

June 6, 2012

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

Serial No. 12-349
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" (Reference 2) to submit proposed changes to the KPS TS based on the final approved version of TSTF-448, "Control Room Habitability."

Subsequently, on March 13, 2012 the Nuclear Regulatory Commission (NRC) staff transmitted a request for additional information (RAI) regarding the proposed amendment (Reference 3). The following RAI questions and associated DEK responses are provided in Attachment 1 to this letter.

- ME7110-RAII-AADB-Brown-005-2012-05-13
- ME7110-RAII-AADB-Brown-006-2012-05-13
- ME7110-RAII-AADB-Brown-007-2012-05-13
- ME7110-RAII-SCVB-Torres-001-2012-05-12
- ME7110-RAII-SCVB-Torres-002-2012-05-12
- ME7110-RAII-SCVB-Torres-003-2012-05-12

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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 and Jack Gadzala (DEK), "ME7110 Kewaunee - Request for Additional Information (RAI) AADB and SCVB 2012-04-12," dated April 13, 2012. [ADAMS Accession No. ML12107A144]

cc: Regional Administrator, Region III
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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 March 2, 2012 the Nuclear Regulatory Commission (NRC) staff transmitted a request for additional information (RAI) (Reference 3) regarding Dominion Energy Kewaunee, Inc. (DEK) proposed amendment LAR 244 (Reference 1). The following RAI questions and associated DEK responses are provided in Attachment 1 to this letter.

- ME7110-RAII-AADB-Brown-005-2012-05-13
- ME7110-RAII-AADB-Brown-006-2012-05-13
- ME7110-RAII-AADB-Brown-007-2012-05-13
- ME7110-RAII-SCVB-Torres-001-2012-05-12
- ME7110-RAII-SCVB-Torres-002-2012-05-12
- ME7110-RAII-SCVB-Torres-003-2012-05-12

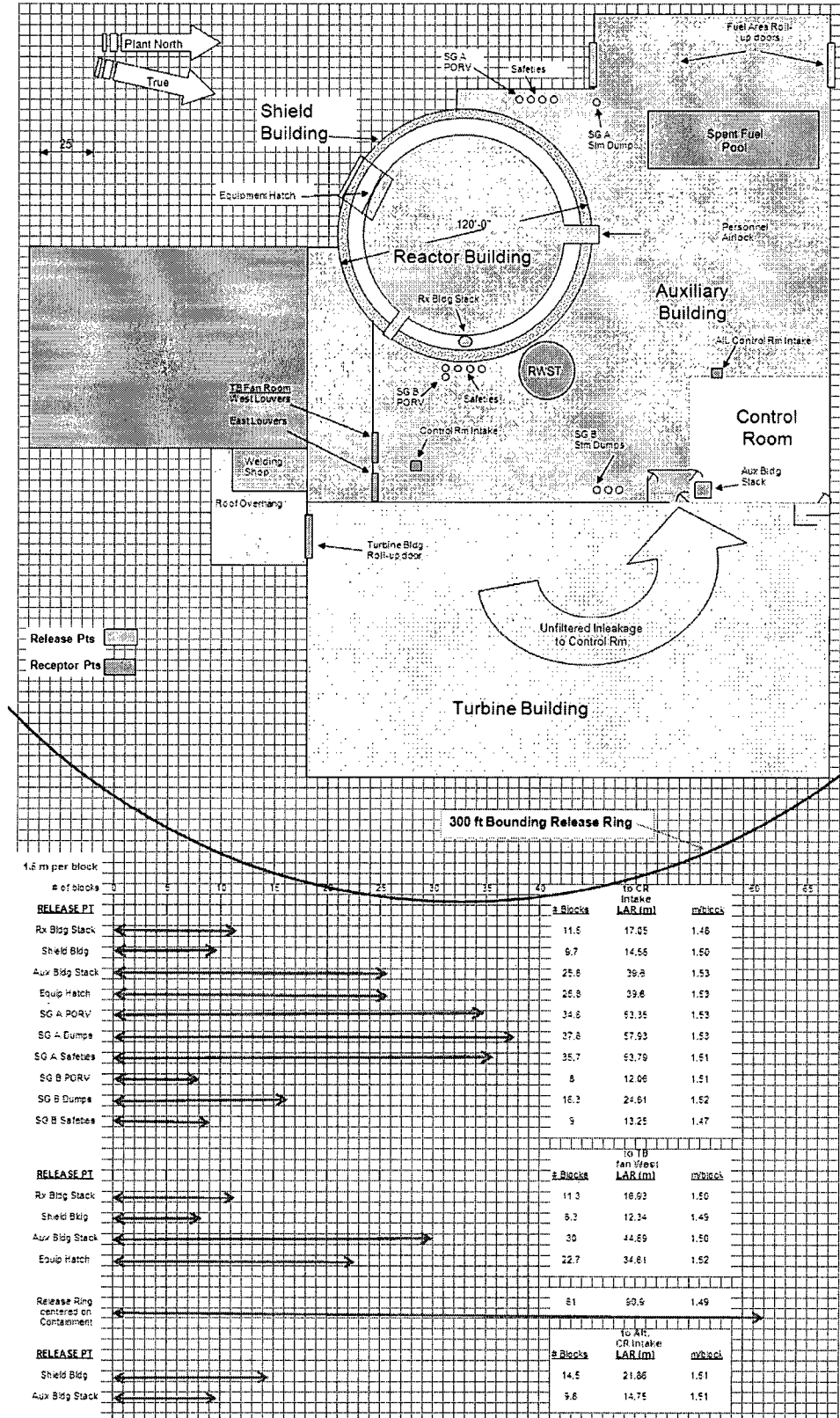
ME7110-RAII-AADB-Brown-005-2012-05-13

The LAR states that Figure 3.1-1, "Kewaunee Source and Receptor Points," of Attachment 4 provides a relative scaled drawing of the Kewaunee Power Station building orientation and control room location showing all identified release points and receptors. The figure is very informative, but does not appear to be drawn entirely to scale and/or to have all sources and receptors positioned on the figure based upon the scale. For example, Table 3.1-1, "Line-of Sight Horizontal Distance from Source to Receptor," of Attachment 4, lists the distances from the "SG [steam generator] B PORV [power operated relief valve]" and "SG B Dumps" to the Control Room Intake as 12.06 meters (m) and 24.81 m, respectively. However, in Figure 3.1-1, the SG B Dumps appear to be slightly closer to the Control Room Intake than the SG B PORV. Please revise Figure 3.1-1 to provide the scaled position of each source and receptor, as appropriate, to confirm the information provided in Table 3.1-1 and Table 3.1-2, "Direction from Receptor to Source," of Attachment 4.

Response:

Figure 3.1-1 was revised and scaled to more accurately identify the physical orientation of release points and receptors. The revised Figure 3.1-1 is provided below.

Figure 3.1-1 Kewaunee Source and Receptor Points



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Page 29 of Attachment 4 states: "As a result of the analyses documented in this LAR, the alternate control room intake will be restricted from use. This restriction is required because of the X/Q that would result due to the close proximity of the alternate intake to various release points; one of which is < [less than] 10 m from the alternate intake. Administrative controls will be in place to assure the alternate control room intake is closed and prohibit its use during normal operation, following an accident, or while moving recently irradiated fuel."

- a. With regard to Figure 3.1-1, where is the alternative CR intake?
- b. Describe the conditions under which its use is permitted.
- c. Provide the inputs to the CR atmospheric dispersion factor (X/Q value) estimates for each design basis accident which could occur when the alternative CR intake is in use.

Response:

- a. Figure 3.1-1 was revised to include the identification where the alternative CR intake is located. See response to Question 5 above.
- b. There is no longer any condition for which the alternate control room intake will be used and administrative controls will be in place to prohibit the use of the alternative CR intake and applicable procedures will be revised accordingly. For additional information regarding maintaining the alternate CR intake closed at all times see DEK response to Question 9 in Reference 4.
- c. The alternative CR intake will no longer be a potential intake to the control room. There is no likelihood of leakage into the control room through this pathway due to the bubble-tight damper design and the fact that the alternate CR intake dampers will be maintained closed. Therefore, CR atmospheric dispersion factor (X/Q value) estimates were not generated for the alternate CR intake.

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Please confirm that the values in Tables 3.1-1 and 3.1-2 are correct. For example, is the distance from the Auxiliary Building Stack and Equipment Hatch to the Control Room Intake 39.60 m for both source locations?

Response:

The values in Table 3.1-1 and 3.1-2 were verified as correct. The distance between the Auxiliary Building Stack and the Control Room Intake and the distance between the Equipment Hatch and the Control Room Intake are both 39.60 meters.

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TSTF-448 "Control Room Habitability", was developed for plants with pressurized control room envelopes. You stated that your plant has a non-pressurized control room envelope. Note that in the programs and manuals section of the standard technical specifications (STS) as modified by TSTF-448 revision 3, paragraph (d) of section [5.5.18], "Control Room Envelope Habitability Program," specifies a differential pressure (dp) test to be conducted between performances on inleakage testing for the purpose of providing input to a periodic assessment of the control room envelope (CRE) boundary. The NRC staff recognizes that non-pressurized control room envelopes may not be able to conduct a dp test, nevertheless, the staff believes that all plants requesting adoption of TSTF-448 should include in their request, a method to collect data that will serve as input in a periodic assessment of the CRE boundary. This position is supported by the technical analysis section of the TSTF-448 revision 3 on page 8 where an explanation of the basis for paragraph (d) is provided. Consequently, the staff is requesting that you provide a method to collect data, and an explanation of how you intend to use it, that can be use as input to a periodic assessment of your CRE boundary. The method should, to the extent practicable, provide information that can be used in a manner similar to the manner in which the information is to be used that is requested by paragraph (d) of section [5.5.18] of the programs and manuals section of the STS as modified by revision 3 of TSTF-448.

Response:

DEK recognized that TSTF-448, Revision 3, Section 5.5.18, paragraph d, specified that a differential pressure test was to be conducted between performances of inleakage testing for the purpose of providing input to a periodic assessment of the CRE boundary. As noted above, the KPS control room ventilation system is designed to maintain the control room at a neutral pressure. As a neutral pressure control room, the results of measuring differential pressure between the control room and adjacent areas are subject to much variation. This variation may be caused by ventilation system configurations, location and sensitivity of instrumentation, and the effects of weather conditions and building structures on intake air. Furthermore, in Generic Letter 2003-01 (Reference 5) the NRC also called into question the usefulness of differential pressure measurements of CREs in general. Based upon this information, and a review of the differential pressure data taken during the December 2004 tracer gas testing performed on the KPS CREZ, it is concluded that a pressurization (differential pressure) test for the CRE boundary would not yield useful data regarding the status of the KPS neutral pressure control room. In lieu of a differential pressurization test, DEK conducts preventative maintenance (PM) and surveillance tests (STs) that provide assurance that the CRE boundary is maintained in a manner that will provide protection for the operators. The data from these PMs and STs will be used as a means of monitoring the

health of the CRE between the quantitative in-leakage tracer gas tests. A discussion of these PMs and STs are provided below.

1. Damper Maintenance (PM) – Once every two operating cycles, inspect and replace (as necessary) the Control Room Ventilation dampers' mechanical components and internal blade seals with parts.
2. Control Room Air Conditioning Mechanical Inspection and Maintenance (PM) - Once per year, inspect and replace (as necessary) control room ventilation boundary components including:
 - a. Door inspections - Inspection and repair/replacement of weather strip seals of the control room envelope doors.
 - b. Cable tray penetration inspections - Inspection and repair, as necessary, of the relay room electrical cable tray penetrations.
3. Penetration Fire Barrier Inspection (PM) - Once per operating cycle inspect and repair (as necessary) the fire and steam exclusion barrier penetrations associated with the CRE.
4. Post Accident Recirculation Test (ST) - Monthly functional test of the emergency ventilation filter components.
5. Control Room Post Accident Recirculation Train Operability Testing (ST) - Monthly functional test of the Control Room emergency ventilation system.
6. Control Room Post Accident Train Recirculation Filter Testing (ST) - At least once per operating cycle, test the HEPA filters and charcoal adsorber banks. Fan flows are also obtained during this testing and verified to be within allowable design flow rate limits. The charcoal adsorber flow rates are also verified as within TS limits. Ensuring maintenance of proper flow rates reduces the possibility of control room pressure changes which may affect unfiltered in-leakage.
7. Auxiliary Building Special Ventilation Operability Test (ST) - Monthly verification of closure of some CRE boundary dampers, which are also steam exclusion dampers.
8. RMS Channel R-23, Control Room Ventilation Radiation Monitor Quarterly Test (ST) - Quarterly test for actuation of the control room ventilation system from a high radiation signal.

In addition to the above PMs and STs the Barrier Control Procedure provides instructions for managing and controlling the integrity of the CRE. This includes

permitting and managing opening and total opening size in the CRE, managing impairments and logging TS requirements for the CRE.

Any criteria that are not met while performing any of these activities are documented and resolved in accordance with the KPS Corrective Action Program. Appropriate actions are identified and implemented to restore the degraded conditions and assess the impact on the CRE boundary. These procedures and processes ensure that the KPS CRE boundary can perform its safety function in a similar manner to performing a pressurization test and trending the test data. This information will be reviewed as part of the required periodic assessment of the CRE boundary.

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In Attachment 3 to your letter dated July 25, 2011 you provided a mark-up of the Technical Specification (TS) Bases pages. On page B.3.7.10-9 you referred to NEI 99-03 Section 8.4 and Appendix F and to Reference 5 of the attachment. Reference 5 is NEI 99-03, "Control Room Habitability Assessment" dated March 2003. The Technical Specifications Task Force (TSTF) determined that this reference is in error (see the TSTF letter to the NRC dated December 29, 2006, Agencywide Document and Management System (ADAMS) Accession No. ML063630467). The correct reference is NEI 99-03, "Control Room Habitability Assessment", dated June 2001. In order to be consistent with both the intent of TSTF-448 Revision 3 and NEI 99-03 dated June 2001, you are requested to update your submittal to refer to of NEI 99-03 dated June 2001. However, if you insist on using NEI 99-03 dated March 2003 you will need to provide this document on the NRC docket for NRC staff review and approval and be prepared to provide acceptable answers to all questions that may result from that review.

Response:

This question was deleted by the NRC staff.

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Please verify that Reference 4 "Regulatory Guide 1.196, Rev. 2," is the correct version of the regulatory guide being used at Kewaunee.

Response:

The reference to Regulatory Guide 1.196, Revision 2 is not correct (see LAR 244, Attachment 3, marked-up TS Bases page B 3.7.10-9, Reference 4). Reference 4 on TS Bases page 3.7.10-9 should be "Regulatory Guide 1.196, Revision 1."

A corrected copy of marked-up TS Bases page B 3.7.10-9 is provided in Enclosure 1 of this letter.

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 and Jack Gadzala (DEK), "ME7110 Kewaunee - Request for Additional Information (RAI) AADB and SCVB 2012-04-12," dated April 13, 2012. [ADAMS Accession No. ML12107A144]
4. Letter from J. A. Price (DEK) to Document Control Desk, "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)," dated April 30, 2012. [ADAMS Accession No. ML12124A283]
5. Generic Letter 2003-01, "Control Room Habitability," dated June 12, 2003 [ADAMS Accession No. ML031620248]

ENCLOSURE 1

**RESPONSE TO REQUEST FOR ADDITIONAL INFORMATION:
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RADIOLOGICAL ACCIDENT ANALYSIS AND CONTROL ROOM ENVELOPE
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**NRC REQUEST FOR ADDITIONAL INFORMATION QUESTIONS AND DOMINION
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LAR 244, Attachment 3, Replacement Marked-up TS Bases Page B 3.7.10-9

**KEWAUNEE POWER STATION
DOMINION ENERGY KEWAUNEE INC.**

The CRE is considered habitable when the radiological dose to CRE occupants calculated in the licensing basis analyses of DBA consequences is no more than 5 rem TEDE and the CRE occupants are protected from hazardous chemicals and smoke. This SR verifies that the unfiltered air inleakage into the CRE is no greater than the flow rate assumed in the licensing basis analyses of DBA consequences. When unfiltered air inleakage is greater than the assumed flow rate, Condition B must be entered. Required Action B.3 allows time to restore the CRE boundary to OPERABLE status provided mitigating actions can ensure that the CRE remains within the licensing basis habitability limits for the occupants following an accident. Compensatory measures are discussed in Regulatory Guide 1.196, Section C.2.7.3, (Ref. 4) which endorses, with exceptions, NEI 99-03, Section 8.4 and Appendix F (Ref. 5). These compensatory measures may also be used as mitigating actions as required by Required Action B.2. Temporary analytical methods may also be used as compensatory measures to restore OPERABILITY (Ref. 3). Options for restoring the CRE boundary to OPERABLE status include changing the licensing basis DBA consequence analysis, repairing the CRE boundary, or a combination of these actions. Depending upon the nature of the problem and the corrective action, a full scope inleakage test may not be necessary to establish that the CRE boundary has been restored to OPERABLE status.

REFERENCES

1. USAR, Section 9.6.4.
 2. USAR, Chapter 14.
 3. Letter from Eric J. Leeds (NRC) to James W. Davis (NEI), "NEI Draft White Paper, Use of Generic Letter 91-18 Process and Alternative Source Terms in the Context of Control Room Habitability," dated January 30, 2004. [ADAMS Accession No. ML040300694].
 4. Regulatory Guide 1.196, Rev. 1.
 5. NEI 99-03, "Control Room Habitability Assessment Guidance," June 2001.
 6. Letter from C. R. Steinhardt to NRC, "Submittal of Kewaunee's Updated Control Room Habitability Evaluation Report to Address Concerns Over Control Room Ventilation," dated February 28, 1989.
 7. USAR Section 9.6.4.
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