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

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November 14, 2006

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

Serial No. 06-944
KPS/LIC/GOR: R2
Docket No. 50-305
License No. DPR-43

DOMINION ENERGY KEWAUNEE, INC.
KEWAUNEE POWER STATION
IRRADIATED REACTOR VESSEL SURVEILLANCE CAPSULE TEST RESULTS FOR KEWAUNEE CAPSULE T PER 10 CFR 50 APPENDIX H

Pursuant to 10 CFR Part 50, Appendix H, as amended by the NRC approved exemptions noted below, Dominion Energy Kewaunee, Inc. (DEK) hereby submits to the Nuclear Regulatory Commission (NRC) irradiated reactor pressure vessel (RPV) capsule test results for Kewaunee Power Station (KPS) surveillance capsule T. Surveillance capsule T was withdrawn from the reactor in November 2004, during a refueling outage (RFO). Due to its location and corresponding lead factor, surveillance capsule T has experienced neutron fluence that is equivalent to or higher than the fluence that the RPV will experience during 60 years of plant operation. The testing and analysis of surveillance capsule T were performed by Westinghouse Electric Company to support the KPS RPV integrity assessments using the methods described in references 3, 4, and 5. Results of the testing and analysis are documented in attachments 1 and 2 to this letter.

In June 1999, KPS staff submitted to the NRC a request for an exemption to the existing rules for evaluating RPV integrity. The exemption requested KPS be allowed use of the T_o based methodology for evaluating the weld metal in the KPS RPV. After a detailed review, the NRC granted three specific exemptions to 10 CFR 50 in 2001 (reference 5). The three exemptions were:

1. An exemption to establish a new methodology to meet the requirements of Appendix G to 10 CFR Part 50;

2. An exemption to establish the use of a new methodology to meet the requirements of 10 CFR 50.61; and

3. An exemption to modify the basis for the KPS RPV surveillance program (required by Appendix H to 10 CFR Part 50) to incorporate the acquisition of fracture toughness data.

As a condition of the exemptions, DEK is committed to use the methodology contained in the enclosure to references 3 and 5 for performing RPV integrity evaluations. Furthermore, in reference 4, KPS committed to obtain the following information regarding KPS's next reactor vessel radiation surveillance capsule:

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a) A valid measurement of the fracture toughness-based T_o parameter for the KPS RPV surveillance weld.

b) An estimate of the Charpy V-notch 30 ft-lb transition temperature shift for the surveillance weld.

c) An estimate of the upper shelf energy drop from the surveillance weld.

On October 17, 2005, DEK requested a 1-year extension for reporting the test results of surveillance capsule T (reference 2). In reference 1, the NRC granted DEK approval to extend the 10 CFR Part 50, Appendix H reporting requirements for surveillance capsule T to November 16, 2006.

Attachment 1 to this letter transmits WCAP-16641-NP, "Analysis of Capsule T from Dominion Energy Kewaunee Power Station Reactor Vessel Radiation Surveillance Program." WCAP-16641-NP provides surveillance capsule T test results in accordance with ASTM E185-82, ASTM E1921-97, and ASTM E1253 as amended by the commitments outlined in reference 4.

Attachment 2 to this letter transmits WCAP-16609-NP, "Master Curve Assessment of KNP RPV Weld Metal." WCAP-16609-NP outlines the analysis of the fracture toughness data obtained from surveillance capsule T. Surveillance capsule T has a neutron fluence slightly in excess of the 60-year fluence projection for the KPS RPV. The fracture toughness based methodology approved in the exemption is described in references 3 and 5. WCAP-16609-NP, Section 8 provides fracture toughness testing results based on two methodologies. These two methodologies are 1) the methodology outlined by the NRC in references 3 and 5 and, 2) the International Atomic Energy Agency (IAEA) methodology. The NRC methodology incorporates additional terms for margin terms. The IAEA results were derived in accordance with the IAEA Technical Report Series No. 429, "Guidelines for Application of the Master Curve Approach to Reactor Pressure Vessel Integrity in Nuclear Power Plants," Vienna, 2005 (attachment 3) and are included for information only.

DEK, Inc. requests that the NRC review the assessment performed using the NRC methodology approved in references 3 and 5, confirming that the conditions cited in the exemptions to the rule have been met.

DEK will submit new heatup and cooldown limitation curves and low temperature overpressure protection (LTOP) limitations following completion of NRC review. The existing heatup and cooldown limit curves and LTOP limitations in KPS's Technical Specifications are applicable through 31.1 effective full power years (EFPY). An analysis performed by the Westinghouse Electric Company of surveillance capsule T, using approved NRC methodology, demonstrates that the current heatup and cooldown curves and LTOP limitations are conservative and applicable through 32 EFPY. The

KPS RPV reached approximately 26 EFPY following completion of fuel cycle 27 in the fall of 2006. The KPS RPV is projected to reach 31.1 EFPY in cycle 31 sometime between December 2011 and January 2012. Thus, sufficient time exists for DEK to incorporate the surveillance capsule T results into the RPV integrity evaluations.

This submittal completes the testing and reporting requirements of 10 CFR Part 50, Appendix H, as amended by NRC approved exemptions, for the KPS RPV for the 40-year life of the plant.

Please contact Mr. Gerald Riste at 920-388-8424 if there are any questions or if we can be of any assistance regarding review of this information.

Very truly yours,

David A. Christian
Sr. Vice President-Nuclear and
Chief Nuclear Officer, Dominion Generation

References:

1. Letter from L. Raghavan (NRC) to Michael G. Gaffney (DEK), "Kewaunee Power Station - Extension of Schedule for Reporting Surveillance Capsule Test Results (TAC NO. MC8828)," dated November 23, 2005 (ADAMS Accession No. ML053270264).
2. Letter from Michael G. Gaffney (DEK) to Document Control Desk (NRC), "Request for Extension of Capsule Test Reporting Requirements Surveillance Program," dated October 17, 2005 (ADAMS Accession No. ML052990282).
3. Letter from John G. Lamb (NRC) to Mark Reddemann (NMC), "Kewaunee Nuclear Power Plant – Exemption from the Requirements of 10 CFR Part 50, Appendix G, Appendix H, and Section 50.61 (TAC NO. MA8585)," dated May 1, 2001 (ADAMS Accession No. ML011210180).
4. Letter from Kyle A. Hoops (NMC) to Document Control Desk (NRC), "Request for Exemption from the Requirements of 10 CFR Part 50 Appendices G and H, and 10 CFR 50.61 (Master Curve)," dated March 12, 2001 (ADAMS Accession No. ML010800019).
5. Letter from John G. Lamb (NRC) to Mark Reddemann (NMC), "Kewaunee Nuclear Power Plant – Exemption from the Requirements of 10 CFR Part 50, Appendix G, Appendix H, and Section 50.61 (TAC NO. MA8585)," dated February 21, 2001 (ADAMS Accession No. ML010540156).

6. Letter from Mark L. Marchi (WPSC) to Document Control Desk (NRC), "Request for Exemption to 10 CFR 50.60, 10 CFR 50.61, and Appendices G and H of Part 50," dated June 7, 1999.

Attachments:

1. WCAP-16641-NP, Revision 0, "Analysis of Capsule T from Dominion Energy Kewaunee Power Station Reactor Vessel Radiation Surveillance Program," October 2006.
2. WCAP-16609-NP, Revision 0, "Master Curve Assessment of KNP RPV Weld Metal," October 2006.
3. IAEA Technical Report Series No. 429, "Guidelines for Application of the Master Curve Approach to Reactor Pressure Vessel Integrity in Nuclear Power Plants," Vienna, 2005.

Commitments made by this letter: NONE

cc: w/ attachments

Mr. D. H. Jaffe
Project Manager
U.S. Nuclear Regulatory Commission
Mail Stop O-7-D-1
Washington, D. C. 20555

cc: w/o attachments

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

Mr. S. C. Burton
NRC Senior Resident Inspector
Kewaunee Power Station