May 1, 2007

Mr. David A. Christian
Senior Vice 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 RATED LOAD TESTING (TAC NO. MA3995)

Dear Mr. Christian:

The U.S. Nuclear Regulatory Commission has issued the enclosed Amendment No. 191 to Facility Operating License No. DPR-43 for the Kewaunee Power Station. This amendment revises the Technical Specifications (TS) in response to your application dated January 10, 2007, as supplemented by letters dated April 5, 19, and 26, 2007.

The amendment revises TS 4.6.a.5 to permit performance of the emergency diesel generator rated load test at a reduced load consistent with the short-time rating for the emergency diesel generators.

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/

Margaret H. Chernoff, 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. 191 to License No. DPR-43
2. Safety Evaluation

cc w/encls: See next page

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DATE	5/1/07	5/1/07	4/30/07	5/1/07	5/1/07	5/1/07

OFFICIAL RECORD COPY

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. 191
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 January 10, 2007, as supplemented by letters dated April 5, 19, and 26, 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. 191, are hereby incorporated in the license. The licensees 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

/Patrick Milano for/

L. Raghavan, 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: May 1, 2007

ATTACHMENT TO LICENSE AMENDMENT NO. 191

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	INSERT
Page 3	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	INSERT
4.6-1	4.6-1
4.6-2	4.6-2

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. 191, 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, July 26, 2005, and May 15, 2006.

(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. 191 TO FACILITY OPERATING LICENSE NO. DPR-43

DOMINION ENERGY KEWAUNEE, INC.

KEWAUNEE POWER STATION

DOCKET NO. 50-305

1.0 INTRODUCTION

By letter to the U.S. Nuclear Regulatory Commission (NRC) dated January 10, 2007 (Agencywide Documents Access Management System (ADAMS) Accession No. ML070120088), Dominion Energy Kewaunee, Inc. (DEK, the licensee) requested an amendment to the Kewaunee Power Station (KPS) Operating License DPR-43. The proposed amendment would modify a technical specification (TS) surveillance requirement (SR) associated with testing of the emergency diesel generators (EDGs). Specifically, the licensee proposed to modify KPS TS 4.6.a.5 to permit performance of the EDG rated load test at a reduced load.

The licensee's supplementary submittals dated April 5 (ADAMS Accession No. ML071020080), April 19 (ADAMS Accession No. ML071090641), and April 26, 2007 (ADAMS Accession No. ML071210185) provided clarifying information that did not change the scope of the proposed amendment as described in the original notice of proposed action published in the *Federal Register* and did not change the initial proposed no significant hazards determination.

2.0 REGULATORY EVALUATION

The NRC staff used the following requirements and guidance documents in evaluating the licensee's amendment request:

NRC Regulatory Guide (RG) 1.9, Revision 2, December 1979, "Selection, Design, Qualification, and Testing of Emergency Diesel Generator Units Used as Class 1E Onsite Electric Power systems at Nuclear Power Plants," describes a method acceptable to the NRC staff for complying with the Commission's regulations with regard to periodic testing of diesel generators.

RG 1.9, Revision 3, July 1993, "Selection, Design, Qualification, and Testing of Emergency Diesel Generator Units Used as Class 1E Onsite Electric Power systems at Nuclear Power Plants," describes a method acceptable to the NRC staff for complying with the Commission's regulations with regard to periodic testing of diesel generators.

3.0 TECHNICAL EVALUATION

3.1 Design Considerations

The onsite standby power system at KPS includes Class IE alternating current (ac) power sources (standby EDGs), which provide electrical power to the safety related loads. The standby power sources consist of two independent and redundant ac power emergency generators driven by separate diesel engines. Each EDG is an onsite automatically starting power source which has the capacity, capability, and the reliability to provide onsite power for safe shutdown of the unit after a loss of offsite power.

The KPS Updated Safety Analysis Report (USAR) states that each EDG is capable of automatically starting and accelerating to rated speed and subsequent loading of all engineered safety features and essential shutdown loads, in the required sequence, within the minimum time intervals established by the accident analysis. Each EDG will be started automatically on a safety injection signal or upon the occurrence of undervoltage on either of its corresponding 4160 Volt (V) auxiliary buses. The KPS USAR also states that the EDGs are capable of continuous operation at rated load, voltage, and frequency until manually stopped or automatically tripped. Each EDG is a General Motors Corporation, Electro-Motive Division, Model A-20-C1, diesel engine generator unit. The EDG's ratings in terms of kilo Volt- Ampere (kVA), kilowatts (kW) and power factor (pf), as described in the KPS USAR and in the licensee's April 5, 2007, letter, are as follows:

Continuous	3250 kVA	100%
Continuous	2600 kW at 0.8 pf	100%
Overload 2000 hours per year	2864 kW at 0.8 pf	110%
Overload, 7 days per year	2950 kW at 0.8 pf	113.5%
Overload, 30 minutes per year	3050 kW at 0.8 pf	117.3%

The April 5, 2007, letter also stated that the short-time rating of the KPS EDGs is equal to the continuous rating (2600 kW) plus ten percent overload (260 kW) or 2860 kW. Section 8.2.3 of the KPS USAR states that the EDG ratings, as shown above, did not match the short-time rating definition of the Institute of Electrical and Electronics Engineers (IEEE) Standard 387-1977; however, the EDG ratings met the intent of the standard in that the EDGs did not exceed the manufacturer-defined load ratings and, therefore, the guidance of Revision 2 of RG 1.9 was met.

3.2 Evaluation

The licensee proposed to modify TS 4.6.a.5 to permit performance of the EDG rated load test at a reduced load. TS 4.6.a.5 currently states, "Each diesel generator shall be loaded to 2950 kW (nominal) for 2 hours every operating cycle." The license amendment request (LAR) and supplemental letters proposed to modify TS 4.6.a.5 to state:

> Each diesel generator shall be operated for ≥ 24 hours every operating cycle:
>
> Note 1: Momentary transients outside the load and power factor ranges do not invalidate this test.
>
> Note 2: This Surveillance shall not normally be performed in the OPERATING or HOT STANDBY MODE. However, this Surveillance may be performed to reestablish OPERABILITY provided an assessment determines the safety of the plant is maintained or enhanced. Credit may be taken for unplanned events that satisfy this surveillance requirement.
>
> Note 3: If performed with the diesel generator synchronized with offsite power, it shall be performed at a power factor ≤ 0.89. However, if grid conditions do not permit, the power factor limit is not required to be met. Under this condition the power factor shall be maintained as close to the limit as practicable.
>
> a. For ≥ 2 hours loaded to 2860 kW (nominal), and
>
> b. For the remaining hours of the test loaded to 2700 kW (nominal).

The licensee's proposal would implement the following changes: increasing the rated load test run time from two hours to greater than or equal to twenty-four hours; reducing the short-time test loading requirement for the two-hour portion of the twenty-four hour test from 2950 kW (113.5 percent of the continuous load rating) to 2860 kW (110 percent of the continuous load rating); adding a new requirement to run the EDG for the remainder of the twenty-four hour test to a load of 2700 kW; adding a new Note 1, to allow momentary transients outside the prescribed loading limits without invalidating the test; adding a new Note 2, to provide restrictions and contingencies on the plant mode within which the test may be performed; and adding a new Note 3, to state the power factor restriction for the test and an allowance for when the restriction can be relaxed.

The licensee proposed to modify the TS SR with three notes. The NRC staff finds that Note 1 and Note 2, as described in the license amendment request, are reasonable and therefore acceptable. Note 3 would require the licensee to perform the SR at a power factor of less than or equal to (≤) 0.89, for twenty-four hours, if performed with the EDG synchronized with offsite power. The licensee calculated the final aggregate EDG power factor to be 0.892 for EDG A and 0.893 for EDG B. Since performing the test at a power factor of ≤ 0.89 would bound the

worst-case power factor, the staff finds Note 3 to be acceptable. In addition, Note 3 allows a relaxation of this requirement if grid conditions do not permit. The staff finds that if grid conditions do not permit, the licensee may perform the test to a power factor that is as close as practicable to 0.89.

The current TS surveillance load requirement of 2950 kW had enveloped the worst-case load value; however, it was discovered that loading the EDGs to 2950 kW for two hours could not be accomplished when ambient air temperatures resulted in derating of the EDGs. A description of the conditions requiring an EDG derate and how the EDGs would be derated was provided in the licensee's LAR and in the April 5, 2007, letter. The licensee also established administrative controls for the effects of ambient air temperature on EDG operability. The licensee performed a modification to reduce the accident loading on the EDGs in order to ensure that the proposed endurance and margin test in this amendment request would envelop the worst-case loading profile conditions, including worst-case power factor, and therefore demonstrate the EDGs' capability to perform their design function and meet design basis power demands.

For the event of a loss of offsite power (LOOP) coincident with a large break (LB) loss of coolant accident (LOCA), the licensee calculated the peak EDG loading within the first two hours of the event to be 2823.0 kW and 2839.6 kW for EDG A and EDG B, respectively. The duration of these peak loads was also calculated to be less than two hours. The peak values were within the short-time rating load value of 2860 kW for less than two hours in any twenty-four hour period. After two hours, the loading was calculated to be 2019.1 kW and 2035.7 kW for EDG A and EDG B, respectively, which was within the continuous rating (2600 kW) of the EDGs. At four hours, the licensee stated that the plant would be in a stable emergency core cooling system recirculation condition, and therefore the EDG loads would not be expected to increase above the continuous load rating over the longer term. The staff finds that the licensee's proposed endurance and margin test values envelop the worst-case loading for a LOOP coincident with a LB LOCA, and therefore, the proposed test is acceptable.

For the event of a LOOP coincident with a small break (SB) LOCA, the licensee calculated the peak loading on EDG A within the first two hours of this event was 2720 kW (less on EDG B) for a duration of fifteen minutes. Another peak load of 2770 kW (less on EDG B) would occur for thirty minutes after the initial two hours of the event and was not expected to be needed again for the remaining duration of the accident. Therefore, the NRC staff determined that the total duration of the peak loads (forty-five minutes) and the values of the peak loads (2720 kW and 2770 kW) remained within the short-time rating load value for less than two hours in any twenty-four hour period. The EDG load would remain between 2620 kW and 2660 kW for the remainder of the load profile, which would exceed the continuous rating of 2600 kW but remain within the 2000-hour rating of 2864 kW. The licensee proposed to test the EDG to 2700 kW for the remaining hours of the endurance and margin test. The NRC staff finds that the proposed endurance and margin test values envelop the worst-case loading for a LOOP coincident with a SB LOCA and, therefore, the proposed test is acceptable as long as the licensee performs the necessary EDG vendor-required maintenance.

The licensee stated that the proposed load band was consistent with Revision 3 of RG 1.9 and that the proposed test met the intent of Revision 3 of RG 1.9. Revision 3 of RG 1.9 states that at the operating license stage of review, the predicted loads should not exceed the continuous rating of the EDG unit. The endurance and margin test was described in Revision 3 of RG 1.9

in terms of an EDG's continuous rating. The licensee's EDG design, which was approved prior to issuance of Revision 3 of RG 1.9, was not consistent with the design specifications stated in Revision 3 of RG 1.9; therefore, the endurance and margin test should not be specified in terms of the EDG continuous rating for this licensee. The EDG endurance and margin test would be demonstrated by testing to a load profile that enveloped the worst-case loading expected to be powered by the EDGs. The licensee's request to test to 2860 kW for the initial two hours of the test envelops the peak EDG loads and duration of these loads expected during a LOOP coincident with a LOCA. The licensee's proposal to test to 2700 kW for the remaining hours envelops the 2620-2660 kW EDG load expected during a LOOP coincident with a SB LOCA. Since the test envelops peak loads and the duration of those loads, the NRC staff finds that as long as the EDG vendor-required maintenance is performed, the proposed SR is needed to establish operability of the diesel by demonstrating that the EDGs can meet design basis power demands. The proposed SR testing is acceptable because the testing demonstrates that the necessary quality of the EDGs is maintained, which ensures that facility operation will be within analysis limits, and the limiting conditions for EDG operation will be met.

3.0 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.

4.0 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 or changes a surveillance requirement. The 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 5303). 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.

5.0 CONCLUSION

The 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: Audrey Klett

Date: May 1, 2007