



February 20, 2007

U.S. Nuclear Regulatory Commission
Attention: Document Control Desk
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Serial No. 07-0023
MPS Lic/WDB R0
Docket No. 50-336
License No. DPR-65

DOMINION NUCLEAR CONNECTICUT, INC.
MILLSTONE POWER STATION UNIT 2
PROPOSED REVISION TO TECHNICAL SPECIFICATION 3/4.5.2
ECCS SUBSYSTEMS (LBDCR 06-MP2-002)
DELETION OF SURVEILLANCE REQUIREMENT 4.5.2.e

Pursuant to 10 CFR 50.90, Dominion Nuclear Connecticut, Inc. (DNC) hereby requests to amend Operating License DPR-65 for Millstone Power Station Unit 2 (MPS2). The enclosed license amendment request proposes to revise Technical Specification (TS) 3/4.5.2, "Emergency Core Cooling System, ECCS Subsystem – $T_{avg} \geq 300^{\circ}\text{F}$." The proposed change eliminates surveillance requirement 4.5.2.e from the MPS2 TS. The associated TS Bases are also being updated to address the proposed change.

The proposed change does not involve a significant impact on public health and safety and does not involve a Significant Hazards Consideration pursuant to the provisions of 10 CFR 50.92. The Site Operations Review Committee has reviewed and concurred with the determinations.

Attachment 1 contains a description of the proposed TS change and the Significant Hazards Consideration. Attachment 2 contains the TS marked-up pages, and Attachment 3 contains the marked-up pages of the TS Bases for information only. MPS2 TS Bases are controlled in accordance with TS Section 6.23, "Technical Specification Bases Control program."

DNC requests issuance of this amendment no later than July 1, 2007, with the amendment to be implemented within 90 days of issuance.

In accordance with 10 CFR 50.91(b), a copy of this license amendment request is being provided to the State of Connecticut.

If you have any questions or require additional information, please contact Mr. Paul R. Willoughby at (804) 273-3572.

Very truly yours,



Gerald T. Bischof
Vice President – Nuclear Engineering

Attachments:

1. Evaluation of Proposed License Amendment
1. Marked-Up Technical Specifications Page
2. Marked-Up Bases Pages - For Information Only

Commitments made in this letter: None.

cc: U.S. Nuclear Regulatory Commission
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ATTACHMENT 1

PROPOSED REVISION TO TECHNICAL SPECIFICATIONS (LBDCR 06-MP2-002)
DELETION OF CHARGING PUMP SURVEILLANCE REQUIREMENT

EVALUATION OF PROPOSED LICENSE AMENDMENT

DOMINION NUCLEAR CONNECTICUT, INC.
MILLSTONE POWER STATION UNIT 2

Evaluation of Proposed License Amendment

- 1.0 DESCRIPTION
- 2.0 PROPOSED CHANGE
- 3.0 BACKGROUND
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 - 3.2 Bases of Current TS Requirements
 - 3.3 Reason for the Proposed Amendment
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 - 4.1 Basis for the Proposed Amendment
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- 5.0 REGULATORY ANALYSIS
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 - 5.2 Applicable Regulatory Requirements/Criteria
- 6.0 ENVIRONMENTAL CONSIDERATION

1.0 DESCRIPTION

Pursuant to 10 CFR 50.90, Dominion Nuclear Connecticut, Inc. (DNC) hereby requests to amend Operating License DPR-65 for Millstone Power Station Unit 2 (MPS2). This license amendment request proposes to revise Technical Specification (TS) 3/4.5.2, "Emergency Core Cooling System, ECCS Subsystem – $T_{avg} \geq 300^{\circ}\text{F}$." The proposed change deletes surveillance requirement 4.5.2.e from the MPS2 TS. The technical specification bases will be revised to reflect the proposed specification changes and are provided for information only in Attachment 3. Changes to the bases are controlled in accordance with the Technical Specification Bases Control Program (TS 6.23).

2.0 PROPOSED CHANGE

The proposed change deletes MPS2 TS Surveillance Requirement 4.5.2.e in its entirety.

The current wording of Surveillance Requirement 4.5.2.e:

"By verifying the delivered flow of each charging pump at the required discharge pressure is greater than or equal to the required flow when tested pursuant to Specification 4.0.5."

is replaced with:

"Deleted"

Technical Specification Bases Section 3/4.5.2, "ECCS Subsystems," will also be updated to reflect the proposed specification changes. The TS Bases changes are provided for information only in Attachment 3. Changes to the bases are controlled in accordance with the Technical Specification Bases Control Program (TS 6.23).

3.0 BACKGROUND

3.1 System Description

3.1.1 Emergency Core Cooling

FSAR Section 6.3.2 provides a description of the MPS2 Safety Injection system. As stated therein, the Safety Injection system is an integrated system comprised of high and low pressure centrifugal injection pumps and passive accumulators. The combined capabilities of these three subsystems meet the requirements of

10 CFR 50.46, and General Design Criteria 35, 36 and 37 of 10 CFR 50, Appendix A.

Under the original plant design basis, charging flow was credited in the safety analysis for events requiring safety injection and thus the pumps were designed to automatically start on a safety injection signal. More recent revisions to the analysis basis removed credit for the limited flow produced by the positive displacement charging pumps. The previously referenced FSAR section reflects this change. However, the automatic start signal for the charging pumps was retained as a defense in depth measure. As such, the charging pumps continue to auto start in response to a safety injection signal.

3.1.2 Charging System

The charging pumps are sub-components of the Chemical and Volume Control System (CVCS) that is discussed in detail in FSAR Section 9.2.

During normal operation, the charging pumps support the following functions: cleanup of the reactor coolant system (RCS), RCS inventory control and reactivity control. One pump is normally in service with two pumps aligned for standby operation. Administrative controls specifying pump and subsystem functionality requirements have been established in the MPS2 Technical Requirements Manual (TRM). These controls specify the minimum complement of pumps and flow paths required to support the FSAR described charging system functions. The administrative requirements of the TRM also prescribe periodic surveillance requirements to ensure the charging system is capable of performing its intended functions. TRM-prescribed surveillance requirements include verification of pump flow capability in a manner identical to that prescribed in TS SR 4.5.2.e.

While the charging pumps continue to be credited for mitigation of certain beyond design basis accidents (i.e., Anticipated Transients Without Scram (ATWS) and Complete Loss of Secondary Heat Sink), their function has been determined to be non-risk significant in accordance with the criteria described in EPRI TR-105396, PSA Applications Guide, dated August 1995. Specifically, all scenarios involving the charging pumps have been evaluated and shown to have a Risk Achievement Worth of < 2 and a Fussell-Vesely value of $< 5E-3$.

3.2 Bases of Current TS Requirement

The NRC issued MPS2 Amendment 283 on September 9, 2004. This amendment was based on DNC's application dated May 7, 2002 and supplemented on April 7, 2003 and July 19, 2004. In the original amendment request, DNC proposed retaining the requirement for charging pump

OPERABILITY due to risk significance as determined in the then-current PRA model. While the changes proposed in DNC's application were under NRC review, revisions were made to the MPS2 PRA model that allowed the pumps to be reclassified as non-risk significant. This change occurred late in the NRC review process and was discussed in DNC's supplemental submittal dated July 19, 2004. Because the NRC review was substantially complete at the time of the PRA model update, DNC elected to retain the requirements for charging pump OPERABILITY in TS 3.5.2.

3.3 Reason For The Proposed Amendment

The proposed change aligns TS operability requirements with the design basis of the plant and avoids unnecessary shutdown transients linked to systems, structures, or components that are beyond the scope of 10 CFR 50.36. Removing the requirement for the charging pumps to be OPERABLE in TS 3/4.5.2 will also clarify actions associated with assessing ECCS subsystem operability and reportability when charging pumps are unavailable.

4.0 TECHNICAL ANALYSIS

4.1 Basis for the Proposed Amendment

As previously described by DNC in support of Amendment 283 to the MPS2 TS, charging pump flow is no longer credited in any design basis accident (DBA) analysis described in Chapter 14 of the MPS2 Final Safety Analysis Report. The revision of the Chapter 14 DBA analyses that removed credit for charging pump flow affected only the assumptions used in the design basis analysis of record for the facility. The change did not involve any physical modifications to the facility or any change in the method of operation of the facility. Additionally, revisions to the plant specific PRA resulted in a determination that the function of the charging system, including the function of the charging pumps, is not risk significant.

In the Safety Evaluation Report for Amendment 283, the NRC concluded that maintaining a surveillance requirement (e.g., an OPERABILITY requirement) for the charging pumps went beyond regulatory requirements as the charging pumps were no longer required to satisfy any of the criteria called out in 10 CFR 50.36(c)(2)(ii). As stated in the NRC safety evaluation:

“This change is acceptable because the charging pump modified operability requirement provides additional RCS injection capability consistent with the design philosophy of defense-in-depth. Maintaining this modified LCO for the charging pumps goes beyond what is required by regulation, in that the accident analyses for MP2 take no credit for its

function, and neither the MP2 probabilistic risk assessment (PRA) nor operating experience shows its function to be significant to public health and safety. The licensee stated in its application that the PRA only credits manually starting charging pumps in the beyond-design basis events of anticipated transient without scram, and complete loss of secondary heat sink. The PRA does not show the charging pumps' manual reactor coolant system (RCS) injection function to be risk-significant. The staff finds that this relaxation of LCO 3.5.2, in conjunction with the relocation of [the administrative controls for] the boration subsystems, will not adversely impact plant safety.”

In the time since issuance of Amendment 283, there have been no changes to the charging system design basis, the accident analyses of record, or the PRA model assumptions that would invalidate the conclusions reached by the NRC in support of its issuance of Amendment 283. As part of Amendment 283, an identical SR was relocated to the TRM. The pump continues to be subject to periodic test.

4.2 Safety Summary

The proposed change to delete SR 4.5.2.e does not involve any modification to the function of the charging pumps or the method of operation for the charging system. While the charging pumps will continue to start and run in the event of an accident, this feature is not required to be addressed under the LCO for ECCS because the function of the charging pumps is no longer credited in any analysis that relies on ECCS for accident mitigation. Therefore, the deletion of SR 4.5.2.e does not prevent the ECCS subsystems from performing their intended safety function or affect any margins of safety. Additionally, the MPS2 PRA has shown the function of the charging pumps to not be significant to public health and safety.

4.3 Additional Information for Similar Amendment Request

By letter dated December 13, 2002, Calvert Cliffs Nuclear Power Plant, Inc. (CCNPP) requested an amendment to Operating License Nos. DPR-53 and DPR-69 to incorporate changes into the TS for Calvert Cliffs Unit Nos. 1 and 2. The proposed amendment revised Technical Specification 3.5.2, ECCS - Operating, by removing the Note that modifies the Limiting Condition for Operation. The proposed change removed the requirement to have the charging pumps operable when thermal power is greater than 80% of rated thermal power (RTP). The proposed change also removed Surveillance Requirement 3.5.2.4 for verifying the required charging pump flow rate. By a letter dated December 3, 2003, the Commission approved CCNPPs' amendment request.

The Calvert Cliffs Nuclear Power Plant, Unit Nos.1 and 2 are Combustion Engineering plants, which are the same vintage as MPS2 and are nearly identical in design and construction.

5.0 REGULATORY ANALYSIS

5.1 No Significant Hazards Consideration

The proposed TS change deletes from MPS2 TS 3.5.2, the requirement for a charging pump to be OPERABLE as part of an ECCS subsystem, by deleting SR 4.5.2.e. DNC's assessment of the proposed change against the criteria delineated in 10 CFR 50.92(c) is as follows:

1. Does the proposed amendment involve a significant increase in the probability or consequences of an accident previously evaluated?

Response: No.

The FSAR Chapter 14 accident analyses for MPS2 take no credit for the flow delivered by the charging pumps. Additionally, the proposed change does not modify any plant equipment or method of operation for any system, structure or component required for safe operation of the facility or mitigation of accidents assumed in the facility safety analyses. As such, the proposed amendment does not increase the probability or consequences of an accident previously evaluated.

2. Does the proposed amendment create the possibility of a new or different kind of accident from any accident previously evaluated?

Response: No.

The proposed change does not modify any plant equipment or method of operation for any system, structure or component required for safe operation of the facility or mitigation of accidents assumed in the facility safety analyses. As such, no new failure modes are introduced by the proposed change. Consequently, the proposed amendment does not introduce any accident initiators or malfunctions that would cause a new or different kind of accident. Therefore, the proposed amendment does not create the possibility of a new or different kind of accident from any accident previously evaluated.

3. Does the proposed amendment involve a significant reduction in a margin of safety?

Response: No.

The FSAR Chapter 14 accident analyses for MPS2 take no credit for the charging pumps. The TS change does not involve a significant reduction in a margin of safety because the proposed change does not affect equipment design or operation, and there are no changes being made to the technical specification required safety limits or safety system settings. The proposed change does not affect any of the assumptions used in the accident analysis, nor does it affect any method of operation for equipment important to plant safety. Therefore, the margin of safety is not impacted by the proposed amendment.

On the basis of the above assessment, DNC concludes that the proposed change does not involve a Significant Hazard Consideration.

5.2 Applicable Regulatory Requirements/Criteria

As previously described, all MPS2 accident analyses which credit ECCS subsystem performance for mitigation have been revised to remove all credit for the limited flow provided by the charging pumps. Additionally, the analysis changes did not require any physical modification to, or change in the method of operation of, the ECCS or the interface between the ECCS and the charging system. These revised analyses continue to demonstrate acceptable results in accordance with the requirements of 10 CFR 50.46, and satisfy all related requirements of 10 CFR 50 Appendix A, General Design Criteria.

10 CFR 50.36 specifies the Commission's regulatory requirements related to the content of TS. Specifically, 10 CFR 50.36(c)(2)(ii) sets forth four criteria to be used in determining whether a Limiting Condition for Operation is required to be included in TS. These criteria are: (1) installed instrumentation that is used to detect, and indicate in the control room, a significant abnormal degradation of the RCS pressure boundary; (2) initial plant conditions that are assumed in a design-basis transient and accident analysis; (3) components or systems that are used for mitigating consequences of the design-basis transient and accident; and (4) components or systems which probabilistic risk assessment has shown to be significant to public health and safety.

The proposed change to delete SR 4.5.2.e and thereby the requirement for an OPERABLE charging pump as part of an ECCS subsystem, does not involve any modification to, or change in method of operation of, any system, structure or component required for safe operation of the facility or mitigation of design basis accidents assumed in the facility safety analyses. Additionally, the function of the charging pumps is no longer considered to be risk significant based on the revised MPS2 PRA. As such, the function of the charging pumps no longer

satisfy any of the requirements of 10 CFR 50.36(c)(2)(ii) and consequently are no longer required to be addressed under LCO 3.5.2.

10 CFR 50.36(c)(3) provides guidance for establishing SRs for conditions addressed by TS LCOs. Since the charging function is no longer required to be addressed under an LCO, a corresponding SR is also no longer required.

6.0 ENVIRONMENTAL CONSIDERATION

The proposed change to delete SR 4.5.2.e has been evaluated by DNC and it is concluded that the change does not involve: (i) a significant hazards consideration, (ii) a significant change in the types or significant increase in the amounts of any effluent that may be released off site, or (iii) a significant increase in individual or cumulative occupational radiation exposure. Accordingly, the proposed amendment meets the eligibility criterion for categorical exclusion set forth in 10 CFR 51.22(c)(9). Therefore, pursuant to 10 CFR 51.22(b), no environmental impact statement or environmental assessment need be prepared in connection with the proposed amendment.

ATTACHMENT 2

PROPOSED REVISION TO TECHNICAL SPECIFICATIONS (LBDCR 06-MP2-002)
DELETION OF CHARGING PUMP SURVEILLANCE REQUIREMENT

MARKED-UP TECHNICAL SPECIFICATIONS PAGE

DOMINION NUCLEAR CONNECTICUT, INC.
MILLSTONE POWER STATION UNIT 2

EMERGENCY CORE COOLING SYSTEMS

SURVEILLANCE REQUIREMENTS

4.5.2 Each ECCS subsystem shall be demonstrated OPERABLE:

- a. At least once per 31 days by verifying each Emergency Core Cooling System manual, power operated, and automatic valve in the flow path servicing safety related equipment, that is not locked, sealed, or otherwise secured in position, is in the correct position.
- b. At least once per 31 days by verifying that the following valves are in the indicated position with power to the valve operator removed:

<u>Valve Number</u>	<u>Valve Function</u>	<u>Valve Position</u>
2-SI-306	Shutdown Cooling Flow Control	Open*
2-SI-659	SRAS Recirc.	Open**
2-SI-660	SRAS Recirc.	Open**

* Pinned and locked at preset throttle open position.

** To be closed prior to recirculation following LOCA.

- c. By verifying the developed head of each high pressure safety injection pump at the flow test point is greater than or equal to the required developed head when tested pursuant to Specification 4.0.5.
- d. By verifying the developed head of each low pressure safety injection pump at the flow test point is greater than or equal to the required developed head when tested pursuant to Specification 4.0.5.
- e. By verifying the delivered flow of each charging pump at the required discharge pressure is greater than or equal to the required flow when tested pursuant to Specification 4.0.5.
- f. At least once per 18 months by verifying each Emergency Core Cooling System automatic valve in the flow path that is not locked, sealed, or otherwise secured in position, actuates to the correct position on an actual or simulated actuation signal.
- g. At least once per 18 months by verifying each high pressure safety injection pump and low pressure safety injection pump starts automatically on an actual or simulated actuation signal.

"Deleted" →

ATTACHMENT 3

PROPOSED REVISION TO TECHNICAL SPECIFICATIONS (LBDCR 06-MP2-002)
DELETION OF CHARGING PUMP SURVEILLANCE REQUIREMENT

MARKED-UP BASES PAGES
(FOR INFORMATION ONLY)

DOMINION NUCLEAR CONNECTICUT, INC.
MILLSTONE POWER STATION UNIT 2

February 24, 2005

3/4.5 EMERGENCY CORE COOLING SYSTEMS (ECCS)BASES3/4.5.2 and 3/4.5.3 ECCS SUBSYSTEMS (continued)

Each Emergency Core Cooling System (ECCS) subsystem required by Technical Specification 3.5.2 for design basis accident mitigation includes an OPERABLE high pressure safety injection (HPSI) pump and a low pressure safety injection (LPSI) pump. Each of these pumps requires an OPERABLE flow path capable of taking suction from the refueling water storage tank (RWST) on a safety injection actuation signal (SIAS). Upon depletion of the inventory in the RWST, as indicated by the generation of a Sump Recirculation Actuation Signal (SRAS), the suction for the HPSI pumps will automatically be transferred to the containment sump. The SRAS will also secure the LPSI pumps. The ECCS subsystems satisfy Criterion 3 of 10 CFR 50.36(c)(2)(ii) as design basis accident mitigation equipment.

Flow from the charging pumps is no longer required for design basis accident mitigation. The loss of coolant accident analysis has been revised and no credit is taken for charging pump flow.

As a result, the charging pumps no longer meet the first three criteria of 10CFR 50.36 (c)(2)(ii) as design basis accident mitigation equipment required to be controlled by Technical Specifications. In addition, risk evaluations have been performed to demonstrate that the charging system is not risk significant as defined in 10CFR 50.36(c)(2)(ii) Criterion 4. However, the charging system is credited in the PRA model for mitigating two beyond design basis events, Anticipated Transients Without Scram (ATWS) and Complete Loss of Secondary Heat Sink. On this basis, the requirements for charging pump OPERABILITY will be retained in Technical Specification 3.5.2. Consistent with the surveillance requirements, only the charging pump will be included in determining ECCS subsystem OPERABILITY.

As a result of the risk insight, the charging pump will be included as an Emergency Core Cooling System subsystem required by Technical Specification 3.5.2. That is, an ECCS subsystem will include one OPERABLE charging pump. The charging pump credited for each ECCS subsystem must meet the surveillance requirements specified in Section 4.5.2. Consistent with the risk insights, automatic start of the charging pump is not required for compliance to TS 3.5.2. Thus, Section 4.5.2 does not specify any testing requirements for the automatic start of the credited charging pump. Similarly, since the ECCS flow path is not credited in the risk evaluation, there are no charging flow path requirements included in TS 3.5.2.

The requirements for automatic actuation of the charging pumps and the associated boration system components (boric acid pumps, gravity feed valves, boric acid flow path valves), which align the boric acid storage tanks to the charging pump suction on a SIAS, have been relocated to the Technical Requirements Manual. These relocated requirements do not affect the OPERABILITY of the charging pumps for Technical Specification 3.5.2.

And the requirement to periodically verify pump flows,

3/4.5 EMERGENCY CORE COOLING SYSTEMS (ECCS)BASES3/4.5.2 and 3/4.5.3 ECCS SUBSYSTEMS (continued)

Surveillance Requirement 4.5.2.a verifies the correct alignment for manual, power operated, and automatic valves in the ECCS flow paths to provide assurance that the proper flow paths will exist for ECCS operation. This surveillance does not apply to valves that are locked, sealed, or otherwise secured in position, since these valves were verified to be in the correct position prior to locking, sealing, or securing. A valve that receives an actuation signal is allowed to be in a nonaccident position provided the valve automatically repositions within the proper stroke time. This surveillance does not require any testing or valve manipulation. Rather, it involves verification that those valves capable of being mispositioned are in the correct position. The 31 day frequency is appropriate because the valves are operated under procedural control and an improper valve position would only affect a single train. This frequency has been shown to be acceptable through operating experience.

Surveillance Requirement 4.5.2.b verifies proper valve position to ensure that the flow path from the ECCS pumps to the RCS is maintained. Misalignment of these valves could render both ECCS trains inoperable. Securing these valves in position by removing power to the valve operator ensures that the valves cannot be inadvertently misaligned or change position as the result of an active failure. A 31 day frequency is considered reasonable in view of other administrative controls ensuring that a mispositioned valve is an unlikely possibility.

Surveillance Requirements 4.5.2.c and 4.5.2.d, which address periodic surveillance testing of the ECCS pumps (high pressure and low pressure safety injection pumps) to detect gross degradation caused by impeller structural damage or other hydraulic component problems, is required by Section XI of the ASME Code. This type of testing may be accomplished by measuring the pump developed head at only one point of the pump characteristic curve. This verifies both that the measured performance is within an acceptable tolerance of the original pump baseline performance and that the performance at the test flow is greater than or equal to the performance assumed in the unit safety analysis. The surveillance requirements are specified in the Inservice Testing Program, which encompasses Section XI of the ASME Code. Section XI of the ASME Code provides the activities and frequencies necessary to satisfy the requirements.

~~Surveillance Requirement 4.5.2.e, which addresses periodic surveillance testing of the charging pumps to detect gross degradation caused by hydraulic component problems, is required by Section XI of the ASME Code. For positive displacement pumps, this type of testing may be accomplished by comparing the measured pump flow, discharge pressure and vibration to their respective acceptance criteria. Acceptance criteria are verified to bound the assumptions utilized in accident analyses. This verifies both that the measured performance is within an acceptable tolerance of the original pump baseline performance and that the performance at the test point is greater than or equal to the performance assumed for mitigation of the beyond design basis events. The surveillance requirements are specified in the Inservice Testing Program, which encompasses Section XI of the ASME Code. Section XI of the ASME Code provides the activities and frequencies necessary to satisfy the requirements.~~