Dominion Nuclear Connecticut, Inc.
Millstone Power Station
Rope Ferry Road
Waterford, CT 06385

Dominion

February 25, 2008

U. S. Nuclear Regulatory Commission
Attention: Document Control Desk
One White Flint North
11555 Rockville Pike
Rockville, MD 20852-2378

Serial No.: 07-0834J
NLOS/MAE: R1
Docket No.: 50-423
License No.: NPF-49

DOMINION NUCLEAR CONNECTICUT, INC.
MILLSTONE POWER STATION UNIT 3
RESPONSE TO REQUEST FOR ADDITIONAL INFORMATION REGARDING STRETCH POWER UPRATE LICENSE AMENDMENT REQUEST
SUPPLEMENTAL RESPONSE TO QUESTION EMCB-07-0072

Dominion Nuclear Connecticut, Inc. (DNC) submitted a stretch power uprate license amendment request (LAR) for Millstone Power Station Unit 3 (MPS3) in letters dated July 13, 2007 (Serial Nos. 07-0450 and 07-0450A), and supplemented the submittal by letters dated September 12, 2007 (Serial No. 07-0450B) and December 13, 2007 (Serial No. 07-0450C). The NRC staff forwarded requests for additional information (RAIs) in October 29, 2007, November 26, 2007, December 14, 2007 and December 20, 2007 letters. DNC responded to the RAIs in letters dated November 19, 2007 (Serial No. 07-0751), December 17, 2007 (Serial No. 07-0799), January 10, 2008 (Serial Nos. 07-0834, 07-0834A, 07-0834C, and 07-0834F), January 11, 2008 (Serial Nos. 07-0834B, 07-0834E, 07-0834G, and 07-0834H), January 14, 2008 (Serial No. 07-0834D), January 18, 2008 (Serial Nos. 07-0846, 07-0846A, 07-0846B, 07-0846C, 07-0846D), and January 31, 2008 (Serial No. 07-0834I).

The response to question EMCB-07-0072 in DNC letter dated January 14, 2008, contained a commitment to provide a summary of final results of elastic-plastic analysis as requested in the NRC staff's question. The supplemental response to question EMCB-07-0072 contained in the attachment to this letter provides the requested information.

The information provided by this letter does not affect the conclusions of the significant hazards consideration discussion in the December 13, 2007 DNC letter (Serial No. 07-0450C).

Should you have any questions in regard to this submittal, please contact Ms. Margaret Earle at 804-273-2768.

Sincerely,

Gerald T. Bischof
Vice President - Nuclear Engineering

COMMONWEALTH OF VIRGINIA)
)
COUNTY OF HENRICO)

The foregoing document was acknowledged before me, in and for the County and Commonwealth aforesaid, today by Gerald T. Bischof, who is Vice President - Nuclear Engineering of Dominion Nuclear Connecticut, Inc. He has affirmed before me that he is duly authorized to execute and file the foregoing document in behalf of that Company, and that the statements in the document are true to the best of his knowledge and belief.

Acknowledged before me this 25TH day of February, 2008.

My Commission Expires: May 31, 2010.

Vicki L. Hull
Notary Public

VICKI L. HULL
Notary Public
Commonwealth of Virginia
140642
My Commission Expires May 31, 2010

Commitments made in this letter: None

Attachment

cc: U.S. Nuclear Regulatory Commission
Region I
Regional Administrator
475 Allendale Road
King of Prussia, PA 19406-1415

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NRC Senior Resident Inspector
Millstone Power Station

Director
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Monitoring and Radiation Division
Department of Environmental Protection
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ATTACHMENT

LICENSE AMENDMENT REQUEST

STRETCH POWER UPRATE LICENSE AMENDMENT REQUEST

RESPONSE TO REQUEST FOR ADDITIONAL INFORMATION

SUPPLEMENTAL RESPONSE TO QUESTION EMCB-07-0072

MILLSTONE POWER STATION UNIT 3
DOMINION NUCLEAR CONNECTICUT, INC.

Mechanical and Civil Engineering Branch

EMCB-07-0072

In addition to Table 2.2.3-3, various components listed in Tables 2.2.2.3-1, 2.2.2.5.2.2-1 and 2.2.2.7.2-2 of LAR Attachment 5, which contain stress summaries, have failed to meet the NB-3222.2 primary plus secondary stress intensity requirement of 3Sm. Attachment 5 states that these components have been qualified by passing the simplified elastic-plastic analysis of NB 3228.5.

a) Provide a summary of the evaluations which shows that the special rules for exceeding 3Sm as provided by (a) through (f) of subparagraph 3228.5 have been met.
b) Tables 2.2.2.5.2.2-1 and 2.2.2.7.2-2 also provide acceptability of components, that failed to meet the 3Sm allowable, through NB-3228.3. Discuss the basis and show that you meet the requirements for using the NB-3228.3 criteria. Also provide a summary of the analysis results, which shows that the requirements of NB-3228.3 have been met.

DNC Initial Response (January 14, 2008)

Several steam generator and pressurizer locations have maximum stress ranges that exceed the 3Sm limit in NB-3222.2. Most of these sections meet the simplified elastic-plastic analysis criteria in NB-3228.3 of the ASME B&PV Code, Section 111, 1971 Edition through the summer 1973 Addendum (equivalent to NB-3228.5 in latter Code Editions). In NB-3228.3 there are six requirements, (a) through (f), which are satisfied. A summary showing that each of these requirements have been satisfied will be provided. In addition, those sections that exceed 3Sm and that were qualified by full elastic-plastic analysis will also be summarized in the response showing details of the plasticity analysis. Documentation of the final results of the elastic-plastic analysis is under development. A summary of the results will be provided by February 28, 2008.

DNC Supplemental Response

(a & b) The following six criteria were considered in evaluating the components listed as not meeting the $3S_m$ stress limit. Each of the criteria is listed followed by a brief discussion about why the criterion was met for those components in question. Fatigue analysis for all of the affected components proceeded according to the Code with the exception that the affected stress ranges were multiplied by the K_e factor calculated per NB-3228 (b).

While the alternating stress failed to meet $3S_m$ initially, it was shown to meet the $3S_m$ limit once the thermal bending stress was removed and is therefore acceptable.

In all cases, the requirements (a) through (f), which require a simplified elastic-plastic analysis, were met as discussed below.

NB-3228.3 (a) The range of primary-plus-secondary membrane plus bending stress intensity, excluding thermal bending stresses, shall be $\leq 3S_m$.

For the components that were evaluated using the simplified elastic-plastic methodology, the primary-plus-secondary membrane plus bending stress intensity excluding thermal bending compared to the allowable limit ($3S_m$) are shown to be less than 1.0. This requirement is therefore met for the components listed as not initially meeting the $3S_m$ limit with thermal bending considered.

NB-3228.3 (b) The value of S_a used for entering the design fatigue curve is multiplied by the factor K_e, ...

The K_e factor as defined for this requirement is calculated for all stress ranges that exceed the $3S_m$ limit. S_a is multiplied by the K_e factor and this product is used to enter the design fatigue curve. This is done for all components where a simplified elastic-plastic analysis is performed.

NB-3228.3 (c) The rest of the fatigue evaluation stays the same as required in NB-3222.4, except that the procedure of NB-3227.6 need not be used.

The fatigue analysis for all components is performed per the Code. Where $3S_m$ is exceeded, the alternating stress (S_a) used to enter the fatigue curve is multiplied by K_e and the fatigue usage for that combination is calculated. Otherwise there was no change to the methodology used to calculate the fatigue usage factor for the components.

NB-3228.3 (d) The component meets the thermal ratcheting requirement of NB-3222.5.

The components listed as applying the simplified elastic-plastic analysis methodology meet this condition either because the component is not subject to internal steady state pressure loading (blowdown pipe) or because the stress has been shown to meet the Code requirements for thermal stress ratchet.

NB-3228.3 (e) The temperature does not exceed those listed in the above

table for the various classes of Code materials.

Since the maximum temperatures specified in the table of "m" and "n" parameters for various classes of Code materials, Item (b) above, is 700 and 800 degrees F, and none of the steam generator components exceed 700 degrees F, this requirement is met for all steam generator components.

NB-3228.3 (f) The material shall have a minimum specified yield strength to minimum specified ultimate strength ratio of less than 0.80.

Steam generator materials used within the Millstone steam generators have a minimum specified yield strength to minimum specified ultimate strength ratio less than 0.70 for the range of materials and temperatures. This is less than the maximum of 0.80 required by the Code. Therefore, this requirement is met for all of the components considered.