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

Dominion

December 23, 2004

U.S. Nuclear Regulatory Commission
Attention: Document Control Desk
Washington, D.C. 20555

Serial No.	04-722
NL&OS/PRW	R0
Docket No.	50-336
License No.	DPR-65

DOMINION NUCLEAR CONNECTICUT, INC.
MILLSTONE POWER STATION UNIT 2
RESPONSE TO REQUEST FOR ADDITIONAL INFORMATION
PROPOSED RISK-INFORMED TECHNICAL SPECIFICATIONS CHANGE
FIVE-YEAR EXTENSION OF TYPE A TEST INTERVAL

In a letter dated July 6, 2004, as supplemented by a letter dated September 21, 2004, Dominion Nuclear Connecticut, Inc. (DNC) requested an amendment to Operating License DPR-65 for Millstone Power Station Unit 2 in the form of a change to the Technical Specifications for Millstone Power Station Unit 2. The proposed change would permit a one-time, five-year extension of the ten-year performance-based Type A test interval established in NEI 94-01, "Nuclear Energy Institute Industry Guideline For Implementing Performance-Based Option of 10 CFR Part 50, Appendix J," Revision 0, dated July 26, 1995.

In a letter dated November 15, 2004, the NRC requested additional information in order to complete its evaluation. Attachment 1 of this letter is DNC's response to the request for additional information.

In accordance with 10CFR50.91(b), a copy of this letter is being provided to the State of Connecticut.

Should you require additional information regarding this matter, please contact Mr. Paul R. Willoughby at (804) 273-3572.

Very truly yours,

W R Matthews

William R. Matthews
Senior Vice President – Nuclear Operations

Attachment (1)

Commitments made in this letter: None

cc: U.S. Nuclear Regulatory Commission
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COMMONWEALTH OF VIRGINIA)
)
COUNTY OF HENRICO)

The foregoing document was acknowledged before me, in and for the County and Commonwealth aforesaid, today by William R. Matthews, who is Senior Vice President - Nuclear Operations 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 23rd day of December, 2004.

My Commission Expires: May 31, 2006.

Vicki L. Hull
Notary Public

(SEAL)

ATTACHMENT 1

**PROPOSED RISK-INFORMED TECHNICAL SPECIFICATIONS CHANGE
FIVE-YEAR EXTENSION OF TYPE A TEST INTERVAL**

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**MILLSTONE POWER STATION, UNIT 2
DOMINION NUCLEAR CONNECTICUT, INC.**

PROPOSED RISK-INFORMED TECHNICAL SPECIFICATIONS CHANGE FIVE-YEAR EXTENSION OF TYPE A TEST INTERVAL RESPONSE TO REQUEST FOR ADDITIONAL INFORMATION

In a letter dated July 6, 2004, as supplemented by a letter dated September 21, 2004, Dominion Nuclear Connecticut, Inc. (DNC) requested an amendment to Operating License DPR-65 for Millstone Power Station Unit 2 in the form of a change to the Technical Specifications for Millstone Power Station Unit 2. The proposed change would permit a one-time, five-year extension of the ten-year performance-based Type A test interval established in NEI 94-01, "Nuclear Energy Institute Industry Guideline For Implementing Performance-Based Option of 10 CFR Part 50, Appendix J," Revision 0, dated July 26, 1995.

In a letter dated November 15, 2004, the NRC requested additional information in order to complete its evaluation. Below is DNC's response to the request for additional information.

NRC Question 1.

The risk assessment methodology used to support the integrated leak rate test (ILRT) interval extension for Millstone Power Station, Unit No. 2 (MP2) is based on a methodology developed by the Electric Power Research Institute (EPRI) in 1994. A revision to this methodology was developed for the Nuclear Energy Institute (NEI) by EPRI in 2001, and corrected/improved the original methodology in several areas. Based on an NRC staff assessment, the revised methodology (referred to as the NEI Interim Guidance) would indicate larger risk impacts (e.g., Δlarge early release frequency (LERF)) for the ILRT interval extension than the original. In view of the non-conservative nature of the original EPRI methodology, please provide a reassessment of the risk impacts of the requested change for MP2 based on the NEI Interim Guidance. In reporting risk results (for Δperson-rem, ΔLERF, and Δconditional containment failure probability), include results corresponding to a change in test frequency from 3 tests in 10 years to 1 test in 15 years.

DNC Response

The method that Dominion used in the July 6, 2004 submittal has been revised using the requested NEI Interim Guidance method that was issued in November 2001. The results of the improved methodology are shown in Table 1 below. It is seen that the base (3 in 10 years) percent of total dose was calculated to be 0.003%, which increased to 0.011% for the 1 in 10 year interval, and 0.017% for the 1 in 15 year interval. The ΔLERF for the Base to 10 year interval is now 4.5E-7/yr and the Base to 15 year interval is 7.8E-7/yr. The Δconditional containment failure probability (ΔCCFP) has increased by 0.64% for the 1 in 10

year interval and 1.1% for the 1 in 15 year interval. The guidance in Reg. Guide 1.174 states that when the calculated increase in LERF is less than 10^{-7} per reactor year, the increase is "very small." In addition, if the increase in LERF is in the range of 10^{-7} per reactor year to 10^{-6} per reactor year, applications will also be considered if it can be shown that the total LERF is less than 10^{-5} per reactor year. The baseline total LERF was calculated to be 7.9E-7/year.

The results in Table 1 have shown that the 10 and 15 year metrics meet the above criteria from Reg. Guide 1.174, since the total LERF is more than an order of magnitude less than 10^{-5} per reactor year. In addition, the following conservatisms are noted in the analysis:

- The first conservatism exists in the calculation method of the conditional probability of Class 3b accidents. Although it is stated in the NEI interim guidance report that to date there have been no large early containment failures in the industry, the method required to calculate the Class 3b frequency still results in a significant LERF from such failures. As a result the Class 3b accident for the 15 year interval, results in a 9% [(9.7E-7/1.1E-5)*100] increase above the "No containment failure" Class 1 frequency using the conservative Class 3b calculation method.
- A second conservatism exists in the fact that the methodology calculates increases in Classes 3a and 3b and then subtracts these increases from the Class 1 (no containment failure) category only. In reality, much of those increases should actually be subtracted proportionately from all Classes (early and especially late containment failures), instead of just Class 1. Class 7 comprises 81% of the total CDF, while Class 1 only contributes 15% to the total CDF. Since the 3a/3b frequencies are calculated based on a fraction of the total CDF, this means that 81% of the 3a/3b frequencies result from Class 7, and only 15% from Class 1. In addition as seen in Table 1, the base dose of Class 7 is actually much larger than those of Class 3a or even 3b, so if the Class 3a and 3b frequencies were subtracted from Class 7 alone, the product offsite dose rate for Class 7 would actually decrease. Also since the Class 7 or 8 dose is much higher than Class 3b, this indicates that it is very conservative to even consider Class 3b as a large release.
- Similar to the second conservatism, the methodology for the CCFP equation states that the Class 3a and 3b frequency be subtracted from Class 1 only, but much of it should really be subtracted from Class 7 (early/late containment failures) instead. If most of the Class 3a and 3b frequencies were subtracted from Class 7 (instead of Class 1), the ΔCCFP would also be smaller.
- A fourth conservatism exists in the conservatively high CDF that was used in this analysis. If the updated PRA model CDF (which is less) was used in this

analysis, the resulting Class 3a and 3b frequencies would decrease the 10 and 15 year metrics proportionately.

- A fifth conservatism exists in the conservatively high baseline LERF that was used in this analysis. If the updated PRA model LERF (which is less) was used in this analysis, the baseline LERF would decrease the 10 and 15 year metrics proportionately.

Table 1: Summary of Results

EPRI Class	Base Freq /Rx-yr	Base Dose Person-Rem	Base (3/10) Freq /Rx-yr	Base Dose rate Person-Rem/yr	10yr Freq /Rx-yr	10yr Dose rate Person-Rem/yr	10yr Metrics	15yr Freq /Rx-yr	15yr Dose rate Person-Rem/yr	15yr Metrics
1	1.08E-05	2.27 E+1	8.67 E-6	1.97E-04	3.69E-06	8.38E-05		1.30E-07	2.95E-06	
2	0.00E+00	1.32 E+5	0.00E+00	0.00E+00	0.00E+00	0.00E+00		0.00E+00	0.00E+00	
3a	N/A	2.27 E+2	1.94 E-6	4.40E-04	6.46E-06	1.47E-03		9.70E-06	2.20E-03	
3b	N/A	7.95 E+2	1.94 E-7	1.54E-04	6.46E-07	5.14E-04		9.70E-07	7.71E-04	
4	N/A	N/A	N/A	N/A	N/A	N/A		N/A	N/A	
5	N/A	N/A	N/A	N/A	N/A	N/A		N/A	N/A	
6	N/A	N/A	N/A	N/A	N/A	N/A		N/A	N/A	
7	5.84 E-5	2.48 E+5	5.84 E-5	1.45E+01	5.84 E-5	1.45E+01		5.84 E-5	1.45E+01	
8	2.47 E-6	1.18 E+6	2.47 E-6	2.91E+00	2.47 E-6	2.91E+00		2.47 E-6	2.91E+00	
	7.17 E-5		**7.17 E-5**	**1.74E+01**	**7.17 E-5**	**1.74E+01**		**7.17 E-5**	**1.74E+01**	
	(CDF)		(CDF)		(CDF)			(CDF)		
ΔDR Change from Base							1.27E-3			2.18E-3
ILRT DR % of total dose				0.003			0.011			0.017
Δ% Change in ILRT DR from Base							0.008			0.014
LERF				7.93E-7			1.25E-6			1.57E-6
Δ LERF from base							4.52E-7			7.76E-7
CCFP, %				85.20			85.84			86.28
Δ CCFP, %							0.64			1.09
CDF	**7.17 E-5**									

NRC Question 2.

Table 3 of Attachment 2 of your submittal, provides the estimated population dose for each accident class as well as the total population dose summed over all accident classes. The population doses assigned to Class 7 and 8 are substantially higher than values reported for similar release categories in the severe accident mitigation alternative (SAMA) analysis submitted in support of the MP2 license renewal. Specifically, for early and late containment failures (Class 7), Table 3 indicates a dose of 1.9E6 person-rem, whereas Table F.1-4 of the SAMA analysis indicates a maximum dose of 7.04E5 person-rem. For containment bypass (Class 8), Table 3 indicates a dose of 4.96E6 person-rem, whereas Table F.1-4 of the SAMA analysis indicates a maximum dose of 3.9E6 person-rem. The total population dose in Table 3 (123 person-rem per year) is also substantially higher than that in the SAMA analysis (17.4 person-rem per year). Use of the higher dose values leads to an under-estimate of the percent increase in the population dose resulting from the ILRT interval extension. Please reconcile the population dose values with those in the SAMA analysis, and provide a reassessment of the impact of the ILRT interval extension on population dose based on appropriate population dose values.

DNC Response

As noted in response to Question 1, the risk assessment methodology has been revised using the NEI Interim Guidance report. The revised evaluation used a different method in obtaining the Class 7 and 8 population dose. Previously the Class 7 population dose was obtained simply by summing all Class 7 contributors from SAMA Table F.1-4. The revised ILRT evaluation obtained the Class 7 and Class 8 population dose by summing the frequency weighted population dose contributors. The Class 7 dose contributors include M-2, M-3, M-5, M6, M-7, M-8, M-9, M-10 and M-11 from SAMA Table F.1-4. The Class 8 dose contributors include M-1A and M-1B from SAMA Table F.1-4. From Table 1 the revised Class 7 dose is 2.5E+5 person-rem and the revised Class 8 dose is 1.2E+6 person-rem. The revised total population dose rate in Table 1 is 17.4 person-rem/yr which is consistent with the SAMA analysis Table F.1-4.