filtered pressurization mode requires manual operator action to open the air supply line.

4.7.7.e.3

This surveillance verifies that the heaters can dissipate 9.4 ± 1 kW at 480V when tested in accordance with ANSI N510-1980. The frequency is at least once per REFUELING INTERVAL. The heater kW measured must be corrected to its nameplate rating. Variations in system voltage can lead to measurements of kW which cannot be compared to the nameplate rating because the output kW is proportional to the square of the voltage.

4.7.7.f

Following the complete or partial replacement of a HEPA filter bank, the operability of the cleanup system should be confirmed. This is accomplished by verifying that the cleanup system satisfies the in-place penetration and bypass leakage testing acceptance criterion of less than 0.05% in accordance with ANSI N510-1980 for a DOP test aerosol while operating the system at a flow rate of 1,120 cfm ± 20%.

3/4.7.8 CONTROL ROOM ENVELOPE PRESSURIZATION SYSTEM (Continued)

APPLICABLE SAFETY ANALYSIS

The OPERABILITY of the control room envelope pressurization system ensures that: (1) breathable air is supplied to the control room, instrumentation rack room, and computer room, and (2) a positive pressure is created and maintained within the control room envelope during control building isolation for the first hour following any event with the potential for radioactive releases. Each system is capable of providing an adequate air supply to the control room for one hour following an initiation of a control building isolation signal. After one hour, operation of the control room emergency ventilation system would be initiated.

LIMITING CONDITION FOR OPERATION

Two independent control room envelope pressurization systems are required to be operable to ensure that at least one is available in the event the other system is disabled.

A control room envelope pressurization system is OPERABLE when the associated:

a. air storage bottles are OPERABLE; and

b. piping and valves are OPERABLE.

The integrity of the control room habitability boundary (i.e., walls, floors, ceilings, ductwork, and access doors) must be maintained. However, the LCO is modified by a footnote allowing the control room boundary to be opened intermittently under administrative controls. For entry and exit through doors the administrative control of the opening is performed by the person(s) entering or exiting the area. For other openings, these controls consist of stationing a dedicated individual at the opening who is in constant communication with the control room. This individual will have a method to rapidly close the opening when a need for control room isolation is indicated.

APPLICABILITY

MODES 1, 2, 3, 4, 5, and 6.
During fuel movement within containment or the spent fuel pool.

ACTIONS

MODES 1, 2, 3, and 4

a. With one control room envelope pressurization system inoperable, action must be taken either to restore the inoperable system to an OPERABLE status within 7 days, or place the unit in HOT STANDBY within six hours and COLD SHUTDOWN within the next 30 hours.

3/4.7.8 CONTROL ROOM ENVELOPE PRESSURIZATION SYSTEM (Continued)

ACTIONS (Continued)

The remaining control room envelope pressurization system is adequate to perform the control room protection function. However, the overall reliability is reduced because a single failure in the OPERABLE train could result in a loss of the control room envelope pressurization system. The 7-day completion time is based on the low probability of a design basis accident occurring during this time period and the ability of the remaining train to provide the required capability.

The completion times for the unit to be placed in HOT STANDBY and COLD SHUTDOWN are reasonable. They are based on operating experience, and they permit the unit to be placed in the required conditions from full power conditions in an orderly manner and without challenging unit systems.

b. With both control room envelope pressurization systems inoperable, except due to an inoperable control room boundary or during performance of Surveillance Requirement 4.7.8.c, the movement of fuel assemblies within the spent fuel pool must be immediately suspended. At least one control room envelope pressurization system must be restored to OPERABLE status within 1 hour, or the unit must be in HOT STANDBY within the next 6 hours and in COLD SHUTDOWN within the following 30 hours. These completion times are reasonable, based on operating experience, to reach the required unit conditions from full power conditions in an orderly manner and without challenging unit systems.

c. With both control room envelope pressurization systems inoperable due to an inoperable control room boundary, the movement of fuel assemblies within the spent fuel pool must be immediately suspended. The control room boundary must be restored to OPERABLE status within 24 hours, or the unit must be in HOT STANDBY within the next 6 hours and in COLD SHUTDOWN within the following 30 hours.

If the control room boundary is inoperable in MODES 1, 2, 3, and 4, the control room envelope pressurization systems cannot perform their intended functions. Actions must be taken to restore an OPERABLE control room boundary within 24 hours. During the period that the control room boundary is inoperable, appropriate compensatory measures (consistent with the intent of GDC 19) should be utilized to protect control room operators from potential hazards such as radioactive contamination, toxic chemicals, smoke, temperature and relative humidity, and physical security. Preplanned measures should be available to address these concerns for intentional and unintentional entry into this condition. The 24 hour allowed outage time is reasonable based on the low probability of a DBA occurring during this time period, and the use of compensatory measures. The 24 hour allowed outage time is a typically reasonable time to diagnose, plan, and possibly repair, and test most problems with the control room boundary.

3/4.7.8 CONTROL ROOM ENVELOPE PRESSURIZATION SYSTEM (Continued)

ACTIONS (Continued)

d. With both control room envelope pressurization systems inoperable during the performance of Surveillance Requirement 4.7.8.c and the system not being tested under administrative control, the movement of fuel assemblies within the spent fuel pool must be immediately suspended. At least one control room envelope pressurization system must be restored to OPERABLE status within 4 hours, or the unit must be in HOT STANDBY within the next 6 hours and in COLD SHUTDOWN within the following 30 hours. The administrative controls for the system not being tested consist of a dedicated operator, in constant communication with the control room, who can rapidly restore this system to OPERABLE status. Allowing both control room envelope pressurization systems to be inoperable for 4 hours under administrative control is acceptable since the system not being tested is inoperable only because it is isolated. Therefore, the system can be rapidly restored if needed. The other completion times are reasonable, based on operating experience, to reach the required unit conditions from full power conditions in an orderly manner and without challenging unit systems.

MODES 5 and 6, and fuel movement within containment or the spent fuel pool

e. With one control room envelope pressurization system inoperable, action must be taken to restore the inoperable system to an OPERABLE status within 7 days. After 7 days, immediately suspend CORE ALTERATIONS and the movement of fuel assemblies. This action places the unit in a condition that minimizes potential radiological exposure to Control Room personnel. This action does not preclude the movement of fuel to a safe position.

The remaining control room envelope pressurization system is adequate to perform the control room protection function. However, the overall reliability is reduced because a single failure in the OPERABLE train could result in a loss of the control room envelope pressurization system. The 7-day completion time is based on the low probability of a design basis accident occurring during this time period and the ability of the remaining train to provide the required capability.

Stud tensioning may continue in MODE 6 and a MODE change to MODE 5 is permitted with a control room envelope pressurization system inoperable (Reference 1).

f. With both control room envelope pressurization systems inoperable, immediately suspend CORE ALTERATIONS and the movement of fuel assemblies. This action places the unit in a condition that minimizes potential radiological exposure to Control Room personnel. This action does not preclude the movement of fuel to a safe position.

3/4.7.8 CONTROL ROOM ENVELOPE PRESSURIZATION SYSTEM (Continued)

ACTIONS (Continued)

SURVEILLANCE REQUIREMENTS

4.7.8.a

This surveillance requires verification that the air bottles are properly pressurized. Verifying that the air bottles are pressurized to greater than or equal to 2200 psig will ensure that a control room envelope pressurization system will be capable of supplying the required flow rate. The frequency of the surveillance is at least once per 7 days. It is based on engineering judgment and has been shown to be appropriate through operating experience.

4.7.8.b

This surveillance requires verification of the correct position of each valve (manual, power operated, or automatic) in the control room envelope pressurization system flow path. It helps ensure that the control room envelope pressurization system is capable of performing its intended safety function by verifying that an appropriate flow path will exist. The surveillance applies to those valves that could be mispositioned. This surveillance does not apply to valves that have been locked, sealed, or secured in position, because these positions are verified prior to locking, sealing, or securing.

The frequency of the surveillance is at least once per 31 days on a STAGGERED TEST BASIS. It is based on engineering judgment and has been shown to be appropriate through operating experience.

3/4.7.8 CONTROL ROOM ENVELOPE PRESSURIZATION SYSTEM (Continued)

SURVEILLANCE REQUIREMENTS (Continued)

4.7.8.c

The performance of the control room envelope pressurization system should be checked periodically. The frequency is at least once per REFUELING INTERVAL and following any major alteration of the control room envelope pressure boundary.

A major alteration is a change to the control room envelope pressure boundary that: (1) results in a breach greater than analyzed for acceptable pressurization and requires nonroutine work evolutions to restore the boundary. A nonroutine work evolution is one which makes it difficult to determine As-Found and As-Left conditions. Examples of routine work evolution include: (1) opening and closing a door, and (2) repairing cable and pipe penetrations because the repairs are conducted in accordance with procedures and are verified via inspections. For these two examples, there is a high level of assurance that the boundary is restored to the As-Found condition.

This surveillance requires at least once per REFUELING INTERVAL or following a major alteration of the control room envelope pressure boundary by:

- Verifying the control room envelope is isolated in response to a Control Building Isolation Test signal,
- Verifying, after a 60 second time delay following a Control Building Isolation Test signal, the control room envelope pressurizes to greater than or equal to 0.125 inch water gauge relative to adjacent areas and outside atmosphere; and
- Verifying the positive pressure of Technical Specification 4.7.8.c.2 is maintained for greater than or equal to 60 minutes.

Changes in conditions outside the control room envelope cause pressure spikes which are reflected on the differential pressure indicator, 3HVC-PDI 113.

Pressure spikes or fluctuations which result in the differential pressure momentarily dropped below the 0.125 inch water gauge acceptance criteria are acceptable providing the following conditions are met:

1. Differential pressure remains positive at all times.
2. Differential pressure is only transitorily below the acceptance criteria.
3. Differential pressure returns to a value above the acceptance criteria.

3/4.7.9 AUXILIARY BUILDING FILTER SYSTEM

The OPERABILITY of the Auxiliary Building Filter System, and associated filters and fans, ensures that radioactive materials leaking from the equipment within the charging pump, component cooling water pump and heat exchanger areas following a LOCA are filtered prior to reaching the environment. Operation of the system with the heaters operating for at least 10 continuous hours in a 31-day period is sufficient to reduce the buildup of moisture on the adsorbers and HEPA filters. The operation of this system and the resultant effect on offsite dosage calculations was assumed in the safety analyses. ANSI N510-1980 will be used as a procedural guide for surveillance testing. The heater kW measured must be corrected to its nameplate rating. Variations in system voltage can lead to measurements of kW which cannot be compared to the nameplate rating because the output kW is proportional to the square of the voltage.

The Charging Pump/Reactor Plant Component Cooling Water Pump Ventilation System is required to be available to support the Auxiliary Building Filter System and the Supplementary Leak Collection and Release System (SLCRS). The Charging Pump/Reactor Plant Component Cooling Water Pump Ventilation System consists of two redundant trains, each capable of providing 100% of the required flow. Each train has a two position, "Off" and "Auto," remote control switch. With the remote control switches for each train in the "Auto" position, the system is capable of automatically transferring operation to the redundant train in the event of a low flow condition in the operating train. The associated fans do not received any safety related automatic start signals (e.g. Safety Injection Signal).

Placing the remote control switch for a Charging Pump/Reactor Plant Component Cooling Water Pump Ventilation Train in the "Off" position to start the redundant train or to perform post maintenance testing to verify availability of the redundant train will not affect the availability of that train, provided appropriate administrative controls have been established to ensure the remote control switch is immediately returned to the "Auto" position after the completion of the specified activities or in response to plant conditions. These administrative controls include the use of an approved procedure and a designated individual at the control switch for the respective Charging Pump/Reactor Plant Component Cooling Water Pump Ventilation Train who can rapidly respond to instructions from procedures, or control room personnel, based on plant conditions.

3/4.7.10 SNUBBERS

All snubbers are required OPERABLE to ensure that the structural integrity of the Reactor Coolant System and all other safety-related systems is maintained during and following a seismic or other event initiating dynamic loads. For the purpose of declaring the affected system OPERABLE with the inoperable snubber(s), an engineering evaluation may be performed, in accordance with Section 50.59 of 10 CFR Part 50.

3/4.7.10 SNUBBERS (Continued)

Snubbers are classified and grouped by design and manufacturer but not by size. Snubbers of the same manufacturer but having different internal mechanisms are classified as different types. For example, mechanical snubbers utilizing the same design features of the 2-kip, 10-kip and 100-kip capacity manufactured by Company "A" are of the same type. The same design mechanical snubbers manufactured by Company "B" for the purposes of this Technical Specification would be of a different type, as would hydraulic snubbers from either manufacturer.

A list of individual snubbers with detailed information of snubber location and size and of system affected shall be available at the plant in accordance with Section 50.71(c) of 10 CFR Part 50. The accessibility of each snubber shall be determined and approved by the Plant Operations Review Committee. The determination shall be based upon the existing radiation levels and the expected time to perform a visual inspection in each snubber location as well as other factors associated with accessibility during plant operations (e.g.,

3/4.9.4 CONTAINMENT BUILDING PENETRATIONS

The requirements on containment building penetration closure and OPERABILITY ensure that a release of radioactive material within containment will be restricted from leakage to the environment. The OPERABILITY and closure restrictions are sufficient to restrict radioactive material release from a fuel element rupture based upon the lack of containment pressurization potential while in the REFUELING MODE.

Both containment personnel access hatch doors can be open during CORE ALTERATIONS and the movement of irradiated fuel assemblies inside containment provided at least one personnel access hatch door is under administrative control such that the door can be closed within 10 minutes. This will allow hoses and cables to be run through the personnel access hatch, provided they can be rapidly removed to allow the door to be closed within the required time period. In addition, a designated individual must be continuously available for door closure.

3/4.9.5 COMMUNICATIONS

The requirement for communications capability ensures that refueling station personnel can be promptly informed of significant changes in the facility status or core reactivity conditions during CORE ALTERATIONS.

3/4.9.10 and 3/4.9.11 WATER LEVEL - REACTOR VESSEL and STORAGE POOL

The restrictions on minimum water level ensure that sufficient water depth is available to remove 99% of the assumed 10% iodine gap activity released from the rupture of an irradiated fuel assembly. The minimum water depth is consistent with the assumptions of the safety analysis.

3/4.9.12 FUEL BUILDING EXHAUST FILTER SYSTEM

The limitations on the Fuel Building Exhaust Filter System ensure that radioactive iodine released from an irradiated fuel assembly and storage pool water will be filtered through the HEPA filters and charcoal adsorber prior to discharge to the atmosphere. Operation of the system with the heaters operating for at least 10 continuous hours in a 31-day period is sufficient to reduce the buildup of moisture on the adsorbers and HEPA filters. The OPERABILITY of this system and the resulting iodine removal capacity are consistent with the assumptions of the safety analyses. ANSI N510-1980 will be used as a procedural guide for surveillance testing. The heater kW measured must be corrected to its nameplate rating. Variations in system voltage can lead to measurements of kW which cannot be compared to the nameplate rating because the output kW is proportional to the square of the voltage. The filtration system removes radioiodine following a fuel handing or heavy load drop accident. Noble gases would not be removed by the system. Other radionuclides would be scrubbed by the storage pool water. Iodine-131 has the longest half-life: ~8 days. After 60 days decay time, there is essentially negligible iodine and filtration is unnecessary.

The LCO is modified by a footnote allowing the Fuel Building boundary to be opened intermittently under administrative controls. For entry and exit through doors the administrative control of the opening is performed by the person(s) entering or exiting the area. For other openings, these controls consist of stationing a dedicated individual at the opening who is in constant communication with the control room. This individual will have a method to rapidly close the opening when a need for Fuel Building isolation is indicated.

3/4.9.13 SPENT FUEL POOL - REACTIVITY

The limitations described by Figure 3.9-1 ensure that the reactivity of fuel assemblies introduced into Region II are conservatively within the assumptions of the safety analysis.

Administrative controls have been developed and instituted to verify that the enrichment and burn-up limits of Figure 3.9-1 have been maintained for the fuel assembly.

During normal Spent Fuel Pool operation, the spent fuel racks are capable of maintaining k_{eff} at less than 0.95 in an unborated water environment due to the geometry of the rack spacing and the presence of Boraflex neutron absorber in the spent fuel racks. Due to radiation induced embrittlement, there is a possibility that the Boraflex absorber could degrade following a seismic event. At least 1500 ppm boron in the Spent Fuel Pool is required in anticipation that a seismic event could cause a complete loss of all Boraflex. If, in addition to a loss of Boraflex, a single misplaced fuel assembly is postulated, then a minimum of 1750 ppm boron is required. The 1750 ppm boron concentration requirement bounds conditions for a loss of all Boraflex in the fuel racks.

3/4.9.13 SPENT FUEL POOL - REACTIVITY (continued)

The action requirements of this specification recognize the possibility of a seismic event which could degrade the Boraflex neutron absorber in the spent fuel racks. Seismic analysis has shown that there is a possibility that the Boraflex absorber could degrade following a seismic event greater in magnitude than an Operating Basis Earthquake (OBE). The action statement specifies that following a seismic event at the OBE level or greater, which is approximately one-half the Safe Shutdown Earthquake (SSE) level, action will be taken to determine the condition of the Boraflex. Once a seismic event of greater than or equal to an OBE has occurred, then the boron in the Spent Fuel Pool will be credited to maintain k_{eff} less than or equal to 0.95. The specification requires that dilution paths to the Spent Fuel Pool be closed and administratively controlled until the racks can be inspected and the condition of the Boraflex can be determined. The specification also assumes that piping systems external to the Spent Fuel Pool are mounted such that they remain leak tight following an earthquake up to the level of an SSE, or will not direct water into the Spent Fuel Pool should they leak, or have been isolated from flow to prevent leakage into the Spent Fuel Pool.

3/4.9.14 SPENT FUEL POOL - STORAGE PATTERN

The limitations of this specification ensure that the reactivity conditions of the Region I storage racks and spent fuel pool k_{eff} will remain less than or equal to 0.95.

The Cell Blocking Devices in the 4th location of the Region I storage racks are designed to prevent inadvertent placement and/or storage of fuel assemblies in the blocked locations. The blocked location remains empty to provide the flux trap to maintain reactivity control for fuel assemblies in adjacent and diagonal locations of the STORAGE PATTERN.

STORAGE PATTERN for the Region I storage racks will be established and expanded from the walls of the spent fuel pool per Figure 3.9-2 to ensure definition and control of the Region I/Region II boundary and minimize the number of boundaries where a fuel misplacement incident can occur.

Docket No. 50-423
B18116

Attachment 5

Millstone Nuclear Power Station, Unit No. 3

Technical Specifications Change Request 3-6-00
Fuel Handling Accidents and Ventilation Systems
Fuel Handling Accident Analyses Calculations

Technical Specifications Change Request 3-6-00
Fuel Handling Accidents and Ventilation Systems
Fuel Handling Accident Analyses Calculations

The following calculations supports the proposed changes to the Millstone Unit No. 3 Technical Specifications associated with the revised analyses of the fuel handling accident inside containment and the fuel handling accident in the spent fuel pool area. A copy of each calculation is included for your use.

1.	M3FHA-01791-R3 Rev. 0	MP3 - Fuel Handling Accident In Containment - 10 Minute Closure Time
2.	M3FHA-01792-R3 Rev. 0	MP3 - Fuel Handling Accident In The Fuel Building