

August 15, 2006

Mr. David A. Christian  
Sr. Vice President and Chief Nuclear Officer  
Dominion Nuclear Connecticut, Inc.  
Innsbrook Technical Center  
5000 Dominion Boulevard  
Glen Allen, VA 23060-6711

SUBJECT: MILLSTONE POWER STATION, UNIT NO. 3 - ISSUANCE OF AMENDMENT  
RE: TECHNICAL SPECIFICATION CHANGES TO THE REACTIVITY  
CONTROL SYSTEM ROD DROP TIME TEST (TAC NO. MC8430)

Dear Mr. Christian:

The Commission has issued the enclosed Amendment No. 231 to Facility Operating License No. NPF-49 for Millstone Power Station, Unit No. 3 (MPS3), in response to your application dated September 13, 2005.

The amendment revises the MPS3 Technical Specification temperature requirement for the reactivity control system rod drop time test.

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  
Plant Licensing Branch I-2  
Division of Operating Reactor Licensing  
Office of Nuclear Reactor Regulation

Docket No. 50-423

Enclosures:

1. Amendment No. 231 to NPF-49
2. Safety Evaluation

cc w/encls: See next page

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Amendment Accession Number: **ML062060416**

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DOMINION NUCLEAR CONNECTICUT, INC.

DOCKET NO. 50-423

MILLSTONE POWER STATION, UNIT NO. 3

AMENDMENT TO FACILITY OPERATING LICENSE

Amendment No. 231  
License No. NPF-49

1. The Nuclear Regulatory Commission (the Commission) has found that:
  - A. The application for amendment by Dominion Nuclear Connecticut, Inc. (the licensee) dated September 13, 2005, 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. 231, 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 60 days of issuance.

FOR THE NUCLEAR REGULATORY COMMISSION

**/RA/**

Brooke D. Poole, Acting Chief  
Plant Licensing Branch I-2  
Division of Operating Reactor Licensing  
Office of Nuclear Reactor Regulation

Attachment: Changes to the Technical  
Specifications

Date of Issuance: August 15, 2006

ATTACHMENT TO LICENSE AMENDMENT NO. 231

FACILITY OPERATING LICENSE NO. NPF-49

DOCKET NO. 50-423

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

Remove  
3/4 1-25

Insert  
3/4 1-25

SAFETY EVALUATION BY THE OFFICE OF NUCLEAR REACTOR REGULATION

RELATED TO AMENDMENT NO. 231

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 September 13, 2005, Dominion Nuclear Connecticut, Inc. (DNC or licensee) submitted to the Nuclear Regulatory Commission (NRC or the Commission) a request for a change to the Millstone Power Station, Unit No. 3 (MPS3) Technical Specifications (TSs) temperature requirement for the reactivity control system rod drop time test.

2.0 REGULATORY EVALUATION

The NRC staff reviewed the licensee's September 13, 2005, application to verify that the proposed change continues to meet with the regulatory requirements as stipulated in the following General Design Criteria (GDC):

1. GDC 10, "Reactor design," which requires that the reactor core and associated coolant, control, and protection systems be designed with appropriate margin to assure that specified acceptable fuel design limits are not exceeded during any condition of normal operation, including the effects of anticipated operational occurrences.
2. GDC 26, "Reactivity control system redundancy and capability," which requires, among other things, that two independent reactivity control systems of different design principles be provided. GDC 26 also requires that one of the systems shall use control rods, preferably including a positive means for inserting the rods, and shall be capable of reliably controlling reactivity changes to assure that under conditions of normal operation, including anticipated operational occurrences, and with appropriate margin for malfunctions, such as stuck rods, specified acceptable fuel design limits are not exceeded.
3. GDC 27, "Combined reactivity control systems capability," which requires that the reactivity control systems be designed to have a combined capability, in conjunction with poison addition by the emergency core cooling system, of

reliably controlling reactivity changes to assure that under postulated accident conditions, and with appropriate margin for stuck rods, the capability to cool the core is maintained.

4. GDC 28, "Reactivity limits," which requires, among other things, that the reactivity control systems be designed with appropriate limits on the potential amount and rate of reactivity increase to assure that the effects of postulated reactivity accidents can neither (1) result in damage to the reactor coolant pressure boundary greater than limited local yielding, nor (2) sufficiently disturb the core, its support structures or other reactor pressure vessel internals to impair significantly the capability to cool the core.

Additionally, the NRC staff verified that the proposed change complies with the MPS3 licensing basis criteria stated in the Final Safety Analysis Report. The staff used Chapter 4.6 of NUREG-0800, "Standard Review Plan (SRP) for the Review of Safety Analysis Reports for Nuclear Power Plants LWR Edition," (Reference 1), and NUREG 1431, "Standard Technical Specifications Westinghouse Plants," (Reference 2) as guidance during the review.

### 3.0 TECHNICAL EVALUATION

The licensee has proposed to modify Limiting Condition for Operation 3.1.3.4, which is applicable during MODES 1 and 2, and currently reads as follows:

The individual full-length (shutdown and control) rod drop time from the fully withdrawn position shall be less than or equal to 2.7 seconds from beginning of decay of stationary gripper coil voltage to dashpot entry with:

- a.  $T_{avg}$  greater than or equal to 551 EF, and
- b. All reactor coolant pumps operating.

The licensee's proposed change is to replace "551 EF" with "500 EF" in subpart "a."

The conditions requiring control rods (or the typical terminology: rod cluster control assembly (RCCA)) drop testing are as follows:

Surveillance Requirement (SR) 4.1.3.4 states that the demonstration of required RCCA drop time is required prior to reactor criticality:

- a. For all rods following each removal of the reactor vessel head,
- b. For specifically affected individual rods following any maintenance on or modification to the Control Rod Drive System which could affect the drop time of those specific rods, and
- c. At least every 24 months.

The RCCA drop test is intended to provide verification that RCCAs will perform as assumed during a reactor trip from power operation. Verification of RCCA drop time allows the licensee

to determine that actual drop times are consistent with the drop times assumed in the plant's safety analysis. The RCCA drop test ensures that the reactor internals and RCCA drive mechanisms do not interfere with RCCA motion or increase drop time, and that no degradation in the system has occurred that would adversely affect the operability of the RCCAs.

The NRC staff reviewed the results from testing during the initial startup at MPS3. RCCA drop tests were performed at cold ( $T_{avg}$  145 EF, reactor coolant system (RCS) pressure 390 psia) and hot ( $T_{avg}$  557 EF, RCS pressure 2250 psia) reactor coolant temperatures with all reactor coolant pumps operating. The tests demonstrated a slight increase in RCCA drop time as reactor coolant temperature was decreased. Specifically, a drop time increase of less than 0.3 seconds was observed between the cold and hot coolant temperatures. A slight increase in RCCA drop time at lower reactor coolant temperatures is expected. At lower coolant temperatures, the coolant density increases, which increases the resistive force against a dropping RCCA, thereby increasing its drop time. Measured RCCA drop times taken during MPS3 Cycle-10 startup were less than 1.6 seconds, and measuring the RCCA drop time at 500 EF is expected to increase the RCCA drop time by less than 0.15 seconds. This would result in a drop time estimate at 500 EF of approximately 1.75 seconds. Based on the above, the licensee concluded that, there is sufficient margin to accommodate the slight increase in drop times as a result of performing the test at a lower temperature without changing the 2.7-second limit in TS 3.1.3.4. Since the decrease of the required average reactor coolant temperature for the rod drop test would increase the rod drop time, the proposed TS change to reduce the temperature from 551 EF to 500 EF is still well within the existing TS value.

The licensee proposes changes to the TS Bases to conform to the proposed TS change. The NRC staff has no objection to TS Bases updates that address the proposed TS change.

#### 4.0 SUMMARY

The NRC staff has reviewed the license amendment request and concluded that the proposed TS change continues to meet the regulatory requirements as stipulated in GDC 10, 26, 27 and 28. Therefore, the NRC staff finds the change is acceptable.

#### 5.0 STATE CONSULTATION

In accordance with the Commission's regulations, the Connecticut State official was notified of the proposed issuance of the amendment. The Connecticut State official agreed with the NRC staff's conclusion as stated in Section 7.0 of this Safety Evaluation.

#### 6.0 ENVIRONMENTAL CONSIDERATION

The amendment changes a requirement with respect to SRs. 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 change 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 (70 FR 61656).

Accordingly, the amendment meets the eligibility criteria for categorical exclusion as 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.

## 7.0 CONCLUSION

The NRC staff concludes 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 activity will be conducted in compliance with the Commission's regulations, and (3) the issuance of the amendment will not inimical to the common defense and security or health and safety of the public.

## 8.0 REFERENCES

1. NUREG-0800, "Standard Review Plan (SRP) for the Review of Safety Analysis Reports for Nuclear Power Plants LWR Edition."
2. NUREG 1431, "Standard Technical Specifications Westinghouse Plants."

Principal Contributor: F. Forsaty

Date: August 15, 2006

Millstone Power Station, Unit No. 3

cc:

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