Dominion Energy Kewaunee, Inc.
5000 Dominion Boulevard, Glen Allen, VA 23060

Dominion®

December 17, 2008

ATTN: Document Control Desk
U. S. Nuclear Regulatory Commission
Washington, DC 20555-0001

Serial No. 08-0475A
LIC/JF/R0
Docket No.: 50-305
License No. DPR-43

DOMINION ENERGY KEWAUNEE, INC.
KEWAUNEE POWER STATION
RESPONSE TO NRC REQUEST FOR ADDITIONAL INFORMATION REGARDING LICENSE AMENDMENT REQUEST – 242, EXTENSION OF THE ONE-TIME FIFTEEN YEAR CONTAINMENT INTEGRATED LEAK RATE TEST INTERVAL

Pursuant to 10 CFR 50.90, on September 11, 2008 Dominion Energy Kewaunee, Inc. (DEK) submitted a proposed amendment to the Kewaunee Power Station (KPS) Technical Specifications (TS) (reference 1). The proposed amendment would change KPS TS 4.4.a, *"Integrated Leak Rate Tests Type A,"* to permit a one-time, six-month extension, to the currently approved 15-year interval between Type A containment integrated leak rate tests.

Subsequently, the Nuclear Regulatory Commission (NRC) transmitted a request for additional information (RAI) regarding the proposed amendment (reference 2). The RAI questions and associated DEK responses are provided in the attachment to this letter.

The attached responses and supplemental information do not change the conclusions of the no significant hazards determination provided in reference 1.

A complete copy of this submittal has been transmitted to the State of Wisconsin as required by 10 CFR 50.91(b)(1).

If you have any questions or require additional information, please contact Mr. Craig Sly at (804) 273-2784.

Sincerely,

J. Alan Price
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 J. Alan Price, who is Vice President – Nuclear Engineering of Dominion Energy Kewaunee, 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 17TH day of December, 2008.

My Commission Expires: May 31, 2010.

VICKI L. HULL
Notary Public
Commonwealth of Virginia
140542
My Commission Expires May 31, 2010

Vicki L. Hull
Notary Public

Attachment:

Response to NRC Request for Additional Information Regarding Kewaunee License Amendment Request 242

Commitments made in this letter: None

References:

1. Letter from L. N. Hartz (DEK) to Document Control Desk (NRC), "License Amendment Request 242: Extension of the One-Time Fifteen Year Containment Integrated Leak Rate Test Interval," dated September 11, 2008. [ADAMS Accession No. ML082550700]
2. Email from Peter S. Tam (NRC) to Jack Gadzala, Thomas Breene and Craig Sly (DEK), "Kewaunee - Revised draft RAI on the PRA for proposed amendment re. extended ILRT interval (TAC MD9612)," dated November 18, 2008. [ADAMS Accession No. ML083240835]

cc: Regional Administrator, Region III
U. S. Nuclear Regulatory Commission
2443 Warrenville Road
Suite 210
Lisle, IL 60532-4352

Mr. P. S. Tam
Senior Project Manager
U.S. Nuclear Regulatory Commission
One White Flint North, Mail Stop O8-H4A
11555 Rockville Pike
Rockville, MD 20852-2738

NRC Senior Resident Inspector
Kewaunee Power Station

Public Service Commission of Wisconsin
Electric Division
P.O. Box 7854
Madison, WI 53707

ATTACHMENT

RESPONSE TO NRC REQUEST FOR ADDITIONAL INFORMATION REGARDING KEWAUNEE LICENSE AMENDMENT REQUEST 242

KEWAUNEE POWER STATION
DOMINION ENERGY KEWAUNEE, INC.

Response to NRC Request for Additional Information Regarding Kewaunee License Amendment Request 242

Pursuant to 10 CFR 50.90, Dominion Energy Kewaunee, Inc. (DEK) submitted a proposed amendment to the Kewaunee Power Station (KPS) Technical Specifications (TS) (reference 1). The proposed amendment would change KPS TS 4.4.a, *"Integrated Leak Rate Tests Type A,"* to permit a one-time, six-month extension to the currently approved 15-year interval between Type A containment integrated leak rate tests (ILRTs).

Subsequently, the Nuclear Regulatory Commission (NRC) transmitted a request for additional information (RAI) regarding the proposed amendment (reference 2). The RAI questions and associated DEK responses are provided below.

NRC Question 1

The baseline internal event core damage frequency (CDF) and large early release frequency (LERF) values used in the integrated leak rate test (ILRT) analysis (4.21E-5 per year and 4.86E-6 per year, respectively, based on PRA Version K107Aa dated July 2008) are about half the values reported in the recent Kewaunee severe accident mitigation alternative (SAMA) analysis (8.1E-5 per year and 9.9E-6 per year, respectively, based on PRA Version K101AASAMA dated May 2007). Provide a description of the major changes to PRA models and assumptions that account for these reductions.

Response:

On August 12, 2008, DEK submitted to the NRC a request to renew the operating license for KPS (reference 5). Included within that submittal is Appendix E entitled, "Environmental Report." Within the Environmental Report is a section entitled, "Severe Accident Mitigation Alternatives (SAMA)." This section provides an analysis of alternative methods to mitigate the impact of severe accidents at KPS. Within the SAMA is a Probabilistic Risk Assessment (PRA) that provides input to an NRC approved methodology for determining economic costs and dose to the public from hypothesized releases from the containment structure into the environment.

The PRA input for the SAMA analysis was prepared in March 2007, using version K101AASAMA of the KPS PRA model. This revision of the KPS PRA model is an updated version of KPS PRA model revision K101AA. The K101AA model was released in October of 2006. The internal event updates to K101AA that resulted in the K101AASAMA version included:

A. Correction of an error in the service water induced flood isolation model, and

B. A conservative evaluation of the impact of proposed design changes on the internal flooding hazard contribution to core damage frequency (CDF) and large early release frequency (LERF). These design changes included:
   - Installing spray shields on service water headers near 480 V and 4160 V switchgear,
   - Installing a water-tight door between the auxiliary feedwater pump rooms and the auxiliary building, and
   - Raising two 480 V safeguards breakers.

On September 11, 2008 DEK submitted a license amendment request (LAR) to the NRC (reference 1). The proposed LAR would change KPS TS 4.4.a, *"Integrated Leak Rate Tests Type A,"* to permit a one-time, six-month extension to the currently approved 15-year interval between Type A containment ILRTs.

The PRA input for the ILRT LAR (referred to herein as ILRT-2008) was prepared in September 2008 using version K107AaILRT of the KPS PRA model. This model version was based on an updated version of KPS PRA model revision K107Aa. The K107Aa revision was released in July 2008.

The internal events update to K107Aa that resulted in the K107AaILRT model included a re-evaluation of a few risk significant operator actions to address conservatively calculated human error probabilities (HEPs). These HEPs were re-calculated using the SPAR-H model, developed by the NRC and recognized as a conservative methodology.

Between the K101AASAMA and K107Aa revisions of the KPS PRA models, DEK made a number of changes that included the following:

A. Incorporation of several minor corrections,

B. A database update which was completed in 2007, and

C. An update to the internal flooding hazard contribution based on evaluation of the "as installed" configuration of the plant modifications described in the K101AASAMA model.

NRC Question 2

Identify the version of the PRA subjected to the independent assessment performed in January 2008. Describe any assessment findings/issues in areas related to the aforementioned CDF and LERF reductions. Describe the resolution of these issues and the impact of any unresolved issues on the risk results for the requested change.

Response:

KPS PRA model K107A, released in August of 2007, was subjected to an independent assessment in January 2008. DEK provided a description of the method of performance and results of the independent assessment in the areas related to the CDF and LERF reductions in reference 1 (attachment 1, section 3.6.3, pages 27 –29).

In the response to Question 1, it was identified that two major changes to the internal events portion of the KPS PRA model occurred between the SAMA evaluation and the ILRT-2008 evaluation (re-evaluation of the contribution of internal flooding hazard and recalculation of the HEPs). Both of these major changes occurred after the January 2008 independent assessment was performed.

Neither of the above changes was made to address a specific finding/issue raised as a result of the aforementioned independent assessment. The changes were made to address the independent assessment in areas of PRA model fidelity with respect to the "as built/as operated" plant and realistic estimation of human error failure probabilities. The impact of the unresolved issues on the risk insights for the requested change is discussed in section 3.6.3 of reference 1.

NRC Question 3

The fire LERF used in the ILRT analysis (3.18E-8 per year based on a December 2003 RAI response) is lower than the value reported in the SAMA analysis (4.90E-8 per year). Justify the fire LERF value used in the ILRT analysis in view of the results from the most recent internal event and fire assessments.

Response:

In June 2003, DEK submitted to the NRC an LAR to revise the Surveillance Requirements for containment ILRT in TS 4.4.a, "*Integrated Leak Rate Tests (Type A),*" (reference 3). This change would allow a one-time extension of the interval between ILRTs from 10 to 15 years. In this LAR, DEK provided a calculation of the risk impact assessment for extending the containment Type A test interval. The calculation did not include contributions from external events. The calculation of the risk impact assessment was subsequently revised in a December 2003 RAI response to the NRC (reference 4). (This is referred to as ILRT-2003.) In this analysis, external events were addressed.

In the ILRT-2008 analysis, the fire LERF value from the ILRT-2003 analysis was carried forward to show the actual change in risk values due to the proposed one-time increase to the Type A test interval. The contributions from the external events hazards (fire and seismic) to CDF and LERF were taken from ILRT-2003, on the basis that the evaluation of these hazards had not been updated. The ILRT-2003 analysis used the PRA results that were current at the time of the application (December 2003). This was thought to

be prudent because the ILRT-2008 analysis and the ILRT-2003 analysis used similar risk analysis methodologies.

The fire LERF value in the SAMA analysis was derived from the most recent version of the fire PRA (October 2004). Most of the difference between the LERF value in the ILRT-2003 analysis (3.18E-8 per year) and the LERF value in the SAMA analysis (4.90E-8 per year) is due to the difference in the level of truncation. Specifically, in the ILRT-2003 analysis, cutsets with probabilities below 1E-10/yr were truncated out (eliminated from consideration) while in the SAMA analysis, cutsets with probabilities below 1E-12/yr were truncated out. Note that decreasing the truncation level to 1E-13/yr results in a LERF increase of only 1.7%, indicating that 1E-12/yr is a sufficiently low truncation level. In addition to the truncation level changes, some HEPs were updated in the time between the models, but this only resulted in a 0.06% increase in LERF.

Note that use of the SAMA value for fire LERF would not change the risk insights for the ILRT evaluation.

Based on the above, use of the fire LERF value in the ILRT-2008 analysis is justified because it is consistent with the value used in the ILRT-2003 analysis and the differences are primarily due to the truncation level used. Furthermore, even if the higher value used in the SAMA analysis was used, the total risk insights would not change.

References:

1. Letter from L. N. Hartz (DEK) to Document Control Desk (NRC), "License Amendment Request 242: Extension of the One-Time Fifteen Year Containment Integrated Leak Rate Test Interval," dated September 11, 2008. [ADAMS Accession No. ML082550700]
2. Email from Peter S. Tam (NRC) to Jack Gadzala, Thomas Breene and Craig Sly (DEK), "Kewaunee - Revised draft RAI on the PRA for proposed amendment re. extended ILRT interval (TAC MD9612)," dated November 18, 2008. [ADAMS Accession No. ML083240835]
3. Letter from T. Coutu (NMC) to Document Control Desk (NRC), "License Amendment Request 198 to the Kewaunee Nuclear Power Plant Technical Specifications for One-time Extension of Containment Integrated Leak Rate Test Interval," dated June 20, 2003. [ADAMS Accession No. ML031820613]
4. Letter from T. Coutu (NMC) to Document Control Desk (NRC), "License Amendment Request 198, 'ILRT 5-Year Extension,' NMC Response to NRC Request for Additional Information," dated December 12, 2003. [ADAMS Accession No. ML033570469]
5. Letter from L. N. Hartz (DEK) to Document Control Desk (NRC), "Kewaunee Power Station Application for Renewed Operating License," dated August 12, 2008. [ADAMS Accession Nos. ML082341020 and ML082341038]