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U.S. Nuclear Regulatory Commission
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DOMINION NUCLEAR CONNECTICUT, INC.
MILLSTONE POWER STATION UNITS 1, 2, 3, AND ISFSI
10 CFR 50.59, 10 CFR 72.48 CHANGE REPORT FOR 2012,
AND COMMITMENT CHANGE REPORT FOR 2012

Pursuant to the provisions of 10 CFR 50.59(d)(2), the report for changes made to the facility for Millstone Power Station Unit 2 (MPS2) and Unit 3 (MPS3) are submitted via Attachments 1 and 2 respectively for the year 2012. There were no changes made to the facility for Millstone Power Station Unit 1 (MPS1) and the Independent Spent Fuel Storage Installation (ISFSI).

During 2012 there were no commitment changes for MPS1, MPS2, MPS3 or the ISFSI. This constitutes the annual Commitment Change Report consistent with the Millstone Power Station's Regulatory Commitment Management Program.

If you have any questions or require additional information, please contact Mr. William D. Bartron at (860) 444-4301.

Sincerely,

R. K. MacManus
Director, Nuclear Station Safety and Licensing

FSME20
IE47
NMSS26

Attachments: 2

Commitments made in this letter: None.

cc: U. S. Nuclear Regulatory Commission
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Attachment 1

10 CFR 50.59 REPORT FOR 2012

Millstone Power Station Unit 2
Dominion Nuclear Connecticut, Inc. (DNC)

Millstone Power Station Unit 2 (MPS2)
S2-EV-11-0004 Revision 0

MP2-10-01016 Revision 0

MPS2 Main Turbine Electro-Hydraulic Control (EHC) System Digital Upgrade

The existing General Electric Mark I Electro-Hydraulic Control (EHC) system for turbine control was replaced with a modern, distributed, General Electric Mark VIe Digital Electro-Hydraulic Control (EHC) system. The new EHC system is a Triple Modular Redundant (TMR), fault tolerant design (including input/output and networking) which provides high reliability and supports online maintenance and testing. The existing Turbine Supervisory Instrumentation (TSI) system will also be replaced with a digital microprocessor based Bently Nevada 3500 system that will interface with the EHC system. The Bently Nevada system will be used for indications and alarms and will have no automatic turbine trip functions.

This evaluation addresses those portions of Design Change MPS2-10-01016 where the 10 CFR 50.59 screening determined a design function was adversely affected because the change was judged to fundamentally alter the existing means of performing or controlling design functions: The following changes were considered:

- Single train analog to TMR digital control, since the digital controls contain different failure modes than the previously installed analog system,
- Conversion from hard controls to soft controls because it involved more than minimal differences in the Human Machine Interface (HMI),
- Change from diverse mechanical and electrical turbine trip mechanisms to redundant electrical turbine trip mechanisms.

The upgraded EHC system is more reliable than the original system. The software program undergoes a detailed validation and verification process, consistent with industry standards, and includes factory acceptance testing, on-site acceptance testing, and post modification testing to assure software integrity. The graphics displays and control features of the HMI workstations were developed in accordance with industry standards and provide several advantages over the previously installed controls. As a result, the new EHC system does not result in a more than minimal increase in the frequency of occurrence of an accident previously evaluated in the Updated Final Safety Analysis Report (UFSAR). Changing from diverse mechanical and electrical turbine trip mechanisms to redundant electrical turbine trip mechanisms impacted the probability that a turbine missile event may occur following a turbine overspeed event caused by the failure of the EHC system. The overspeed protection system reliability of the installed design has been evaluated by the manufacturer. The evaluation concluded the probability of an overspeed event is less for the new design than for the previously installed control system. As such, the change did not result in a more than minimal increase in the likelihood of occurrence of a malfunction of a system, structure, or component (SSC) important to safety previously evaluated in the UFSAR. The modification does not increase the radiological dose consequences of any accident or malfunction of SSC important to safety previously evaluated in the UFSAR, does not introduce the possibility of an accident of a different type, does not result in a

malfunction with a different result or an increased challenge to a fission product barrier than already analyzed in the UFSAR. The change does not result in a departure from a method of evaluation described in the UFSAR used in establishing the design bases or in the safety analyses.

Protective actions such as reactor scram required to respond to an EHC failure are provided by other systems external to the EHC and EHC control interfaces. The protective actions for the Reactor Protection System (RPS) inputs were not modified by this activity. The protection systems are fully redundant and separate from the EHC system.

Attachment 2

10 CFR 50.59 REPORT FOR 2012

Millstone Power Station Unit 3
Dominion Nuclear Connecticut, Inc. (DNC)

Millstone Power Station Unit 3 (MPS3)
S3-EV-04-0001 Revision 1

MP3-UCR-2012-002 Revision 0

UFSAR Update Related to MPS3 Cycle 10 (Region 12) Fuel Design

This Updated Final Safety Analysis Report (UFSAR) change was performed when a review of UFSAR Section 4.2 determined a previous change made by UFSAR Change Request 04-MP3-008 was insufficiently detailed. MP3-UCR-2012-002 updates the fuel product description in Section 4.2 to a level of detail consistent with other fuel product descriptions in this section. Evaluation S3-EV-04-0001, originally written for FSARCR 04-MP3-008 fully bounds the UFSAR changes made by MP3-UCR-2012-002.

The physical change made in the Cycle 10 fuel design included replacing 72 spent fuel assemblies with 72 feed assemblies labeled Region 12 (Batch M), 8 of which were Lead Test Assemblies (LTAs) of the Westinghouse Next Generation Fuel design. The balance of the fresh Region 12 fuel was of the RFA-2 design.

Section 4.2.2 of the UFSAR now includes text that more thoroughly describes the features of the RFA-2 assembly. This added text describes those features of the RFA-2 assembly which differ from the RFA fuel assembly, previously used in Cycles 7 to 9. The level of detail of the added text is now consistent with that in other portions of Section 4.2.2.

Also in Section 4.2.2, the first sentence of the last paragraph, related to the LTA program initiated in Cycle 10, was made to provide clarity.

The implementation of the MPS3 Cycle 10 reload core design did not affect any accidents or malfunctions evaluated in the UFSAR, nor did it create a new type of event not previously evaluated in the UFSAR. Implementation of the Cycle 10 reload core design did not create a negative impact on any fission product barrier as described in the UFSAR. The reload core design criteria and licensing basis acceptance criteria evaluations did not result in a departure from any evaluation methodology used in establishing the MPS3 design basis or safety analysis.