

February 7, 2008

Mr. David A. Christian  
President and Chief Nuclear Officer  
Innsbrook Technical Center  
5000 Dominion Boulevard  
Glen Allen, VA 23060-6711

SUBJECT: KEWAUNEE POWER STATION - ISSUANCE OF AMENDMENT REGARDING  
EMERGENCY DIESEL GENERATOR TESTING (TAC NO. MD6975)

Dear Mr. Christian:

The U.S. Nuclear Regulatory Commission has issued the enclosed Amendment No. 194 to Facility Operating License No. DPR-43 for the Kewaunee Power Station. This amendment revises the Technical Specifications (TSs) in response to your application dated October 2, 2007.

The amendment revises TS Sections 3.7, "Auxiliary Electrical Systems," and 4.6, "Periodic Testing of Emergency Power System," to change the testing requirements for ensuring operability of the remaining operable emergency diesel generator (EDG) when the other EDG is inoperable. In addition, the amendment adds a new specification when two EDGs are inoperable and revises the surveillance requirements for the EDGs.

A copy of the Safety Evaluation is also enclosed. The Notice of Issuance will be included in the Commission's next regular biweekly *Federal Register* notice.

Sincerely,

**/RA/**

Patrick D. Milano, Senior Project Manager  
Plant Licensing Branch III-1  
Division of Operating Reactor Licensing  
Office of Nuclear Reactor Regulation

Docket No. 50-305

Enclosures:

1. Amendment No. 194 to License No. DPR-43
2. Safety Evaluation

cc w/encls: See next page

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Kewaunee Power Station

cc:

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DOMINION ENERGY KEWAUNEE, INC.

DOCKET NO. 50-305

KEWAUNEE POWER STATION

AMENDMENT TO FACILITY OPERATING LICENSE

Amendment No. 194  
License No. DPR-43

1. The U.S. Nuclear Regulatory Commission (the Commission) has found that:
  - A. The application for amendment by Dominion Energy Kewaunee, Inc. dated October 2, 2007, complies with the standards and requirements of the Atomic Energy Act of 1954, as amended (the Act), and the Commission's rules and regulations set forth in 10 CFR Chapter I;
  - B. The facility will operate in conformity with the application, the provisions of the Act, and the rules and regulations of the Commission;
  - C. There is reasonable assurance (i) that the activities authorized by this amendment can be conducted without endangering the health and safety of the public, and (ii) that such activities will be conducted in compliance with the Commission's regulations;
  - D. The issuance of this amendment will not be inimical to the common defense and security or to the health and safety of the public; and
  - E. The issuance of this amendment is in accordance with 10 CFR Part 51 of the Commission's regulations and all applicable requirements have been satisfied.
2. Accordingly, the license is amended by changes to the Technical Specifications as indicated in the attachment to this license amendment, and paragraph 2.C.(2) of Facility Operating License No. DPR-43 is hereby amended to read as follows:

(2) Technical Specifications

The Technical Specifications contained in Appendix A, as revised through Amendment No. 194, are hereby incorporated in the license. The licensee shall operate the facility in accordance with the Technical Specifications.

3. This license amendment is effective as of its date of issuance and shall be implemented within 60 days of the date of issuance.

FOR THE NUCLEAR REGULATORY COMMISSION

***/RA/***

Patrick D. Milano, Acting Chief  
Plant Licensing Branch III-1  
Division of Operating Reactor Licensing  
Office of Nuclear Reactor Regulation

Attachment: Changes to the Facility Operating License  
and Technical Specifications

Date of Issuance: February 7, 2008

ATTACHMENT TO LICENSE AMENDMENT NO. 194

FACILITY OPERATING LICENSE NO. DPR-43

DOCKET NO. 50-305

Replace the following page of the Facility Operating License No. DPR-43 with the attached revised page. The changed area is identified by a marginal line.

REMOVE

Page 3

INSERT

Page 3

Replace the following pages of the Appendix A Technical Specifications with the attached revised pages. The revised pages are identified by amendment number and contain marginal lines indicating the areas of change.

REMOVE

3.7-2  
4.6-1

INSERT

3.7-2  
4.6-1

- C. This license shall be deemed to contain and is subject to the conditions specified in the following Commission regulations in 10 CFR, Chapter 1: (1) Part 20, Section 30.34 of Part 30, Section 40.41 of Part 40, Section 50.54 and 50.59 of Part 50, and Section 70.32 of Part 70, (2) is subject to all applicable provisions of the Act and to the rules, regulations, and orders of the Commission now or hereafter in effect, and (3) is subject to the additional conditions specified or incorporated below:

(1) Maximum Power Level

The licensee is authorized to operate the facility at steady-state reactor core power levels not in excess of 1772 megawatts (thermal).

(2) Technical Specifications

The Technical Specifications contained in Appendix A, as revised through Amendment No. 194, are hereby incorporated in the license. The licensee shall operate the facility in accordance with the Technical Specifications.

(3) Fire Protection

The licensee shall implement and maintain in effect all provisions of the approved Fire Protection Program as described in the licensee's Fire Plan, and as referenced in the Updated Safety Analysis Report, and as approved in the Safety Evaluation Reports, dated November 25, 1977, and December 12, 1978 (and supplement dated February 13, 1981) subject to the following provision:

The licensee may make changes to the approved Fire Protection Program without prior approval of the Commission, only if those changes would not adversely affect the ability to achieve and maintain safe shutdown in the event of a fire.

(4) Physical Protection

The licensee shall fully implement and maintain in effect all provisions of the Commission-approved physical security, training and qualification, and safeguards contingency plans including amendments made pursuant to provisions of the Miscellaneous Amendments and Search Requirements revisions to 10 CFR 73.55 (51 FR 27817 and 27822) and to the authority of 10 CFR 50.90 and 10 CFR 50.54(p). The combined set of plans, which contain Safeguards Information protected under 10 CFR 73.21, is entitled: "Nuclear Management Company Kewaunee Nuclear Power Plant Physical Security Plan (Revision 0)" submitted by letter dated October 18, as supplemented by letter dated October 21, 2004.

(5) Fuel Burnup

The maximum rod average burnup for any rod shall be limited to 60 GWD/MTU until completion of an NRC environmental assessment supporting an increased limit.

SAFETY EVALUATION BY THE OFFICE OF NUCLEAR REACTOR REGULATION  
RELATING TO AMENDMENT NO. 194 TO FACILITY OPERATING LICENSE NO. DPR-43

DOMINION ENERGY KEWAUNEE, INC.

KEWAUNEE POWER STATION

DOCKET NO. 50-305

1.0 INTRODUCTION

By letter dated October 2, 2007 (Agencywide Documents Access and Management System (ADAMS) Accession No. ML072760572), Dominion Energy Kewaunee, Inc. (the licensee) requested changes to the Technical Specifications (TSs) for the Kewaunee Power Station (KPS). The proposed changes would revise Technical Specification (TS) "Auxiliary Electrical Systems," and 4.6, "Periodic Testing of Emergency Power System," to change the testing requirements for ensuring operability of the remaining operable emergency diesel generator (EDG) when the other EDG is inoperable. In addition, the amendment adds a new specification when two EDGs are inoperable and revises the surveillance requirements for the EDG.

2.0 REGULATORY EVALUATION

At least one external source and one standby source of electrical power is always available to accomplish safe shutdown and containment isolation and to operate required engineered safety features equipment following an accident. Normally, plant auxiliary power is supplied by two separate external power sources, which have multiple off-site network connections. If these power sources fail, two standby EDGs are provided. Each EDG is connected to one 4160-Volt safety features bus and has sufficient capacity to start sequentially and operate one complete set of the engineered safety features (ESF) equipment supplied by that bus. The set of safety features equipment items supplied by each bus is sufficient to maintain adequate cooling of the fuel and to maintain containment pressure within the design value in the event of a loss-of-coolant accident. Each EDG starts automatically upon low voltage on its associated bus, and both EDGs start in the event of a safety injection signal.

The current TS require that, upon detection of an inoperable EDG, the remaining EDG be periodically tested to demonstrate operability. The licensee has proposed a change that would (1) delete the starting of the remaining EDG if it can be determined that a common-mode failure does not exist and (2) modify the starting requirement of the remaining EDG if a common mode failure may be possible. Additionally, the licensee has proposed to add another subsection to TS 3.7, which would add LCO of 2 hours if two EDGs were inoperable.

As stated in Section 1.3 of the KPS updated safety analysis report (USAR), KPS was designed and constructed to comply with Wisconsin Public Service Corporation's (the former licensee's) understanding of the intent of the Atomic Energy Commission (AEC) General Design Criteria (GDC) for Nuclear Power Plant Construction Permits, as proposed on July 10, 1967. Because of the status of construction at the time, the plant was not required to be reanalyzed when Appendix A, "General Design Criteria," to Part 50 of Title 10 of the *Code of Federal Regulations*



(10 CFR Part 50) was issued on February 20, 1971. However, in the AEC Safety Evaluation Report, issued July 24, 1972, for KPS, the AEC staff acknowledged that the plant was assessed (Final Safety Analysis Report Amendment No. 7) against the Appendix A design criteria and stated that the plant design was reviewed against the 1971 version of the AEC GDC and the staff was satisfied that the plant design generally conforms to the intent of these criteria.

Therefore, the Nuclear Regulatory Commission (NRC) staff evaluated the proposed changes in the October 2, 2007, application against the following draft GDC, regulations, and regulatory guidance documents:

- a. GDC 39, "Emergency Power for Engineered Safety Features," requires that alternate power systems to be provided and designed with adequate independency, redundancy, capacity and testability to permit the functioning required of the ESF. Furthermore, as a minimum, the onsite power system and the offsite power system shall each independently provide this capacity assuming a failure of a single active component in each power system.
- b. Section 50.36, "Technical Specifications," of 10 CFR Part 50 requires that the TSs must be derived from the analyses and evaluation in the safety analysis report, and amendments thereto, submitted pursuant to 10 CFR 50.34. A TS LCO must be established for each structure, system, or component that is part of the primary success path and which functions or actuates to mitigate a design basis accident or transient that either assumes the failure of or presents a challenge to the integrity of a fission product barrier. LCOs specify minimum requirements for ensuring safe operation of the unit. Surveillance requirements (SRs) are TS requirements relating to test, calibration, or inspection to assure that the necessary quality of systems and components is maintained and that LCOs for operation will be met.
- c. Section 50.65, "Requirements for monitoring the effectiveness of maintenance at nuclear power plants," of 10 CFR Part 50 requires that preventive maintenance activities must not reduce the overall availability of the systems, structures, and components.
- d. NRC Regulatory Guide (RG) 1.9, Revision 2, "Selection, Design, and Qualification Diesel-Generator Units Used as Standby (Onsite) Electric Power Systems at Nuclear Power Plants," provides guidance with respect to design and testing of safety-related EDGs. This RG endorses, with some exceptions taken, the Institute of Electrical and Electronics Engineers (IEEE) Standard (Std.) 387-1977, "IEEE Standard Criteria for Diesel Generator Units Applied as Standby Power Supplies for Nuclear Power Generating Stations."
- e. RG 1.93, "Availability of Electric Power Sources," provides guidance with respect to operating restrictions (i.e., Completion Times/allowed outage times) if the number of available alternating current sources is less than that required by the TS LCO. In

particular, this guide prescribes a maximum allowed outage time of 72 hours for an inoperable AC source and 2 hours for two inoperable onsite emergency sources.

- f. Generic Letter (GL) 84-15, "Proposed Staff Actions to Improve and Maintain Diesel Generator Reliability," as it relates to improving the reliability of EDGs.

### 3.0 TECHNICAL EVALUATION

At KPS, the EDG system provides a reliable source of emergency electric power to ESF and other essential loads in the event of a loss of offsite power. The EDG system consists of two EDGs (EDG A and EDG B). Each EDG is capable of automatically starting and sequentially supplying the power requirements of one complete set of ESF equipment, thereby providing redundancy in the event of loss of one EDG. Each EDG is designed to start automatically on a safety injection signal or upon the occurrence of an undervoltage condition on its corresponding 4160V auxiliary buses. The EDGs are capable of picking up electrical load within 10 seconds following a start signal. Each EDG has adequate capacity to supply one set of the ESF for the Design-Basis Accident.

#### 3.1 Proposed Changes to TSs

- (1) The licensee proposed changing KPS TS 3.7.b.2 from:
2. One diesel generator may be inoperable for a period not exceeding 7 days provided the other diesel generator is tested daily to ensure OPERABILITY and the engineered safety features associated with this diesel generator are OPERABLE.

To:

2. One diesel generator may be inoperable for a period not exceeding 7 days provided within 24 hours, either:
    - A. Determine the OPERABLE diesel generator is not inoperable due to common cause failure, or
    - B. Perform surveillance requirement TS 4.6.a.I .A on the OPERABLE diesel generator.
- (2) The licensee proposed adding new TS, TS 3.7.b.7, as follows:
7. Two diesel generators may be inoperable for 2 hours.
- (3) The licensee proposed changing KPS TS 4.6.a from:
- a. Diesel Generators
    1. Manually-initiated start of each diesel generator, and assumption of load by the diesel generator. This test shall

be conducted monthly, loading the diesel generator to at least 2600 KW (nominal) for a period of at least 1 hour.

To:

a. Diesel Generators

Note 1: All diesel generator starts may be preceded by an engine pre-lube period and followed by a warm-up period before required loading.

Note 2: A modified diesel generator start involving idling and gradual acceleration to synchronous speed may be used as recommended by the manufacturer for TS 4.6.a.I.A.

Note 3: Momentary transients outside the diesel generator load range do not invalidate these tests.

1. Monthly each diesel generator shall be tested by:

A. Manually starting each diesel generator from a standby condition verifying that each diesel generator achieves steady state voltage and frequency.

B. Loading the diesel generator to at least 2600 KW (nominal) for a period of at least 1 hour.

### 3.2 Staff Evaluation

As part of its evaluation efforts, the NRC staff reviewed the KPS USAR and confirmed that there was no requirement in the KPS USAR that would prohibit the licensee's requested changes to the TSs. Additionally, the staff verified that the licensee's requested changes were in accordance with the RG 1.9. Although KPS is not committed to RG 1.93, the staff found that the licensee's proposed changes were still consistent with the guidance contained in RG 1.93.

The NRC staff confirmed that the proposed changes are intended to reduce unnecessary testing of the EDGs as recommended by GL 84-15. The purpose of GL 84-15 is to propose actions that would improve the reliability of EDGs. Item 1 of GL 84-15 recognizes that reducing the number of cold fast start surveillance tests for diesel generators would reduce premature diesel engine degradation. The Notes in TS 4.6.a detailing pre-conditions for the EDG tests by allowing an engine pre-lube, warm-up and gradual acceleration to synchronous speed would reduce the number of cold fast surveillance tests.

According to GL 84-15, 24 hours was identified as a reasonable amount of time to confirm that the operable EDG was not affected by the same problem as the inoperable EDG. NUREG-1431 Rev. 3 and RG 1.93 provide the basis for the two hour allowed outage time for two inoperable diesel generators. The basis is that the risk associated with continued operation for a short period of time could be less than the risk associated with immediate shutdown (the immediate

shutdown could cause grid instability which could result in total loss of alternating current power). According to GL 84-15, 24 hours was identified as a reasonable amount of time to confirm that the operable EDG was not affected by the same problem as the inoperable EDG. Furthermore, the testing capability for the EDGs remains in agreement with GDC 39. In addition, the NRC staff finds that the proposed changes are consistent with NUREG-1431, "Standard Technical Specifications, Westinghouse Plants." Based on this information, the staff finds that the proposed changes are acceptable.

### 3.3 Summary

On the basis of the above, the NRC staff finds that the proposed changes maintain compliance with the requirements governing the design and operation of the electrical power system, provide adequate assurance of system reliability, and are consistent with the recommendations and guidance contained in RG 1.9, 1.93 and GL 84-15. Therefore, the staff finds the licensee's proposed changes acceptable.

### 4.0 STATE CONSULTATION

In accordance with the Commission's regulations, the Wisconsin State official was notified of the proposed issuance of the amendment. The State official had no comments.

### 5.0 ENVIRONMENTAL CONSIDERATION

This amendment changes a requirement with respect to installation or use of a facility component located within the restricted area as defined in 10 CFR Part 20 and changes a SR. The NRC staff has determined that the amendment involves no significant increase in the amounts, and no significant change in the types, of any effluent that may be released offsite and that there is no significant increase in individual or cumulative occupational radiation exposure. The Commission has previously issued a proposed finding that this amendment involves no significant hazards consideration and there has been no public comment on such finding (72 FR 65363). Accordingly, this amendment meets the eligibility criteria for categorical exclusion set forth in 10 CFR 51.22(c)(9). Pursuant to 10 CFR 51.22(b), no environmental impact statement or environmental assessment need be prepared in connection with the issuance of this amendment.

### 6.0 CONCLUSION

The NRC staff has concluded, based on the considerations discussed above, that: (1) there is reasonable assurance that the health and safety of the public will not be endangered by operation in the proposed manner, (2) such activities will be conducted in compliance with the Commission's regulations, and (3) the issuance of this amendment will not be inimical to the common defense and security or to the health and safety of the public.

Principal Contributor: G. Morris, NRR

Date: February 7, 2008