November 5, 2001

Mr. J. A. Price
Vice President - Nuclear Technical Services - Millstone
c/o Mr. David A. Smith
Dominion Nuclear Connecticut, Inc.
Rope Ferry Road
Waterford, CT 06385

SUBJECT: MILLSTONE NUCLEAR POWER STATION, UNIT NO. 3 - REVISION TO TECHNICAL SPECIFICATIONS TO EXTEND SURVEILLANCE INTERVAL OF ENGINEERED SAFETY FEATURES ACTUATION SYSTEM SLAVE RELAYS (TAC NO. MB1389)

Dear Mr. Price:

The Commission has issued the enclosed Amendment No. 198 to Facility Operating License No. NPF-49 for the Millstone Nuclear Power Station, Unit No. 3 (MP3), in response to your application dated March 2, 2001, as supplemented by letter dated July 18, 2001.

At the time of the March 2, 2001, letter, Northeast Nuclear Energy Company (NNECO) was the licensed operator of MP3. On March 31, 2001, the majority of the owners of MP3 transferred their ownership interest in MP3 to Dominion Nuclear Connecticut, Inc. (DNC/licensee), and NNECO's operating authority for MP3 was transferred to DNC. By letter dated April 2, 2001, DNC requested that the Nuclear Regulatory Commission (NRC) continue to review and act upon all requests before the NRC that had been submitted by NNECO.

The amendment modifies the Technical Specifications (TSs) to extend the surveillance test interval of the slave relays of the Engineered Safety Features Actuation System (ESFAS) from 90 days to 18 months for those relays which meet the reliability assessment criteria established in Westinghouse Electric Corporation WCAP-13878-P-A, Rev. 2 and the conditions stipulated by the staff's safety evaluation (SE) dated May 31,1996, approving this WCAP. The associated Bases for these TSs are modified as a result of the changes.

A copy of the related SE is also enclosed. Notice of Issuance will be included in the Commission's biweekly Federal Register notice. If you have any questions, please contact me at (301) 415-1484.

Sincerely,

/RA/

Victor Nerses, Sr. 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. 198 to NPF-49
2. Safety Evaluation

cc w/encls: See next page

A copy of the related SE is also enclosed. Notice of Issuance will be included in the Commission's biweekly Federal Register notice. If you have any questions, please contact me at (301) 415-1484.

Sincerely,

/RA/

Victor Nerses, Sr. 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. 198 to NPF-49
2. Safety Evaluation

cc w/encls: See next page

DISTRIBUTION:

PUBLIC	OGC	PDI-2 R/F	ACRS
EAdensam	TClark	JClifford	VNerses
GHill (2)	WBeckner	GTracy	SSheng
LLois	CCowgill, RI	EMarinos	

Accession Number: ML012830429 *No legal objection

OFFICE	PDI-2/PM	PDI-2/LA	EEIB/SC	OGC/NLO*	PDI-2/SC
NAME	VNerses	TClark	EMarinos	RHoefling	JClifford
DATE	10/17/01	10/15/01	10/17/01	10/24/01	11/01/01

OFFICIAL RECORD COPY

DOMINION NUCLEAR CONNECTICUT, INC., ET AL.

DOCKET NO. 50-423

MILLSTONE NUCLEAR POWER STATION, UNIT NO. 3

AMENDMENT TO FACILITY OPERATING LICENSE

Amendment No. 198
License No. NPF-49

1. The Nuclear Regulatory Commission (the Commission) has found that:

   A. The application for amendment by the applicant dated March 2, 2001, as supplemented July 18, 2001, 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. 198, 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.

FOR THE NUCLEAR REGULATORY COMMISSION

/RA/

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: November 5, 2001

ATTACHMENT TO LICENSE AMENDMENT NO. 198

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.

Remove	Insert
3/4 3-36	3/4 3-36
3/4 3-37	3/4 3-37
3/4 3-38	3/4 3-38
3/4 3-39	3/4 3-39
3/4 3-40	3/4 3-40
3/4 3-41	3/4 3-41
B3/4 3-1	B3/4 3-1
B3/4 3-2	B3/4 3-2
B3/4 3-2a	B3/4 3-2a

SAFETY EVALUATION BY THE OFFICE OF NUCLEAR REACTOR REGULATION

RELATED TO AMENDMENT NO. 198

TO FACILITY OPERATING LICENSE NO. NPF-49

DOMINION NUCLEAR CONNECTICUT, INC.

MILLSTONE NUCLEAR POWER STATION, UNIT NO. 3

DOCKET NO. 50-423

1.0 INTRODUCTION

By letter dated March 2, 2001, as supplemented by letter dated July 18, 2001, Dominion Nuclear Connecticut, Inc., the licensee for Millstone Nuclear Power Station, Unit 3, (MP3) requested the Nuclear Regulatory Commission's (NRC's) approval to amend its operating license NPF-49 by revising the plant's Technical Specifications (TSs). The proposed amendment will extend the surveillance test interval of the slave relays of the Engineered Safety Features Actuation System (ESFAS) from the current 90 days to 18 months. The surveillance interval extension is sought only for those Potter & Brumfield (P&B) MDR series relays that meet the reliability assessment criteria established in Westinghouse Electric Corporation WCAP-13878-P-A, Rev. 2 and also meet the conditions stipulated by the staff in its safety evaluation (SE) dated May 31,1996, approving this WCAP. The July 18, 2001, supplement was within the scope of the original application and did not change the staff's proposed no significant hazards consideration determination.

2.0 BACKGROUND

For Westinghouse pressurized water reactor (PWR) plants, the Standard TSs (NUREG-0452) and the new improved TSs (NUREG-1431) require quarterly testing of slave relays in ESFAS. This testing is done at power, and requires significant plant equipment manipulation, resulting in abnormal configurations, and making various safety system equipment unavailable. Also, testing at power potentially causes inadvertent ESFAS actuation, which could generate system transients and pose challenges to plant operators. To investigate problems relating to TS surveillance testing, the NRC staff formed a task group with the following objectives: (1) review the basis for test frequencies, (2) ensure that the tests promote safety and do not degrade equipment, and (3) assess whether surveillance tests are putting unnecessary burden on plant personnel. At the conclusion of the investigation in September 1993, the staff issued Generic Letter (GL) 93-05, "Line Item Technical Specification Improvements To Reduce Surveillance Requirements for Testing During Power Operation." In its submittal, the licensee confirmed that the proposed slave relay test frequency relaxation is consistent with the objectives of the NRC task group and the recommendations of GL 93-05.

The Westinghouse Owners Group (WOG) sponsored a reliability assessment study for specific relay types to establish surveillance test intervals based on relay reliability. The WOG study and its results were documented in WCAP-13878-P-A, Rev. 2, "Reliability And Assessment of Potter & Brumfield MDR Series Relays." The results of the WOG study indicated that the reliability of the P&B MDR series relays as used in an ESFAS application is so high that elimination of routine testing of slave relays when the reactor is at power will have a positive impact on ESFAS availability and, therefore, plant safety. Furthermore, the study concluded that reduced testing will not decrease relay reliability, will significantly reduce operator burden, will decrease the potential for challenges to the safety systems, will increase safety systems availability, and will reduce plant personnel occupational exposure. The staff reviewed the above-referenced Westinghouse WCAP and approved it by an SE dated May 31, 1996, which stipulated four conditions that must be addressed by each plant-specific license amendment submittal based on the above WCAP.

3.0 PROPOSED CHANGES AND EVALUATION

3.1 TS 3.3.2, Table 4.3-2, "ESFAS Instrumentation Surveillance Requirements"

Table Notation 4 will be added to table 4.3.2. Table Notation 4 will state: "For Engineered Safety Features Actuation System functional units with only Potter & Brumfield MDR series relays used in a clean, environmentally controlled cabinet, as discussed in Westinghouse Owners Group Report WCAP-13900, the surveillance test interval for slave relay testing is R." In its submittal the licensee stated that the above wording differs slightly from the recommended wording provided in WCAP-13878-P-A, Rev. 2 in that the description of the testing to be performed has been revised to apply to "slave relay testing" instead of "the slave relay." This change was made to ensure consistency and to clarify the wording of Table 4.3-2 of the MP3 TS.

Table Notation 4 revises the required surveillance interval for P&B MDR series slave relays which meet the identified criteria from "Q" (at least once per 92 days) to "R" (at least once per 18 months) for the following functional units:

a. Functional Unit 1.b, Safety Injection - Automatic Actuation Logic and Actuation Relays;
b. Functional Unit 2.b, Containment Spray - Automatic Actuation Logic and Actuation Relays;
c. Functional Unit 3.a.(2), Containment Isolation, Phase "A" Isolation - Automatic Actuation Logic and Actuation Relays;
d. Functional Unit 3.b.(2), Containment Isolation, Phase "B" Isolation - Automatic Actuation Logic and Actuation Relays;
e. Functional Unit 4.b, Steam Line Isolation - Automatic Actuation Logic and Actuation Relays;
f. Functional Unit 5.a, Turbine Trip and Feedwater Isolation - Automatic Actuation Logic and Actuation Relays;
g. Functional Unit 5.b, Turbine Trip and Feedwater Isolation - Steam Generator Water Level High-High Relays;
h. Functional Unit 6.b, Auxiliary Feedwater - Automatic Actuation Logic and Actuation Relays; and
i. Functional Unit 7.c, Control Building Isolation - Automatic Actuation Logic and Actuation Relays;

3.2 TS Bases

The TS Bases for Sections 3.3.1 and 3.3.2, "Reactor Trip System Instrumentation and Engineered Safety Features Actuation System Instrumentation," will be revised to include a discussion of what slave relay testing can be performed on an "R" frequency (at least once every 18 months).

3.3 Evaluation

WCAP-13878-P-A, Rev. 2 documents the evaluation to determine the reliability of P&B MDR relays used in the Solid State Protection System (SSPS) to actuate ESFAS components. The reliability assessment established that for normally de-energized relays, the reliability does not change with time and there are no significant factors that will cause the relays to age or wear out within the plant's life. The slave relay reliability studies indicated that these relays are highly reliable, principally due to the very low cycle demand and the extended periods during which no demand is expected. The aging assessment also concluded that degradation in these relays is sufficiently slow that an 18-month surveillance test interval will adequately identify failures and the normally de-energized relays will not experience temperature-induced age-related degradation sufficient to result in a failure during plant life of 40 years. In its submittal the licensee confirmed that the MP3 design does not contain normally energized relays and the P&B MDR series slave relays have a design and cycle life capability greatly in excess of that required for the SSPS slave relay application. In addition, the maximum temperature experienced by the slave relays in SSPS cabinets at MP3 is far less than the manufacturer-recommended maximum temperature for reliable relay operation. The staff SE dated May 31,1996, which approved the WCAP's justification for relaxing the slave relay surveillance test interval on the basis of the reliability assessment, identified the following four issues that must be addressed by any licensee pursuing surveillance test interval extension based on this WCAP.

1. Confirm the applicability of the WCAP-13878-P-A, Rev. 2, analyses to the facility design.

In its submittal the licensee stated that the WCAP-13878-P-A, Rev. 2 analysis is applicable to MP3. For support of the applicability of the WCAP reliability analyses to MP3 plant design, the licensee stated that: (1) the WCAP's aging assessment was based on the relays being located in a clean and environmentally controlled environment, and the relays at MP3 are located in a similar clean and controlled environment; (2) none of the P&B MDR series relays installed in the MP3 ESFAS are refurbished (the WCAP excluded refurbished relays); (3) the slave relays are P&B MDR-4076 (118 Vac latching model), P&B MDR-134-1(118 Vac non-latching model), P&B MDR-138-8 (125 Vdc non-latching model) and each of these three models of P&B MDR relays was analyzed in the WCAP for reliability assessment.

2. Confirm the adequacy of the facility procurement program for P&B MDR series relays.

The staff's safety evaluation (SE) references documents on failures in P&B MDR relays and instances of delivery in a damaged condition (relays with bent contacts were delivered to San Onofre Nuclear Generating Station), and requires the licensee to review these documents in determining the adequacy of the procurement program at its facility. In its submittal, the licensee stated that the MP3 procurement programs are adequate for detecting the potential failures identified in the documents referenced in the staff SE, and that the plant's "Restricted

Materials Suppliers List" references each of these documents as a cross-reference to the manufacturer of relays (P&B). Accordingly, inspections, dedication, and testing of P&B MDR relays performed as part of the procurement of all P&B MDR relays address the issues identified in the documents referenced in the staff SE.

3. Ensure that all pre-1992 P&B MDR series normally energized relays or relays in a 20% duty cycle have been removed.

In its submittal the licensee stated that all P&B MDR series slave and auxiliary relays installed in the MP3 ESFAS which are proposed for surveillance extension are normally deenergized. Normally deenergized means these relays are in a 0% duty cycle and no relays are in 20% duty cycle; therefore, no relays are required to be removed or replaced.

4. Ensure/perform a contact loading analysis for all P&B MDR series relays which are candidates for surveillance extension.

In its submittal the licensee stated that a contact loading analysis was performed for all P&B MDR series slave and auxiliary ESFAS relays. This study evaluated every relay contact for its continuous duty, overload, and switching capabilities for both ac and dc applications especially for interrupting inductive loads. The analysis demonstrated that except for the contacts of two K740 slave relays (one in each ESFAS A and B train), the contact loading for the P&B MDR ESFAS relay was within the relay's single contact ratings. The contact loading for the two K740 slave relay contacts was determined to be on the order of 6.0 amps, which exceeds the P&B MDR relay's rating of 0.3 amps @ 125 Vdc for breaking inductive loads, and 0.8 amps @ 125Vdc for resistive loads. The contact of each of these two slave relays (one in each SSPS train) is wired in series with a circuit breaker auxiliary contact in a breaker trip coil circuit.

The licensee found these two relays to be acceptable by reasoning that the breaker auxiliary contact in series will open the circuit in three cycles or in 50 milliseconds (ms), and the total energy (I^2t) deposited by 6 amps during 50 ms will be less than when the contact is subjected to a continuous duty of 10 amps @ 115 Vac. By a letter dated May 15, 2001, the staff requested that the licensee provide additional information and clarification of their justification.

In response to the staff's request for additional information, in a letter dated July 18, 2001, the licensee informed the staff that it had chosen to withdraw the slave relays K740A and K740B (which are one in each ESFAS train), from its license amendment request submittal dated March 2, 2001, and that these two relays would continue to be tested quarterly.

4.0 SUMMARY

On the basis of this evaluation, the staff agrees with the licensee's conclusion that the proposed changes will not alter the assumptions relative to the mitigation of an accident or transient event and will not adversely affect normal plant operation and testing. Except for the two slave relays (K740A and K740B), the proposed surveillance interval extension for the P&B MDR series slave relays in the ESFAS is in accordance with the assumptions and results of WCAP-13878-P-A, Rev.2 and the licensee has met all conditions stipulated by the staff's SE that approved this WCAP. Therefore, the staff finds the proposed changes acceptable except for the two slave relays K740A and K740B (one in each ESFAS train), which were withdrawn by the licensee in a

letter dated July 18, 2001, and which will continue to be tested at the current surveillance interval of 90 days.

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 State official had no comments.

6.0 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 (66 FR 36337). 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.

7.0 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.

Principal Contributor: S. V. Athavale

Date: November 5, 2001