Dominion Energy Kewaunee, Inc.
N490 Hwy 42, Kewaunee, WI 54216
Web Address: www.dom.com

Dominion®

MAR 1 2 2012

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

Serial No. 12-110
LIC/CDS/R0
Docket No. 50-305
License No. DPR-43

DOMINION ENERGY KEWAUNEE, INC.
KEWAUNEE POWER STATION
RESPONSE TO REQUEST FOR ADDITIONAL INFORMATION:
LICENSE AMENDMENT REQUEST 244, PROPOSED REVISION TO RADIOLOGICAL ACCIDENT ANALYSIS AND CONTROL ROOM ENVELOPE HABITABILITY TECHNICAL SPECIFICATIONS (TAC NO. ME7110)

By application dated August 30, 2011 (Reference 1), Dominion Energy Kewaunee, Inc. (DEK), requested an amendment to Facility Operating License Number DPR-43 for Kewaunee Power Station (KPS). This proposed amendment (LAR 244) would revise the KPS Operating License by modifying the Technical Specifications (TS) and the current licensing basis (CLB) to incorporate changes to the current radiological accident analysis (RAA) of record. This amendment would also fulfill a commitment made to the NRC in response to Generic Letter 2003-01, "Control Room Habitability" (References 1 and 2) to submit proposed changes to the KPS TS based on the final approved version of TSTF-448, "Control Room Habitability."

Subsequently, on January 30, 2012, the Nuclear Regulatory Commission (NRC) staff transmitted a request for additional information (RAI) regarding the proposed amendment (Reference 3). The RAI questions and associated DEK responses are provided in Attachment 1 to this letter.

A102
NRR

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

Sincerely,

A. J. Jordan
Site Vice President – Kewaunee Power Station

STATE OF WISCONSIN)
)
COUNTY OF KEWAUNEE)

The foregoing document was acknowledged before me, in and for the County and State aforesaid, today by A. J. Jordan, who is Site Vice President – Kewaunee Power Station, 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 12th day of MARCH, 2012.

My Commission Expires: DECEMBER 27, 2015.

Noreen Wenborne
Notary Public

NOREEN WENBORNE
Notary Public
State of Wisconsin

Attachment:

1. NRC Request for Additional Information Questions and Dominion Energy Kewaunee Responses

Commitments made in this letter: None

References:

1. Letter from J. A. Price (DEK) to Document Control Desk (NRC), "License Amendment Request 244, Proposed Revision to Radiological Accident Analysis and Control Room Envelope Habitability Technical Specifications," dated August 30, 2011. [ADAMS Accession No. ML11252A521]
2. Letter from Craig W. Lambert (NMC) to Document Control Desk (NRC), "Generic Letter 2003-01; Control Room Habitability – Supplemental Response," dated April 1, 2005. [ADAMS Accession No. ML050970303]
3. E-mail from Karl D. Feintuch (NRC) to Craig D. Sly, Jack Gadzala (DEK), "ME7110 Kewaunee Amendment Request Re: Chi-over-Q - RSXB Request for Additional Information (RAI)," dated January 30, 2012. [ADAMS Accession No. ML12033A010]

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

Mr. K. D. Feintuch
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 1

RESPONSE TO REQUEST FOR ADDITIONAL INFORMATION: LICENSE AMENDMENT REQUEST 244, PROPOSED REVISION TO RADIOLOGICAL ACCIDENT ANALYSIS AND CONTROL ROOM ENVELOPE HABITABILITY TECHNICAL SPECIFICATIONS

NRC REQUEST FOR ADDITIONAL INFORMATION QUESTIONS AND DOMINION ENERGY KEWAUNEE RESPONSES

KEWAUNEE POWER STATION

DOMINION ENERGY KEWAUNEE, INC.

NRC REQUEST FOR ADDITIONAL INFORMATION QUESTIONS AND DOMINION ENERGY KEWAUNEE RESPONSES

On January 9, 2012, the Nuclear Regulatory Commission (NRC) staff transmitted a request for additional information (RAI) (Reference 9) regarding Dominion Energy Kewaunee, Inc. (DEK) proposed amendment LAR 244 (Reference 8). The RAI questions and associated DEK responses are provided below.

1. NRC Question 1 (ME7110-RAII-SRXB-Sun-001-2012-02-28)

In an email message from Craig Sly (DEK) to Karl Feintuch (USNRC) dated September 12, 2011 12:44 PM, DEK provided some information pertaining to the percentage (%) of "Failed Fuel Following the Accident." SRXB seeks to apply information contained in the file "response 9-12-11.pdf". In your RAI Response to this item, please provide file "response 9-12-11.pdf."

DEK Response:

The subject file "response 9-12-11.pdf" was submitted in response to questions posed by the NRC staff during the acceptance review phase for this LAR. The information contained in "response 9-12-11.pdf" is provided below.

Approved Safety Analysis and Reload Safety Evaluation Methods

Dominion Topical Report (TR) DOM-NAF-5-A "Application of Dominion Nuclear Core Design and Safety Analysis Methods to the Kewaunee Power Station (KPS)" (approved in Reference 2) is included in the list of approved methodologies in the KPS core operating limits report (COLR) (Reference 1) (see page 16 of 17, item 1) and also in the KPS Technical Specification (TS) 5.6.3 (see TS page 5.6-3, item 15). Per NRC approval of DOM-NAF-5-A, Dominion is allowed to use its reload TR (VEP-FRD-42-A), core design TR (DOM-NAF-1-A), statistical departure from nucleate boiling (DNB) TR (VEP-NE-2-A), Relaxed Power Distribution Control (RPDC) TR (VEP-NE-1-A), core thermal-hydraulics TR (DOM-NAF-2-A) and RETRAN TR (VEP-FRD-41-A) for evaluation of reload cores at KPS (Note: These Dominion Topical Reports are referenced within the Dominion Topical Report DOM-NAF-5-A).

Dominion Topical Report VEP-FRD-42-A describes the application of a bounding parameters approach to evaluating Dominion reload cores. Under this TR, a reload core is evaluated against a bounding analysis by a process of parameter comparison. For a proposed core design, if all key analysis parameters are conservatively bounded, then the reference safety analysis is assumed to apply and no further analysis is necessary. Transient analyses are performed using RETRAN models developed under the method approved in Dominion TR VEP-FRD-41-A and core thermal-hydraulics are evaluated under Dominion TR DOM-NAF-2-A. Dominion TR DOM-NAF-5-A, Attachment B, Section 4.2, discusses the Locked Rotor event in depth and includes a comparison of the Locked Rotor Analysis (LRA) using Dominion methods to the previously existing USAR analysis.

Approved Radiological Accident Analysis Methods

Reference 4 (see Attachment 4, page 7 of 191) describes the current KPS analyses of record (AOR) for radiological events (including the LRA). The previous AOR was approved in KPS Amendment No. 166 (Reference 5), which implemented the Alternate Source Term (AST); Amendment No. 172 (Reference 6), which implemented a stretch power uprate to 1772 megawatts thermal (MWt); and Amendment No. 190 (Reference 7), which implemented the radiological analyses with higher control room emergency zone (CREZ) unfiltered in-leakage. The current LRA radiological analysis methods were approved as part of References 5, 6, and 7. The approved AOR supports the LRA failed fuel limit of 50% described in Reference 3, Section 14.1.8.

The recently submitted radiological accident analyses in Reference 4 support a new LRA failed fuel limit of 25%. As described in Reference 4 (see Table 3.6-1, pages 132 of 191) the reload safety analysis checklist (RSAC) will incorporate the failed fuel limit from the Dominion radiological accident analysis as a design criterion for the reload core design. The calculated percentage (%) of rods-in-DNB (fuel in DNB is assumed to fail for the purposes of calculating a radiological release) must be below the percentage of failed rods in the dose analysis that would exceed the failed fuel limit on a reload basis. The 25% failed fuel limit is supported with information from reload calculations that show rods-in-DNB following a LRA for the current fuel cycle is well below the 25% limit (see Reference 4, Table 3.6-1, page 132 of 191).

Conclusion:

LAR 244 requests NRC review and approval of the LRA dose consequences analysis, which includes a revised assumption for failed fuel rod limit of 25% (decreased from the

current analysis assumption of 50%). The thermal-hydraulic analysis for the LRA, which was performed with the NRC-approved methods of Reference 2, has not been revised for LAR-244. Future reload analysis of the LRA will continue to be performed in accordance with the NRC-approved methodology in DOM-NAF-5-A (Reference 2).

2. NRC Question 2 (ME7110-RAII-SRXB-Sun-002-2012-02-28)

Application Attachment 4, page 154 indicates that the actuation time of the safety injection (SI) signal (in seconds) is changed from 52.5 to 240 during rod ejection accident (REA). The reason for the change, as stated by the licensee, is that the delay of the SI signal is conservative. The Current License Basis (CLB) assumption is based on a 2-inch diameter break. The REA is specified to have a smaller 1.6 inch diameter break. The SI signal generated from a 1-inch diameter break is 240 seconds.

It is not clear why a longer delay time of the actuation of the SI signal is conservative for the REA dose analysis.

Please provide justification of the longer SI actuation delay time used in the REA dose analysis.

DEK Response:

The REA dose analysis considers two release cases, an instantaneous release to the containment atmosphere and an instantaneous release to the primary coolant. A delay of the actuation of the SI signal does not delay the release of activity in either release case. However, delaying actuation of the SI signal does result in commensurate delays in control room isolation, initiation of the control room post accident recirculation (CRPAR) system, initiation of shield building ventilation, and initiation of shield building ventilation recirculation. These delays result in increased calculated onsite and offsite doses.

References

1. Letter from M. J. Wilson (DEK) to Document Control Desk, "Core Operating Limits Report Cycle 31 Revision 2," dated August 31, 2011.
2. Letter from P. D. Milano (NRC) to David A. Christian (DEK), "Kewaunee Power Station – Safety Evaluation for Topical Report DOM-NAF-5 (TAC NO. MD2829)," dated Aug. 30, 2007.
3. KPS USAR Revision 22.06, updated 6/30/2011
4. Letter from J. A. Price (DEK) to Document Control Desk, "License Amendment Request 244: Proposed Revision to Radiological Accident Analysis and Control; Room Envelope Habitability Technical Specifications," dated August 30, 2011 [ML 112520670].
5. Letter from John Lamb (NRC) to Tom Coutu (NMC), "Kewaunee Nuclear Power Plant – Issuance of Amendment Regarding Implementation of Alternate Source Term (TAC No. MB4596)," dated March 17, 2003. [ML030210062]
6. Letter from John Lamb (NRC) to Tom Coutu (NMC), Kewaunee Nuclear Power Plant – Issuance of Amendment Regarding Stretch Power Uprate (TAC No. MB9031)," dated February 27, 2004. [ML040430633]
7. Letter from R. F. Kuntz (NRC) to D. A. Christian (DEK), "Kewaunee Power Station – Issuance of Amendment RE: Radiological Accident Analysis and Associated Technical Specification Change (TAC No. MC9715)," dated March 8, 2007. [ML070430020]
8. Letter from J. A. Price (DEK) to Document Control Desk (NRC), "License Amendment Request 244, Proposed Revision to Radiological Accident Analysis and Control Room Envelope Habitability Technical Specifications," dated August 30, 2011. [ADAMS Accession No. ML11252A521]
9. E-mail from Karl D. Feintuch (NRC) to Craig D. Sly, Jack Gadzala (DEK), "ME7110 Kewaunee Amendment Request Re: Chi-over-Q - RSXB Request for Additional Information (RAI)," dated January 30, 2012. [ADAMS Accession No. ML12033A010]