Dominion Resources Services, Inc.
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Dominion

February 11, 2004

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

Serial No.: 04-095
NL&OS/PRW R0
Docket No.: 50-423
License No.: NPF-49

DOMINION NUCLEAR CONNECTICUT, INC.
MILLSTONE POWER STATION UNIT 3
TRANSMITTAL OF TECHNICAL SPECIFICATION PAGES

In a letter dated April 7, 2003, and supplemented by letter dated September 18, 2003, Dominion Nuclear Connecticut, Inc. (DNC) proposed to amend Operating License NPF-49 by incorporating changes to the Millstone Power Station Unit 3 Technical Specifications. The proposed changes relocate some Technical Specification parameters to the Core Operating Limits Report (COLR) and update the description of analytical methods used to determine core operating limits.

Independently, the Nuclear Regulatory Commission (NRC) approved Amendment 217 to the Millstone Unit 3 operating license by letter dated December 10, 2003. The approval of this amendment resulted in changes to some of the pages affected by the proposed COLR amendment. Therefore, DNC is enclosing updated replacement pages to facilitate the issuance of the proposed COLR amendment.

There are no commitments contained within this letter.

Should you have any questions regarding this matter, please contact Mr. Paul R. Willoughby at 804-273-3572,

Very truly yours,

C. L. Funderburk
Director – Nuclear Licensing and Operations Support
Dominion Resources Services, Inc.
for Dominion Nuclear Connecticut, Inc.

Enclosure (1)

A001

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Enclosure 1

Replacement Pages for Amendment
Regarding Changes to Core Operating Limits Report Methods

INDEX

LIMITING CONDITIONS FOR OPERATION AND SURVEILLANCE REQUIREMENTS

INDEX

LIMITING CONDITIONS FOR OPERATION AND SURVEILLANCE REQUIREMENTS

TABLE 2.2-1 (Continued)
TABLE NOTATIONS

NOTE 1:OVERTEMPERATURE ΔT

$$\left(\frac{\Delta T}{\Delta T_0}\right)\frac{(1+\tau_1 s)}{(1+\tau_2 s)} \le K_1 - K_2\frac{(1+\tau_4 s)}{(1+\tau_5 s)}(T - T') + K_3(P - P') - f_1(\Delta I)$$

Where: ΔT is measured Reactor Coolant System ΔT, °F;

ΔT_0 is loop specific indicated ΔT at RATED THERMAL POWER, °F;

$\frac{(1+\tau_1 s)}{(1+\tau_2 s)}$ is the function generated by the lead-lag compensator on measured ΔT;

τ_1 and τ_2 are the time constants utilized in the lead-lag compensator for ΔT, $\tau_1 \ge$ [*] sec, $\tau_2 \le$ [*] sec;

$K_1 \le$ [*]

$K_2 \ge$ [*]/°F;

$\frac{(1+\tau_4 s)}{(1+\tau_5 s)}$ is the function generated by the lead-lag compensator for T_{avg};

τ_4 and τ_5 are the time constants utilized in the lead-lag compensator for T_{avg}, $\tau_4 \ge$ [*] sec, $\tau_5 \le$ [*] sec;

T is measured Reactor Coolant System average temperature, °F;

T' is loop specific indicated T_{avg} at RATED THERMAL POWER, ≤ [*]°F;

$K_3 \ge$ [*]/psi

P is measured pressurizer pressure, psia;

P' is nominal pressurizer pressure, ≥ [*] psia;

s is the Laplace transform operator, sec^{-1};

(The values denoted with [*] are specified in the COLR.)

TABLE 2.2-1 (Continued)

TABLE NOTATIONS

NOTE 1: (Continued)

and $f_1(\Delta I)$ is a function of the indicated difference between top and bottom detectors of the power range neutron ion chambers; with nominal gains to be selected based on measured instrument response during plant startup tests calibrations such that:

(1) For $q_t - q_b$ between [*]% and [*]%, $f_1, (\Delta I) \geq$ [*], where q_t and q_b are percent RATED THERMAL POWER in the upper and lower halves of the core, respectively, and $q_t + q_b$ is the total THERMAL POWER in percent RATED THERMAL POWER;

(2) For each percent that the magnitude of $q_t - q_b$ exceeds [*]%, the ΔT Trip Setpoint shall be automatically reduced by $\geq$ [*]% of its value at RATED THERMAL POWER.

(3) For each percent that the magnitude of $q_t - q_b$ exceeds [*]%, the ΔT Trip Setpoint shall be automatically reduced by $\geq$ [*]% of its value at RATED THERMAL POWER.

NOTE 2: The maximum channel as left trip setpoint shall not exceed its computed trip setpoint by more than the following:

(1) 0.4% ΔT span for the ΔT channel

(2) 0.4% ΔT span for the T_{avg} channel

(3) 0.4% ΔT span for the pressurizer pressure channel

(4) 0.8% ΔT span for the $f(\Delta I)$ channel

(The values denoted with [*] are specified in the COLR.)

TABLE 2.2-1 (Continued)

TABLE NOTATIONS

NOTE 3: OVERPOWER ΔT

$$\left(\frac{\Delta T}{\Delta T_0}\right)\frac{(1+\tau_1 s)}{(1+\tau_2 s)} \le K_4 - K_5\frac{(\tau_7 s)}{(1+\tau_7 s)}T - K_6(T - T'')$$

Where: ΔT is measured Reactor Coolant System ΔT, °F;

ΔT_0 is loop specific indicated ΔT at RATED THERMAL POWER, °F;

$\frac{(1+\tau_1 s)}{(1+\tau_2 s)}$ is the function generated by the lead-lag compensator on measured ΔT;

τ_1 and τ_2 are the time constants utilized in the lead-lag compensator for ΔT, $\tau_1 \ge$ [*] sec, $\tau_2 \le$ [*] sec;

$K_4 \le$ [*];

$K_5 \ge$ [*]/°F for increasing T_{avg} and $K_5 \le$ [*] for decreasing T_{avg};

$\frac{(\tau_7 s)}{(1+\tau_7 s)}$ is the function generated by the rate-lag compensator for T_{avg};

τ_7 is the time constant utilized in the rate-lag compensator for T_{avg}, $\tau_7 \ge$ [*] sec;

T is measured average Reactor Coolant System temperature, °F;

T" is loop specific indicated T_{avg} at RATED THERMAL POWER, ≤ [*]°F;

$K_6 \ge$ [*]/°F when T > T" and $K_6 \le$ [*]/°F when T ≤ T";

s is the Laplace transform operator, sec^{-1};

(The values denoted with [*] are specified in the COLR.)

3/4.1 REACTIVITY CONTROL SYSTEMS

3/4.1.1.1 BORATION CONTROL

SHUTDOWN MARGIN - MODES 1 AND 2

LIMITING CONDITION FOR OPERATION

3.1.1.1.1 The SHUTDOWN MARGIN shall be within the limits specified in the Core Operating Limits Report (COLR).

APPLICABILITY: MODES 1 and 2*.

ACTION:

With the SHUTDOWN MARGIN not within the limits specified in the COLR, immediately 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 equivalent until the required SHUTDOWN MARGIN is restored.

SURVEILLANCE REQUIREMENTS

4.1.1.1.1 The SHUTDOWN MARGIN shall be determined to be within the limits specified in the COLR:

a. Within 1 hour after detection of an inoperable control rod(s) and at least once per 12 hours thereafter while the rod(s) is inoperable. If the inoperable control rod is immovable or untrippable, the above required SHUTDOWN MARGIN shall be verified acceptable with an increased allowance for the withdrawn worth of the immovable or untrippable control rod(s);

b. When in MODE 1 or MODE 2 with K_{eff} greater than or equal to 1 at least once per 12 hours by verifying that control bank withdrawal is within the limits of Specification 3.1.3.6;

c. When in MODE 2 with K_{eff} less than 1, within 4 hours prior to achieving reactor criticality by verifying that the predicted critical control rod position is within the limits of Specification 3.1.3.6;

d. Prior to initial operation above 5% RATED THERMAL POWER after each fuel loading, by consideration of the factors of Specification 4.1.1.1.2, with the control banks at the maximum insertion limit of Specification 3.1.3.6; and

* See Special Test Exceptions Specification 3.10.1.

3/4.1 REACTIVITY CONTROL SYSTEMS

3/4.1.1 BORATION CONTROL

SHUTDOWN MARGIN - MODES 3, 4 AND 5 LOOPS FILLED

LIMITING CONDITION FOR OPERATION

3.1.1.1.2 The SHUTDOWN MARGIN shall be within the limits specified in the Core Operating Limits Report (COLR).*

APPLICABILITY: MODES 3, 4 and 5

ACTION:

With the SHUTDOWN MARGIN less than the required value, immediately 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 equivalent until the required SHUTDOWN MARGIN is restored.

SURVEILLANCE REQUIREMENTS

4.1.1.1.2.1 The SHUTDOWN MARGIN shall be determined to be within the limits specified in the COLR:

a. Within 1 hour after detection of an inoperable control rod(s) and at least once per 12 hours thereafter while the rod(s) is inoperable. If the inoperable control rod is immovable or untrippable, the above required SHUTDOWN MARGIN shall be verified acceptable with an increased allowance for the withdrawn worth of the immovable or untrippable control rod(s); and

b. At least once per 24 hours by consideration of the following factors:

1. Reactor Coolant System boron concentration,

2. Control rod position,

3. Reactor Coolant System average temperature,

4. Fuel burnup based on gross thermal energy generation,

5. Xenon concentration, and

6. Samarium concentration.

4.1.1.1.2.2 Valve 3CHS-V305 shall be verified closed and locked at least once per 31 days.

* Additional SHUTDOWN MARGIN requirements, if required, are given in Specification 3.3.5.

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REACTIVITY CONTROL SYSTEMS

SHUTDOWN MARGIN - COLD SHUTDOWN - LOOPS NOT FILLED

LIMITING CONDITION FOR OPERATION

3.1.1.2 The SHUTDOWN MARGIN shall be greater than or equal to

a. the limits specified in the CORE OPERATING LIMITS REPORT (COLR) for MODE 5 with RCS loops not filled* or

b. the limits specified in the COLR for MODE 5 with RCS loops filled* with the chemical and volume control system (CVCS) aligned to preclude reactor coolant system boron concentration reduction.

APPLICABILITY: MODE 5 LOOPS NOT FILLED

ACTION:

a. With the SHUTDOWN MARGIN less than the above, immediately 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 equivalent until the required SHUTDOWN MARGIN is restored.

b. With the CVCS dilution flow paths not closed and secured in position in accordance with Specification 3.1.1.2(b), immediately close and secure the paths or meet the limits specified in the COLR for MODE 5 with RCS loops not filled.

SURVEILLANCE REQUIREMENTS

4.1.1.2.1 The SHUTDOWN MARGIN shall be determined to be within the limits specified in the COLR:

a. Within 1 hour after detection of an inoperable control rod(s) and at least once per 12 hours thereafter while the rod(s) is inoperable. If the inoperable control rod is immovable or untrippable, the SHUTDOWN MARGIN shall be verified acceptable with an increased allowance for the withdrawn worth of the immovable or untrippable control rod(s); and

b. At least once per 24 hours by consideration of the following factors:

1. Reactor Coolant System boron concentration,

2. Control rod position,

3. Reactor Coolant System average temperature,

4. Fuel burnup based on gross thermal energy generation,

* Additional SHUTDOWN MARGIN requirements, if required, are given in Specification 3.3.5.

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POWER DISTRIBUTION LIMITS

3/4.2.5 DNB PARAMETERS

LIMITING CONDITION FOR OPERATION

3.2.5 The following DNB-related parameters shall be maintained within the limits specified in the CORE OPERATING LIMITS REPORT (COLR):

a. Reactor Coolant System T_{avg}, and

b. Pressurizer Pressure.

APPLICABILITY: MODE 1.

ACTION:

With any of the above parameters exceeding its limit, restore the parameter to within its limit within 2 hours or reduce THERMAL POWER to less than 5% of RATED THERMAL POWER within the next 4 hours.

SURVEILLANCE REQUIREMENTS

4.2.5 Each of the above DNB-related parameters shall be verified to be within the limits specified in the COLR at least once per 12 hours.

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INSTRUMENTATION

3/4.3.5 SHUTDOWN MARGIN MONITOR

LIMITING CONDITION FOR OPERATION

3.3.5 Two channels of Shutdown Margin Monitors shall be OPERABLE

a. With a minimum count rate as designated in the CORE OPERATING LIMITS REPORT (COLR), or

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, 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 specified in the COLR for MODE 3, or

2. A minimum of 350 ppm above the SHUTDOWN MARGIN requirements specified in the COLR for MODE 4, MODE 5 with RCS loops filled, and MODE 5 with RCS loops not filled.

APPLICABILITY: MODES 3*, 4, and 5.

ACTION:

a. With one Shutdown Margin Monitor inoperable, restore the inoperable channel to OPERABLE status within 48 hours.

b. With both Shutdown Margin Monitors inoperable or one Shutdown Margin Monitor inoperable for greater than 48 hours, immediately suspend all operations involving positive reactivity changes via dilution and rod withdrawal. Verify the valves listed in Specification 4.1.1.2.2 are closed and secured in position within the next 4 hours and at least once per 14 days thereafter.** Verify compliance with the SHUTDOWN MARGIN requirements of Specification 3.1.1.1.2 or 3.1.1.2, as applicable, within 1 hour and at least once per 12 hours thereafter.

* The shutdown margin monitors may be blocked during reactor startup in accordance with approved plant procedures.

** The valves may be opened on an intermittent basis under administrative controls as noted in Surveillance 4.1.1.2.2.

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 canal shall be maintained 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 the limit specified in the CORE OPERATING LIMITS REPORT (COLR).

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 the limit specified in the COLR, 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.

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.

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* 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.

MONTHLY OPERATING REPORTS

6.9.1.5 Routine reports of operating statistics and shutdown experience shall be submitted on a monthly basis to the U.S. Nuclear Regulatory Commission, Document Control Desk, Washington, D.C. 20555, one copy to the Regional Administrator Region I, and one copy to the NRC Resident Inspector, no later than the 15th of each month following the calendar month covered by the report.

CORE OPERATING LIMITS REPORT

6.9.1.6 a Core operating limits shall be established and documented in the CORE OPERATING LIMITS REPORT before each reload cycle or any remaining part of a reload cycle for the following:

1. Overtemperature ΔT and Overpower ΔT setpoint parameters for Specification 2.2.1,
2. Shutdown Margin for Specifications 3/4.1.1.1.1, 3/4.1.1.1.2, and 3/4.1.1.2,
3. Moderator Temperature Coefficient BOL and EOL limits and 300 ppm surveillance limit for Specification 3/4.1.1.3.

CORE OPERATING LIMITS REPORT (Cont.)

4. Shutdown Rod Insertion Limit for Specification 3/4.1.3.5,
5. Control Rod Insertion Limits for Specification 3/4.1.3.6,
6. Axial Flux Difference Limits, target band, and APL^{ND} for Specifications 3/4.2.1.1 and 3/4.2.1.2,
7. Heat Flux Hot Channel Factor, K(z), W(z), APL^{ND}, and $W(z)_{BL}$ for Specifications 3/4.2.2.1 and 3/4.2.2.2.
8. Nuclear Enthalpy Rise Hot Channel Factor, Power Factor Multiplier for Specification 3/4.2.3.
9. DNB Parameters for Specification 3/4.2.5.
10. Shutdown Margin Monitor minimum count rate for Specification 3/4.3.5.
11. Boron Concentration for Specification 3/4.9.1.1.

6.9.1.6.b The analytical methods used to determine the core operating limits shall be those previously reviewed and approved by the NRC in:

1. WCAP-9272-P-A, "WESTINGHOUSE RELOAD SAFETY EVALUATION METHODOLOGY," (W Proprietary). (Methodology for Specifications 3.1.1.3--Moderator Temperature Coefficient, 3.1.3.5--Shutdown Bank Insertion Limit, 3.1.3.6--Control Bank Insertion Limits, 3.2.1--Axial Flux Difference, 3.2.2--Heat Flux Hot Channel Factor, 3.2.3--Nuclear Enthalpy Rise Hot Channel Factor, 3.1.1.1.1, 3.1.1.1.2, 3.1.1.2 -- Shutdown Margin, 3.9.1.1 -- Boron Concentration.)
2. T. M. Anderson to K. Kniel (Chief of Core Performance Branch, NRC), January 31, 1980--Attachment: Operation and Safety-Analysis Aspects of an Improved Load Follow Package.
3. NUREG-800, Standard Review Plan, U.S. Nuclear Regulatory Commission, Section 4.3, Nuclear Design, July 1981 Branch Technical Position CPB 4.3-1, Westinghouse Constant Axial Offset Control (CAOC), Revision 2, July 1981.
4. WCAP-10216-P-A-R1A, "RELAXATION OF CONSTANT AXIAL OFFSET CONTROL FQ SURVEILLANCE TECHNICAL SPECIFICATION," (W Proprietary). (Methodology for Specifications 3.2.1--Axial Flux Difference [Relaxed Axial Offset Control] and 3.2.2--Heat Flux Hot Channel Factor [W(z) surveillance requirements for F_Q Methodology].)
5. WCAP-9561-P-A, ADD. 3, "BART A-1: A COMPUTER CODE FOR THE BEST ESTIMATE ANALYSIS OF REFLOOD TRANSIENTS--SPECIAL REPORT: THIMBLE MODELING W ECCS EVALUATION MODEL," (W Proprietary). (Methodology for Specification 3.2.2--Heat Flux Hot Channel Factor.)
6. WCAP-10266-P-A, Addendum 1, "THE 1981 VERSION OF THE WESTINGHOUSE ECCS EVALUATION MODEL USING THE BASH CODE," (W Proprietary). (Methodology for Specification 3.2.2--Heat Flux Hot Channel Factor.)

CORE OPERATING LIMITS REPORT (Cont.)

7. WCAP-11946, "Safety Evaluation Supporting a More Negative EOL Moderator Temperature Coefficient Technical Specification for the Millstone Nuclear Power Station Unit 3," (W Proprietary).

8. WCAP-10054-P-A, "WESTINGHOUSE SMALL BREAK ECCS EVALUATION MODEL.17 USING THE NOTRUMP CODE," (W Proprietary). (Methodology for Specification 3.2.2 - Heat Flux Hot Channel Factor.)

9. WCAP-10079-P-A, "NOTRUMP - A NODAL TRANSIENT SMALL BREAK AND GENERAL NETWORK CODE," (W Proprietary). (Methodology for Specification 3.2.2 - Heat Flux Hot Channel Factor.)

10. WCAP-12610, "VANTAGE+ Fuel Assembly Report," (W Proprietary). (Methodology for Specification 3.2.2 - Heat Flux Hot Channel Factor.)

11. Letter from V. L. Rooney (USNRC) to J. F. Opeka, "Safety Evaluation for Topical Report, NUSCO-152, Addendum 4, 'Physics Methodology for PWR Reload Design,' TAC No. M91815," July 18, 1995.

12. Letter from E. J. Mroczka to the USNRC, "Proposed Changes to Technical Specifications, Cycle 4 Reload Submittal - Boron Dilution Analysis," B13678, December 4, 1990.

13. Letter from D. H. Jaffe (USNRC) to E. J. Mroczka, "Issuance of Amendment (TAC No. 77924)," March 11, 1991.

14. Letter from M. H. Brothers to the USNRC, "Proposed Revision to Technical Specification, Shutdown Margin Requirements and Shutdown Margin Monitor Operability for Modes 3, 4, and 5 (PTSCR 3-16-97), B16447, May 9, 1997.

15. Letter from J. W. Anderson (USNRC) to M. L. Bowling (NNECO), "Issuance of Amendment - Millstone Nuclear Power Station, Unit No. 3 (TAC No. M98699)," October 21, 1998.

16. WCAP-8301, "LOCTA-IV Program: Loss-of-Coolant Transient Analysis."

17. WCAP-10054-P-A, Addendum 2, "Addendum to the Westinghouse Small Break ECCS Evaluation Model Using the NOTRUMP Code: Safety Injection into the Broken Loop and COSI Condensation Model."

18. WCAP-8745-P-A, "Design Bases for the Thermal Overpower ΔT and Thermal Overtemperature ΔT Trip Functions," (Westinghouse Proprietary Class 2). (Methodology for Specification 2.2.1.)