

December 10, 2003

Mr. David A. Christian  
Sr. Vice President and Chief Nuclear Officer  
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5000 Dominion Boulevard  
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SUBJECT: MILLSTONE POWER STATION, UNIT NO. 3 - ISSUANCE OF AMENDMENT  
RE: ELIMINATION OF 'N-1' LOOP OPERATION FROM TECHNICAL  
SPECIFICATIONS (TAC NO. MB6944)

Dear Mr. Christian:

The U.S. Nuclear Regulatory Commission has issued the enclosed Amendment No. 217 to Facility Operating License No. NPF-49 for the Millstone Power Station, Unit No. 3 (MP3) in response to your application dated December 11, 2002, as supplemented by letter dated June 24, 2003.

The amendment requested a revision to selected Technical Specifications (TSs) to MP3. Specifically, the proposed changes delete TS requirements associated with 'N-1' loop (three loop operation), delete references to four loop operation, add requirements to maintain Reactor Coolant System (RCS) loop stop valves open at all times during MODES 1 through 4, and require that each RCS loop be maintained OPERABLE at all times during MODES 1 and 2.

A copy of the related Safety Evaluation is also enclosed. Notice of Issuance will be included in the Commission's biweekly Federal Register notice.

Sincerely,

*/RA/*

Victor Nerses, Senior Project Manager, Section 2  
Project Directorate I  
Division of Licensing Project Management  
Office of Nuclear Reactor Regulation

Docket No. 50-423

Enclosures: 1. Amendment No. 217 to NPF-49  
2. Safety Evaluation

cc w/encls: See next page

Millstone Power Station  
Unit 3

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Millstone Power Station  
Unit 3

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The amendment requested a revision to selected Technical Specifications (TSs) to MP3. Specifically, the proposed changes delete TS requirements associated with 'N-1' loop (three loop operation), delete references to four loop operation, add requirements to maintain Reactor Coolant System (RCS) loop stop valves open at all times during MODES 1 through 4, and require that each RCS loop be maintained OPERABLE at all times during MODES 1 and 2.

A copy of the related Safety Evaluation is also enclosed. Notice of Issuance will be included in the Commission's biweekly Federal Register notice.

Sincerely,

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Victor Nerses, Senior Project Manager, Section 2  
Project Directorate I  
Division of Licensing Project Management  
Office of Nuclear Reactor Regulation

Docket No. 50-423

Enclosures: 1. Amendment No. 217 to NPF-49  
2. Safety Evaluation

cc w/encls: See next page

DISTRIBUTION:

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EAdensam	CRaynor	BMcDermott, RI	Tech Branch
GHill (2)	WBeckner	JClifford	VNerses

ADAMS Accession Numbers: Package: ML033220593; Amendment: ML033220592;  
TS(s): ML \*SE input provided, no major changes

OFFICE	PDI-2/PM	PDI-2/LA	TSS/SC	SRXB/SC	OGC	PDI-2/SC
NAME	VNerses	CRaynor	TBoyce*	JUhle*	AHodgdon	DRoberts for JClifford
DATE	12/09/03	11/19/03	9/25/2003	9/25/2003	12/09/03	12/10/03

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DOMINION NUCLEAR CONNECTICUT, INC., ET AL.

DOCKET NO. 50-423

MILLSTONE POWER STATION, UNIT NO. 3

AMENDMENT TO FACILITY OPERATING LICENSE

Amendment No. 217  
License No. NPF-49

1. The Nuclear Regulatory Commission (the Commission) has found that:
  - A. The application for amendment by the applicant dated December 11, 2002, as supplemented by letter dated June 24, 2003, complies with the standards and requirements of the Atomic Energy Act of 1954, as amended (the Act), and the Commission's rules and regulations set forth in 10 CFR Chapter I;
  - B. The facility will operate in conformity with the application, the provisions of the Act, and the rules and regulations of the Commission;
  - C. There is reasonable assurance (i) that the activities authorized by this amendment can be conducted without endangering the health and safety of the public, and (ii) that such activities will be conducted in compliance with the Commission's regulations;
  - D. The issuance of this amendment will not be inimical to the common defense and security or to the health and safety of the public; and
  - E. The issuance of this amendment is in accordance with 10 CFR Part 51 of the Commission's regulations and all applicable requirements have been satisfied.

2. Accordingly, the license is amended by changes to the Technical Specifications as indicated in the attachment to this license amendment, and paragraph 2.C.(2) of Facility Operating License No. NPF-49 is hereby amended to read as follows:

(2) Technical Specifications

The Technical Specifications contained in Appendix A, as revised through Amendment No. 217, and the Environmental Protection Plan contained in Appendix B, both of which are attached hereto, are hereby incorporated in the license. Dominion Nuclear Connecticut, Inc. shall operate the facility in accordance with the Technical Specifications and the Environmental Protection Plan.

3. This license amendment is effective as of the date of issuance, and shall be implemented within 90 days of issuance.

FOR THE NUCLEAR REGULATORY COMMISSION

*/RA by DRoberts for/*

James W. Clifford, Chief, Section 2  
Project Directorate I  
Division of Licensing Project Management  
Office of Nuclear Reactor Regulation

Attachment: Changes to the Technical  
Specifications

Date of Issuance: December 10, 2003

ATTACHMENT TO LICENSE AMENDMENT NO. 217

FACILITY OPERATING LICENSE NO. NPF-49

DOCKET NO. 50-423

Replace the following pages of the Appendix A Technical Specifications, with the attached revised pages. The revised pages are identified by amendment number and contain marginal lines indicating the areas of change.

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SAFETY EVALUATION BY THE OFFICE OF NUCLEAR REACTOR REGULATION

RELATED TO AMENDMENT NO. 217

TO FACILITY OPERATING LICENSE NO. NPF-49

DOMINION NUCLEAR CONNECTICUT, INC.

MILLSTONE POWER STATION, UNIT NO. 3

DOCKET NO. 50-423

1.0 INTRODUCTION

By letter dated December 11, 2002 (Reference 1), as supplemented by letter dated June 24, 2003 (Reference 2), Dominion Nuclear Connecticut, Inc. (DNC or the licensee), submitted a request to revise selected Technical Specifications (TSs) for Millstone Power Station, Unit No. 3 (MP3). The requested changes eliminate TS requirements associated with 'N-1' loop operation, also known as three loop operation, from the MP3 TSs. The June 24, 2003, letter provided clarifying information that did not change the initial proposed no significant hazards consideration determination. MP3 was designed and constructed with loop stop valves such that each of the four reactor coolant loops could be isolated from the remaining three loops. By letter dated November 16, 1987 (Reference 3), the Nuclear Regulatory Commission (NRC or the Commission) issued its safety evaluation regarding the acceptability of continued plant operation of MP3 with one reactor coolant loop isolated and out of service ('N-1' loop operation). By letter dated January 12, 1998 (Reference 4), Northeast Nuclear Energy Company (the licensee at that time) notified the NRC of their intent to modify the MP3 licensing bases to remove the option of 'N-1' loop operation. The bases for this decision was the fact that MP3 never needed nor utilized 'N-1' loop operation, and that the licensee did not complete all of the necessary procedure modifications to support 'N-1' loop operation. As a result, the proposed changes delete TS requirements associated with 'N-1' loop operation, delete references to four loop operation, add requirements to maintain Reactor Coolant System (RCS) loop stop valves open at all times during MODES 1 through 4, and require that each RCS loop be maintained OPERABLE at all times during MODES 1 and 2.

2.0 REGULATORY EVALUATION

The Commission's regulatory requirements related to the content of TSs are set forth in Title 10 of the *Code of Federal Regulations* (10 CFR) Section 50.36. This regulation requires that the TSs include items in five specific categories. These categories include: 1) safety limits, limiting safety system settings and limiting control settings; 2) limiting conditions for operation (LCOs);

3) surveillance requirements (SRs); 4) design features; and 5) administrative controls. However, the regulation does not specify the particular TSs to be included in a plant's license.

Additionally, 10 CFR 50.36(c)(2)(ii) sets forth four criteria to be used in determining whether an LCO is required to be included in the TSs. These criteria are as follows:

- (a) Installed instrumentation that is used to detect, and indicate in the control room, a significant abnormal degradation of the reactor coolant pressure boundary.
- (b) A process variable, design feature, or operating restriction that is an initial condition of a design basis accident [DBA] or transient analysis that either assumes the failure of, or presents a challenge to, the integrity of a fission product barrier.
- (c) A structure, system, or component [SSC] that is part of the primary success path and which functions or actuates to mitigate a design basis accident or transient that either assumes the failure of or presents a challenge to the integrity of a fission product barrier.
- (d) A structure, system or component which operating experience or probabilistic risk assessment has shown to be significant to public health and safety.

Existing LCOs included as TS requirements that satisfy any of the criteria stated above must be retained in the TSs. Those TS requirements that do not satisfy these criteria may be relocated to other, licensee-controlled documents. In its submittal, the licensee requested that only TSs 3.2.1.2, "Axial Flux Difference Three loops Operating;" 3.2.2.2, "Heat Flux Hot Channel Factor -  $F_Q(Z)$  Three loops Operating;" and 3.10.2.2, "Group Height, Insertion, and Power Distribution Limits Three loops Operating" be deleted in their entirety and not relocated to other licensee-controlled documents. The proposed changes to the TSs are discussed below.

### 3.0 TECHNICAL EVALUATION

The licensee has proposed to eliminate the option of plant operation with a 'N-1' configuration from the MP3 licensing basis and associated TSs. The licensee specifically requested to: 1) delete the TS requirements associated with 'N-1' loop plant operation, including deleting references to four loop operation; 2) add requirements to maintain RCS loop stop valves open at all times during MODES 1 through 4; and 3) require that each RCS loop be maintained OPERABLE at all times during MODES 1 and 2. The bases and index for these TSs will also be modified to reflect these changes.

#### 3.1 Deletion of 'N-1' Loop Operation

The licensee has proposed the following changes consistent with the elimination of TS information which addresses 'N-1' loop operation. In addition, specific references to four loop operation are also being eliminated. These references were only used to distinguish between 'N-1' and four loop operation. The staff evaluated each of the proposed changes, as discussed below.

TS 2.1.1, "Reactor Core Safety Limits," establishes the requirements for the reactor core Safety Limit in MODES 1 and 2. The licensee proposed the following modifications to the reactor core safety limit:

1. TS 2.1.1 - Delete reference to four loop operation and delete reference to Figure 2.1-2, "Reactor Core Safety Limit - Three Loops in Operation," for three loop operation. TS 2.1.1 will state "The combination of THERMAL POWER, pressurizer pressure, and the highest operating loop coolant temperature ( $T_{avg}$ ) shall not exceed the limits shown in Figure 2.1.1."
2. TS Figure 2.1-1, "Reactor Core Safety Limit - Four Loops in Operation," - Delete "Four Loops in Operation" from the title.
3. TS Figure 2.1-2 - Delete figure and replace with "This page intentionally left blank."

TS 2.2.1 establishes the requirements for the reactor trip system (RTS) instrumentation setpoints. The licensee proposed the following modifications to Table 2.2-1, "Reactor Trip System Instrumentation Trip Setpoints," of TS 2.2.1:

1. Delete reference to four loops operating in Functional Unit 2.a (Power Range, Neutron Flux - High Setpoint), and delete the nominal trip setpoint and allowable value for three loops operating in Functional Unit 2.a.2. The nominal trip setpoint and allowable value for four loops operating has not changed with this proposed modification.
2. Delete reference to four loops operating in Functional Unit 7.a (Overtemperature  $\Delta T$ ), and delete Functional Unit 7.b which refers to three loops operating. Functional Unit 7.a is reformatted to become Functional Unit 7. The nominal trip setpoint and allowable value for four loops operating has not changed with this proposed modification.
3. Delete reference to four loops operating in Functional Unit 8 (Overpower  $\Delta T$ ). The nominal trip setpoint and allowable value for four loops operating has not changed with this proposed modification.
4. Delete reference in \* footnote to four loops operating and delete minimum measured flow per loop requirements for three loops operating. TS Table 2.2.1 footnote will state "Minimum Measured Flow Per Loop = 1/4 of the RCS Flow Rate Limit as listed in Section 3.2.3.1.a."
5. Delete reference to four loops operating in Functional Unit 18.c (Reactor Trip System Interlocks - Power Range Neutron Flux, P7) and delete the nominal trip setpoint and allowable value for three loops operating in Functional Unit 18.c. The nominal trip setpoint and allowable value for four loops operating has not changed with this proposed modification.
6. Delete Functional Unit 21 (Three loop Operation Bypass Circuitry) and replace with 'Deleted'.

7. Table Notations - Note 1 - Delete reference to four loops operating and delete  $K_1$  value for three loops operating.

TS 3.1.1.1.1, "Reactivity Control Systems - Boration Control - Shutdown Margin - MODES 1 and 2," establishes the requirements for Shutdown Margin in MODES 1 and 2. The licensee proposed the following modification to LCO 3.1.1.1.1:

TS 3.1.1.1.1 - Delete phrase "for both four loop and three loop operation" from the LCO statement. LCO 3.1.1.1.1 will state "The SHUTDOWN MARGIN shall be greater than or equal to 1.3%  $\Delta k/k$ ."

TS 3.1.1.1.2, "Reactivity Control Systems - Boration Control - Shutdown Margin - MODES 3, 4, and 5 Loops Filled," establishes the requirements for Shutdown Margin for MODES 3, 4, and 5 Loops Filled. The licensee proposed the following modifications to TS 3.1.1.1.2:

1. TS 3.1.1.1.2 - Delete reference to four loop operation and delete reference to Figure 3.1-2 for three loop operation from the LCO statement. LCO 3.1.1.1.2 will state "The SHUTDOWN MARGIN shall be greater than or equal to the limits shown in Figures 3.1-1, 3.1-3, and 3.1-4.\*"
2. TS Figure 3.1-1, "Required Shutdown for MODE 3 with Four loops in Operation" - Delete "With Four loops in Operation" from title.
3. TS Figure 3.1-2, "Required Shutdown Margin for MODE 3 with Three loops in Operation" - Delete figure and replace with "This page intentionally left blank."

TS 3.1.3.1, "Movable Control Assemblies - Group Height," establishes the requirements for movable control assembly group height in MODES 1 and 2. The licensee proposed the following modifications to the Action Statements of TS 3.1.3.1:

1. Delete phrase "With four loops operating, the" from TS 3.1.3.1 Action b.3.d. Action b.3.d will state "THERMAL POWER level is reduced to less than or equal to 75% of RATED THERMAL POWER within the next hour and within the following 4 hours the High Neutron Flux Trip Setpoint is reduced to less than or equal to 85% of RATED THERMAL POWER."
2. Delete TS 3.1.3.1 Action b.3.e, which discusses required actions with three loops operating.

TS 3.1.3.2, "Reactivity Control Systems - Position Indication Systems - Operating," establishes the requirements for the digital rod position indication system and the demand position indication system in MODES 1 and 2. The licensee proposed the following modifications to the Action Statements of TS 3.1.3.2:

1. Delete phrase "With four loops operating," from TS 3.1.3.2 Actions a.2 and b.2. Actions a.2 and b.2 will state "Reduce THERMAL POWER to less than 50% of RATED THERMAL POWER within 8 hours."

2. Delete TS 3.1.3.2 Actions a.3 and b.3 which discuss required actions with three loops operating.

TS 3.2.1.1, "Power Distribution Limits - Axial Flux Difference - Four loops Operating," establishes the requirements for the axial flux difference for four loops operating in MODE 1 above 50% RATED THERMAL POWER. The licensee proposed the following modification to the TS 3.2.1.1 title:

TS 3.2.1.1 - Delete "Four loops Operating" from the title.

TS 3.2.2.1, "Power Distribution Limits - Heat Flux Hot Channel Factor -  $F_Q(Z)$  - Four loops Operating," establishes the requirements for the heat flux hot channel factor for four loops operating in MODE 1. The licensee proposed the following modification to the TS 3.2.2.1 title:

TS 3.2.2.1 - Delete "Four loops Operating" from the title.

TS 3.2.3.1, "RCS Flow Rate and Nuclear Enthalpy Rise Hot Channel Factor - Four loops Operating," establishes the requirements for the RCS flow rate and nuclear enthalpy rise hot channel factor for four loops operating in MODE 1. The licensee proposed the following modification to the title of TS 3.2.3.1:

TS 3.2.3.1 - Delete "Four loops Operating" from the title.

TS 3.2.5 establishes the requirements for the departure from nucleate boiling (DNB) parameters in MODE 1. The limits for the DNB parameters are listed on Table 3.2-1, "DNB Parameters." The licensee has proposed the following modifications to Table 3.2-1:

Delete reference to four loops operating and delete the indicated reactor coolant system  $T_{avg}$  and indicated pressurizer pressure values for three loops operating. The indicated reactor coolant system  $T_{avg}$  and indicated pressurizer pressure values for four loops operating has not changed with the proposed modification.

TS 3.3.1 establishes the requirements for the reactor trip system instrumentation channels and interlocks as listed in Table 3.3-1, "Reactor Trip System Instrumentation." The licensee has proposed the following modifications to Table 3.3-1:

1. Delete reference to four loops operating in Functional Unit 7 (Overtemperature  $\Delta T$ ) and delete total number of channels, channels to trip, minimum channels operable, applicable MODES and actions for three loops operating in Functional Unit 7. The total number of channels, channels to trip, minimum channels operable, applicable MODES and actions for four loops operating in Functional Unit 7 has not changed with the proposed modifications.
2. Delete reference to four loops operating in Functional Unit 8 (Overpower  $\Delta T$ ) and delete total number of channels, channels to trip, minimum channels operable, applicable MODES and actions for three loops operating in Functional Unit 8. The total number of channels, channels to trip, minimum channels operable, applicable MODES and actions for four loops operating in Functional Unit 8 has not changed with the proposed modifications.

3. Delete phrase "in each operating loop" in the total number of channels and minimum channels operable columns in Functional Units 12.a (Reactor Coolant Flow -- Low - Single Loop (Above P-8)), 12.b (Reactor Coolant Flow -- Low - Two Loops (Above P-7 and below P-8)), and 13 (Steam Generator Water Level -- Low-Low). Delete phrase "in any operating loop" in channels to trip for Functional Unit 12.a. Delete phrase "in any operating steam generator" in channels to trip for Functional Unit 13.

The licensee did not propose any modifications to Functional Unit 12.b - channels to trip. The current requirement states "2/loop in two operating loops." This is because an automatic Reactor trip will occur if the flow in more than one loop drops below 90% of nominal full loop full when power is above P-7 and below P-8. Therefore, no changes are necessary to Functional Unit 12.b.

4. Delete reference to four loops operating in Functional Unit 14 (Low Shaft Speed -- Reactor Coolant Pumps) and delete total number of channels, channels to trip, minimum channels operable, applicable MODES and actions for three loops operating in Functional Unit 14. The total number of channels, channels to trip, minimum channels operable, applicable MODES and actions for four loops operating in Functional Unit 14 has not changed with the proposed modifications.
5. Delete Functional Unit 20 (Three loop Operation - Bypass Circuitry) and replace with "Deleted."
6. TS Table 3.3-1 Table Notations - Action 2.c currently states:

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:

- c. Either, THERMAL POWER is restricted to less than or equal to 75% of RATED THERMAL POWER for four loop operation or 50% of RATED THERMAL POWER for three loop operation and the Power Range Neutron Flux Trip Setpoint is reduced to less than or equal to 85% of RATED THERMAL POWER for four loop operation or 60% of RATED THERMAL POWER for three loop operation within 4 hours; or, the QUADRANT POWER TILT RATIO is monitored at least once per 12 hours per Specification 4.2.4.2.

The licensee proposes to delete all references to four and three loop operation such that Action 2.c will read as follows:

- c. Either, THERMAL POWER is restricted to less than or equal to 75% of RATED THERMAL POWER and the Power Range Neutron Flux Trip Setpoint is reduced to less than or equal to 85% of RATED THERMAL POWER within 4 hours; or, the QUADRANT POWER TILT RATIO is monitored at least once per 12 hours per Specification 4.2.4.2.

TS 3.3.1 establishes the requirements for the reactor trip system instrumentation channels and interlocks as listed in Table 3.3-1. The licensee has proposed the following modifications to Table 4.3-1:

TS Table 4.3.1, "Reactor Trip System Instrumentation Surveillance Requirements" - Delete Functional Unit 20 (Three loop Operation - Bypass Circuitry) and replace with "Deleted."

TS 3.3.2 establishes the requirements for the Engineered Safety Features Actuation System Instrumentation as listed in Table 3.3-3, "Engineered Safety Features Actuation System Instrumentation." The licensee has proposed the following modifications to Tables 3.3-3 and 3.3-4, "Engineered Safety Features Actuation System Instrumentation Trip Setpoints":

1. TS Table 3.3-3 - Delete reference to four loops operating in Functional Unit 5.d ( $T_{ave}$  Low Coincident with P-4) and delete total number of channels, channels to trip, minimum channels operable, applicable MODES and actions for three loops operating in Functional Unit 5.d. The total number of channels, channels to trip, minimum channels operable, applicable MODES and actions for four loops operating in Functional Unit 5.d has not changed with the proposed modifications.
2. TS Table 3.3-4 - Delete reference to four loops operating in Functional Unit 5.d ( $T_{ave}$  Low Coincident with Reactor Trip (P-4)) and delete Normal Trip Setpoint and Allowable Value for three loops operating in Functional Unit 5.d. The Nominal Trip Setpoint and Allowable Value for four loops operating in Functional Unit 5.d has not changed with the proposed modifications.

TS 3.3.5 establishes the requirements for the shutdown margin monitor in MODES 3, 4, and 5. The licensee proposed the following modification to LCO 3.3.5.b.1:

LCO 3.3.5.b.1 currently requires the following:

"Two channels of Shutdown Margin Monitors shall be OPERABLE

b. If the minimum count rate in Specification 3.3.5.a cannot be met, then the Shutdown Margin Monitors may be made operable with a lower minimum count rate, as specified in the COLR [core operating limit report], by borating the Reactor Coolant System above the requirements of Specification 3.1.1.1.2 or 3.1.1.2. The additional boration shall be:

1. A minimum of 150 ppm above the SHUTDOWN MARGIN requirements of Figure 3.1-1 (MODE 3 - 4 loops in operation) and Figure 3.1-2 (MODE 3 - 3 loops in operation), or...

The licensee proposed to delete the reference to four loops in operation and delete the reference to Figure 3.1-2 such that LCO 3.5.5.b.1 shall state:

1. A minimum of 150 ppm above the SHUTDOWN MARGIN requirements of Figure 3.1-1 (MODE 3), or...

TS 3.7.1.1 establishes the requirements for the main steam line code safety valves in MODES 1, 2, and 3. The licensee has proposed the following modifications to TS 3.7.1.1:

1. LCO 3.7.1.1 currently requires that “All main steam line Code safety valves associated with each steam generator of an unisolated reactor coolant loop shall be OPERABLE with lift settings as specified in Table 3.7-3.”

The licensee proposes to delete the reference to unisolated reactor coolant loop since no isolated reactor coolant loop will be allowed with the deletion of ‘N-1’ operation. LCO 3.7.1.1 will be revised to state that “All main steam line Code safety valves shall be OPERABLE with lift settings as specified in Table 3.7-3.”

2. LCO 3.7.1.1 Action a. provides the requirements for one or more main steam line Code safety valves inoperable while four reactor coolant loops and associated steam generators are in operation. The licensee proposed to delete the reference to four loops in operation.

The proposed wording of LCO 3.7.1.1 Action a. shall be: “With one or more main steam line Code safety valves inoperable, operation in MODES 1, 2, and 3 may proceed provided, that within 4 hours, either the inoperable valve is restored to OPERABLE status or the Power Range Neutron Flux High Trip Setpoint is reduced per Table 3.7-1; otherwise, be in at least HOT STANDBY within the next 6 hours and in HOT SHUTDOWN within the following 6 hours.”

3. LCO 3.7.1.1 Action b. provides the requirements for one or more main steam line Code safety valves inoperable while three reactor coolant loops and associated steam generators are in operation. The licensee proposed to delete LCO 3.7.1.1 Action b. since operation in ‘N-1’ loops is being eliminated from the licensing basis. This includes deletion of the reference to Table 3.7-2, which will also be deleted.
4. TS Table 3.7-1, “Maximum Allowable Power Range Neutron Flux High Setpoint with Inoperable Steam Line Safety Valves During Four loop Operation” - Delete the reference to four loop operation in the title of Table 3.7-1.
5. TS Table 3.7-2, “Maximum Allowable Power Range Neutron Flux High Setpoint with Inoperable Steam Line Safety Valves During Three loop Operation” - Delete this table since ‘N-1’ operation is being eliminated from the licensing bases.

TS 3.10.2.1 establishes the special test exceptions for group height, insertion and power distribution limits for four loops operating in MODE 1. The licensee has proposed the following modification to the title of TS 3.10.2.1:

TS 3/4.10.2, “Group Height, Insertion, and Power Distribution Limits Four loops Operating” - Delete the reference to four loops operating in the title of this specification.

The staff reviewed and evaluated the proposed changes in Section 3.1 of this Safety Evaluation (SE), as discussed above. The staff determined that the proposed changes are administrative (non-technical) which do not result in new requirements, nor change operational restrictions and flexibility. As discussed above, these administrative changes are editorial in nature or involve the reorganization or reformatting of current TS requirements without affecting technical content or operational restrictions. Therefore, the staff finds the proposed changes to be acceptable.



### 3.2 Deletion of Three loops Operating TSs

The licensee proposed to delete the following TSs in their entirety. The deletion of these TSs is a more restrictive change because the licensee will no longer have the flexibility to operate at RATED THERMAL POWER with only three loops in operation. The staff considers changes to be more restrictive when the proposed changes result in added restrictions or reduced flexibility.

TS 3.2.1.2, "Power Distribution Limits - Axial Flux Difference - Three loops Operating," establishes the requirements for the axial flux difference for three loops operating in MODE 1 above 37.5% of RATED THERMAL POWER. The licensee proposed to delete this specification in its entirety.

TS 3.2.1.2 - Delete the entire Specification 3.2.1.2 (including the Applicability, Actions and Surveillance Requirements) because the ability to be in 'N-1' loop operation is being removed from the licensing bases. TS 3.2.1.2 will be replaced by "This page intentionally left blank."

TS 3.2.2.2, "Power Distribution Limits - Heat Flux Hot Channel Factor -  $F_Q(Z)$  - Three loops Operating," establishes the requirements for the heat flux hot channel factor for three loops operating in MODE 1. The licensee proposed to delete this specification in its entirety.

TS 3.2.2.2 - Delete the entire Specification 3.2.2.2 (including the Applicability, Actions and Surveillance Requirements) because the ability to be in 'N-1' loop operation is being removed from the licensing bases. TS 3.2.2.2 will be replaced by "This page intentionally left blank."

TS 3.2.3.2, "RCS Flow Rate and Nuclear Enthalpy Rise Hot Channel Factor - Three loops Operation," establishes the requirements for the RCS flow rate and nuclear enthalpy rise hot channel factor for three loops operating in MODE 1. The licensee proposed to delete this specification in its entirety.

TS 3.2.3.2 - Delete the entire Specification 3.2.3.2 (including the Applicability, Actions and Surveillance Requirements) because the ability to be in 'N-1' loop operation is being removed from the licensing bases. TS 3.2.3.2 will be replaced by "This page intentionally left blank."

TS 3.10.2.2, "Group Height, Insertion, and Power Distribution Limits Three loops Operating," establishes the special test exceptions for group height, insertion and power distribution limits for three loops operating in MODE 1. The licensee has proposed to delete TS 3.10.2.2 in its entirety.

TS 3.10.2.2 - Delete the entire Specification 3.10.2.2 (including the Applicability, Actions and Surveillance Requirements) because the ability to be in 'N-1' loop operation is being removed from the licensing bases. TS 3.10.2.2 will be replaced by "This page intentionally left blank."

The staff reviewed and evaluated the proposed more restrictive changes. The staff determined that TSs 3.2.1.2, 3.2.2.2, 3.2.3.2, and 3.10.2.2 are not: 1) installed instrumentation that is used to detect, and indicate in the control room, a significant abnormal degradation of the reactor

coolant pressure boundary; 2) an SSC that is part of the primary success path and which functions or actuates to mitigate a DBA or transient that either assumes the failure of or presents a challenge to the integrity of a fission product barrier; or 3) an SSC which operating experience or probabilistic risk assessment has shown to be significant to public health and safety. Therefore, TSs 3.2.1.2, 3.2.2.2, 3.2.3.2, and 3.10.2.2 do not meet criteria 1, 3 or 4 of 10 CFR 50.36(c)(2)(ii) and can be removed from the current TSs.

Under three loop operation, TSs 3.2.1.2, 3.2.2.2, 3.2.3.2, and 3.10.2.2 are a process variable, design feature, or operating restriction that is an initial condition of a DBA or transient analysis that either assumes the failure of, or presents a challenge to, the integrity of a fission product barrier. However, the licensee is proposing to delete operation with only three loops in operations. Since these specifications will no longer meet criterion 2 of 10 CFR 50.36(c)(2)(ii), they can be removed from the current TSs. Therefore, the staff finds the proposed changes to be acceptable.

### 3.3 Changes to TS 3/4.4.1

TS 3.4.1.1 establishes the requirements for startup and power operation for MODES 1 and 2 except for special test exceptions in Specification 3.10.4. TS 3.4.1.1 requires that all reactor coolant loops be in operation or three reactor coolant loops in operation with THERMAL POWER restricted to less than or equal to 65% of RATED THERMAL POWER. The licensee has proposed changes to TS 3.4.1.1 consistent with the deletion of 'N-1' loop operation. Specifically, the licensee proposed to delete "Either: a" from the LCO statement; replace "All" with "Four;" add "OPERABLE and" to the LCO statement; and delete LCO 3.4.1.1.b. LCO 3.4.1.1 will state "Four reactor coolant loops shall be OPERABLE and in operation."

The staff reviewed the proposed changes and determined that the proposed changes are administrative and more restrictive in nature. The proposed changes require the plant to operate in MODES 1 and 2 with all reactor coolant loops operating and capable of providing heat removal from the reactor. Therefore, the staff concludes that the proposed changes to TS 3.4.1.1 enhance safety and are acceptable. In addition, the staff notes that the proposed LCO wording is consistent with NUREG-1431, "Standard Technical Specifications (STS) Westinghouse Plants."

### 3.4 Changes to TS 3/4.1.5

MP3 is designed with reactor coolant loop stop valves. These valves are used to perform maintenance on an isolated loop during plant shutdown. However, plant operation in MODES 1, 2, 3 and 4 with a loop isolated will not be permitted, except for accident mitigation. The licensee proposed to change the title from "Isolated Loop" to "Loop Stop Valves". LCO 3.4.1.5 currently requires that the RCS loop stop valves of an isolated loop be shut with power removed from each valve operator while operating in MODES 1, 2, 3 and 4. These requirements are intended to maintain the positive closure of the stop valves in the isolated loop while the plant is operated at 'N-1' loop conditions. Consistent with the elimination of 'N-1' loop operation at MP3, the licensee proposes to modify this LCO to require that each RCS loop stop valve be open with power removed during operation in MODES 1, 2, 3, and 4. This modified TS will assure that all loop stop valves stay in their open positions to provide flow paths for four loop operation in MODES 1, 2, 3, and 4. LCO 3.4.1.5 will state "Each RCS loop stop valve shall be open and the power removed from the valve operator." The staff has reviewed the proposed changes and

finds them to be administrative in nature due to the deletion of 'N-1' from the licensing basis and, therefore, the proposed changes are acceptable.

The licensee proposed changes to Action statement for corrective actions or plant shutdown when LCO 3.4.1.5 requirements are not satisfied. Currently, the Action statement requires that "With the requirements of the above specification not satisfied: either shut the loop stop valves and remove power from the valve operators within one hour, or be in at least HOT STANDBY within the next 6 hours and in COLD SHUTDOWN within the following 30 hours." The licensee has proposed to replace the current Action statement with the following:

- a. With power available to one or more loop stop valve operators, remove power from the loop stop valve operators within 30 minutes or be in HOT STANDBY within the next 6 hours and COLD SHUTDOWN within the following 30 hours.
  - b.<sup>(1)</sup> With one or more RCS loop stop valves closed, maintain the valve(s) closed and be in HOT STANDBY within 6 hours and COLD SHUTDOWN within the next 30 hours.
- <sup>(1)</sup> All required actions of Action Statement 3.4.1.5.b shall be completed whenever this action is entered.

The proposed completion times for HOT STANDBY and COLD SHUTDOWN in Actions a. and b. are consistent with the current licensing basis and, therefore, are acceptable. Allowing 30 minutes to remove power to one or more loop stop valve operators in Action a. is reasonable for the required action and, therefore, is acceptable. The licensee also proposed footnote (1) to Action b. This footnote is acceptable because if a loop stop valve is closed in MODES 1 through 4, the affected loop must be fully isolated immediately and the plant placed in COLD SHUTDOWN. Opening the closed isolation valve in MODES 1 through 4 could result in colder water or water at a lower boron concentration being mixed with the operating RCS loops resulting in positive reactivity insertion. The Completion Time of Required Action b. allows time for borating the operating loops to a shutdown boration level such that the plant can be brought to HOT STANDBY within six hours and COLD SHUTDOWN within 36 hours. The allowed Completion Times are reasonable, based on operating experience, to reach the required plant conditions from full power conditions in an orderly manner and without challenging plant systems.

The licensee proposed to replace the current SR 4.4.1.5 with the following: "Verify each RCS loop stop valve is open and the power removed from the valve operator at least once per 31 days." The revised SR will adequately verify that LCO 3.4.1.5 is being met. In addition, the proposed frequency of the revised SR is consistent with the current licensing basis and, therefore, is acceptable.

The staff has reviewed the licensee proposed changes to TS 3.4.1.5 and finds that the modified TS enhances safety, and is appropriate for maintaining four loop operation at MP3. Therefore, the staff finds the proposed changes to TS 3.4.1.5 to be acceptable. Furthermore, the licensee's proposed changes to TS 3.4.1.5 are consistent with NUREG-1431.

### 3.5. Safety Analyses Relating to Elimination of 'N-1' Loop Operation

The licensee's proposed changes to TS 3.4.1.5 would require that all loop stop valves be open with power removed in MODES 1 through 4. This TS requirement will prevent plant operation in a configuration which is currently prohibited through the use of administrative controls. This change, together with the proposed changes to other TSs, will prohibit 'N-1' loop operation and ensure the existing safety analyses remain valid.

The licensee has reviewed Section 15 of the MP3 Final Safety Analysis Report (FSAR) to assure that the safety analyses of record are consistent with the elimination of 'N-1' loop operation. Almost all safety analyses were performed with all four loops operating at event initiation except the following:

- a) Section 15.4.1, "Uncontrolled Rod Withdraw from Subcritical Conditions" - For this event three loops are assumed to be in operation with all of the loop stop valves open. The licensee considers that this current safety analysis bounds the plant operating with all four loops in operation at the event initiation. This is because DNB is the major concern for this event and three loop operation with less RCS flow in the reactor will result in lower DNB ratio (DNBR) value. Therefore, to assume less RCS flow as an initial condition for the event is conservative.
- b) Section 15.4.6, "Boron Dilution" - For a MODE 3 boron dilution event, two cases were analyzed. One case assumed four loop operation and the other case assumed three loop operation. With the elimination of 'N-1' loop operation, the case with three loop operation will be deleted from the FSAR. The case with four loops in operation shall continue to remain valid.
- c) Section 15.4.4, "Startup of an Inactive [Reactor Coolant Pump] RCP" - This event was not analyzed in FSAR. This is because this event is precluded by existing TS 3.4.1.6 and administrative procedures. This TS is not being changed. Thus, no changes are required to FSAR Section 15.4.4.

The staff has reviewed the safety analyses in Section 15 of the FSAR and agrees with the licensee's assessment that the safety analyses of record for MP3 four loop operation, as described in the FSAR, will remain valid with the proposed TS changes. Therefore, the staff concludes that the licensee's proposed TS changes are consistent with the FSAR, with minor modifications discussed above, and they are acceptable.

## 4.0 STATE CONSULTATION

In accordance with the Commission's regulations, the Connecticut State official was notified of the proposed issuance of the amendment. The State official had no comments.

## 5.0 ENVIRONMENTAL CONSIDERATION

The amendment changes a requirement with respect to installation or use of a facility component located within the restricted area as defined in 10 CFR Part 20, and changes surveillance requirements. The NRC staff has determined that the amendment involves no significant increase in the amounts, and no significant change in the types, of any effluents that

may be released offsite, and that there is no significant increase in individual or cumulative occupational radiation exposure. The Commission has previously issued a proposed finding that the amendment involves no significant hazards consideration, and there has been no public comment on such finding (68 FR 2800). Accordingly, the amendment meets the eligibility criteria for categorical exclusion set forth in 10 CFR 51.22(c)(9). Pursuant to 10 CFR 51.22(b), no environmental impact statement or environmental assessment need be prepared in connection with the issuance of the amendment.

## 6.0 CONCLUSION

The Commission has concluded, based on the considerations discussed above, that: (1) there is reasonable assurance that the health and safety of the public will not be endangered by operation in the proposed manner; (2) such activities will be conducted in compliance with the Commission's regulations; and (3) the issuance of the amendment will not be inimical to the common defense and security or to the health and safety of the public.

## 7.0 REFERENCES

1. Price, J. A., DNC, to NRC, "Millstone Power Station, Unit 3 License Basis Document Change Request 3-13-02 Elimination of 'N-1' Loop Operation from Technical Specifications," December 11, 2002.
2. Price, J. A., DNC, to NRC, "Millstone Power Station, Unit 3 License Basis Document Change Request 3-13-02 Elimination of 'N-1' Loop Operation from Technical Specifications - Response to Request for Additional Information," June 24, 2003.
3. Ferguson, R. L., NRC, to D. J. Mroczka, Northeast Nuclear Energy Company, "Millstone Nuclear Power Station, Unit No. 3 - Three (N-1) Loop Operation," TAC No. 60387, dated November 16, 1987.
4. McElwain, J. P., Northeast Nuclear Energy Company, to NRC, "Millstone Nuclear Power Station, Unit No. 3, Modification of Licensing Bases for N-1 Loop Operation," January 12, 1998.

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