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Docket No.: 50-305
License No.: DPR-43

DOMINION ENERGY KEWAUNEE, INC.
KEWAUNEE POWER STATION
LICENSE AMENDMENT REQUEST 247: EMERGENCY DIESEL GENERATOR FUEL
OIL TECHNICAL SPECIFICATION CHANGES

Pursuant to 10 CFR 50.90, Dominion Energy Kewaunee, Inc. (DEK) requests an amendment to Facility Operating License Number DPR-43 for Kewaunee Power Station (KPS). This proposed amendment would revise the Operating License by modifying the KPS Technical Specifications (TS) section 3.7.a.7 to modify the required volume of Emergency Diesel Generator Fuel Oil. Current TS 3.7.a.7 requires 35,000 gallons of fuel oil for either diesel generator. The proposed change would decrease that requirement to a useable volume of 32,858 gallons.

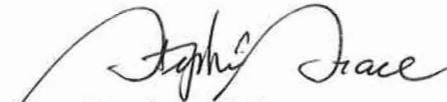
DEK requests approval of the proposed amendment by January 31, 2009. Once approved, the amendment shall be implemented within 60 days.

Attachment 1 to this letter contains a description, a safety evaluation, a significant hazards determination and environmental considerations for the proposed changes. Attachment 2 contains the marked-up Technical Specification page TS 3.7-1. Attachment 3 contains marked-up Technical Specification Bases page TS B3.7-1.

The Facility Safety Review Committee has approved the proposed change and a copy of this submittal has been provided to the State of Wisconsin in accordance with 10 CFR 50.91(b).

If you have questions or require additional information, please contact Mr. Craig Sly at 804-730-2784.

Very truly yours,



Stephen E. Scace

Site Vice President – Nuclear Engineering

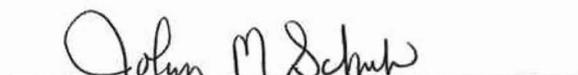
STATE OF WISCONSIN

COUNTY OF KEWAUNEE

The foregoing document was acknowledged before me, in and for the County and State aforesaid, today by Stephen E. Scace, who is Site Vice President 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 the statements in the document are true to the best of his knowledge and belief.

Acknowledged before me this 23 day of January, 2009.

My Commission expires: 4-12-09.



Notary Public

Attachments

1. Discussion of Change, Safety Evaluation, Significant Hazards Determination and Environmental Considerations
2. Marked-Up Technical Specifications Pages
3. Marked-Up Technical Specifications Bases Pages

Commitments made by this letter: None

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ATTACHMENT 1

**LICENSE AMENDMENT REQUEST 247
EMERGENCY DIESEL GENERATOR FUEL OIL
TECHNICAL SPECIFICATION CHANGES**

**DISCUSSION OF CHANGE, SAFETY EVALUATION, SIGNIFICANT HAZARDS
DETERMINATION AND ENVIRONMENTAL CONSIDERATIONS**

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

SUBJECT OF CORRESPONDENCE

INTRODUCTION

During a recent evaluation of the Emergency Diesel Generator (EDG) fuel oil requirements at KPS, it was determined that the required volume of EDG fuel oil was less than the volume required by the Kewaunee Power Station (KPS) technical specifications (TS) (reference 1) to either EDG. The current KPS TS 3.7.a.7 requires 35,000 gallons of fuel oil in the underground fuel oil storage tank. This value is based on ensuring a minimum of seven-day fuel supply for one EDG is maintained, thus ensuring adequate time is available to restore offsite power or replenish fuel. The evaluation determined that 32,858 gallons of useable fuel oil is required for EDG operation to meet ANSI N195-1976/ANS-59.51, section 5.4 requirements. A summary of the recalculation is provided in the analysis below.

1.0 DESCRIPTION

This letter is a request to amend Operating License DPR-43 for the Kewaunee Power Station (KPS). The proposed change would revise the KPS TS 3.7.a.7 to reduce the required volume of EDG fuel oil from 35,000 gallons to a useable volume of 32,858 gallons.

2.0 PROPOSED CHANGE

The proposed amendment would modify KPS TS 3.7.a.7, "Auxiliary Electrical Systems, Diesel Generators."

The current KPS TS 3.7.a.7 reads as follows:

7. *Both diesel generators are OPERABLE. The two underground storage tanks combine to supply at least 35,000 gallons of fuel oil for either diesel generator and the day tanks for each diesel generator contain at least 1,000 gallons of fuel oil.*

When marked up modified TS 3.7.a.7 would read as follows:

7. *Both diesel generators are OPERABLE. ~~The two underground storage tanks combine to supply at least 35,000 gallons of~~ useable fuel oil for either diesel generator is at least 32,858 gallons, including and the day tanks. The day tanks for each diesel generator contain at least 1000 gallons of fuel oil.*

When completed the modified TS 3.7.a.7 would read as follows:

7. *Both diesel generators are OPERABLE. The supply of useable fuel oil for either diesel generator is at least 32,858 gallons, including the day tanks. The day tanks for each diesel generator contain at least 1000 gallons of fuel oil.*

3.0 BACKGROUND

Current Design Bases

The power sources for engineered safety features components are 4160V Bus 1-5 and Bus 1-6. The normal source of power to Bus 1-5 is the tertiary auxiliary transformer. The reserve auxiliary and main auxiliary transformers provide backup sources, in that order. The normal source of power to Bus 1-6 is the reserve auxiliary transformer. The tertiary auxiliary and main auxiliary transformers provide backup sources, in that order. Thus, since the normal source of power for these buses is the 138/345 kV Kewaunee Substation, no transfer is required in the event of a turbine-generator trip. (reference 2)

If all normal power sources should fail, two diesel generators are provided, one connected to 4160V Bus 1-5 and one connected to 4160V Bus 1-6. Each of these is a General Motors Corporation, Electro-Motive Division, Model A-20-C1, diesel engine-generator unit rated at 2600 kW, (2860 kW, 110 percent overload, two thousand hours per year) 0.8 pf, 900 rpm, 4160V, 3-phase, 60 Hz. The generator has emergency ratings of 2950 kW for seven days continuous and 3050 kW for thirty minutes per year. (reference 2)

Each diesel generator, as a backup to the normal ac power supply, is capable of sequentially starting and supplying the power requirements of one complete set of engineered safety features equipment. The units are located in separate rooms in a Class I portion of the Administration Building. These rooms are heated; assuring that the diesel generators can be started in cold weather. (reference 2)

Two nominal 850-gallon "day" tanks are located in enclosures within each diesel generator room. The two tanks provide capacity for approximately four hours operation for one generator at 2600kW. Two nominal 35,000-gallon underground storage tanks supply fuel oil through immersion pumps to either pair of day tanks. The combined useable amount of fuel oil contained in both storage tanks and one set of day tanks would provide a minimum of seven days fuel supply for one diesel generator, thus assuring adequate time to restore off-site power or to replenish fuel. The diesel fuel oil storage capacity requirements are consistent with those specified in ANSI N195-1976/ANS-59.51,(reference 3, Sections 5.2, 5.4 and 6.1). (reference 2)

4.0 TECHNICAL ANALYSIS

4.1 Emergency Diesel Generator Fuel Oil Capacity Requirements

The KPS design as described in section 3.0, is consistent with ANSI N195-1976/ANS-59.51, sections 5.2, 5.4 and 6.1 for fuel oil storage capacity. ANSI N195-1976/ANS-59.51 is endorsed by Regulatory Guide 1.137 (reference 4). ANSI N195-1976/ANS-59.51, section 5.4 prescribes two methods for determining fuel oil storage capacity

requirements; the time dependence calculation or the conservative alternate calculation with the conservative alternate calculation being recommended.

In accordance with ANSI N195-1976/ANS-59.51, section 5.4, DEK has used the conservative alternate calculation method to determine the required EDG fuel oil capacity. Use of this analysis method requires the following information:

F_R = Fuel Consumption Rate associated with the continuous rating of the diesel
T = Fuel consumed by testing

These values are inserted in the following calculation:

$$C' = (F_R) (7 \text{ days}) (1440 \text{ min/day}) + T$$

Where C' equals the Minimum storage capacity.

The results of this calculation (reference 5) indicate that providing a useable fuel oil volume of 32,858 gallons is acceptable and a conservative value. No change to the day tanks is proposed. Details of the calculation are provided below.

4.2 KPS Fuel Oil Capacity Requirements for Seven Day Period

The KPS fuel consumption rate (gal/kW-hr) is derived by determining the lowest BTU/gallon for the diesel fuel provided combined with the consumption rate at the continuous duty rating of the EDG for a seven-day period. A lower BTU/gallon increases the fuel consumption. For the KPS EDGs a value of 137,000 BTU/gallon is the lowest value that meets the KPS procedure acceptance criteria. This value includes compensation for ultra low sulfur diesel fuel.

An overall fuel consumption rate at the continuous duty rating of 2600kW yields a revised fuel consumption rate of 0.0746 gal/kW-hr after correction for the lowest allowable BTU/gallon. Then applying the ANSI N195-1976/ANS-59.51, section 5.4 calculation the required volume of fuel oil prior to addition of the testing volume (T) becomes 32,586 gallons.

4.3 Testing Volume

ANSI N195-1976/ANS-59.51, section 5.4 requires the calculated required volume to add a testing volume to the fuel oil capacity required for seven-days of operation. The value for testing considered a one-hour test, with heatup and cooldown periods not exceeding 30 minutes and added an additional 10% for conservatism. This adds 272 gallons to the total required useable volume of fuel oil required.

4.4 Total Fuel Oil Volume Required

The total volume of useable fuel oil required to satisfy the ANSI N195-1976/ANS-59.51, section 5.4 requirements adds 32,586 gallons and 272 gallons for a total useable volume of 32,858 gallons. To achieve 32,858 gallons of useable fuel oil, 1733 gallons needs to be added to this value to account for unusable portions of the tanks, vortexing and instrument uncertainty. Adding 32,858 gallons and 1733 gallons, leaves a total required volume of 34,591 gallons.

4.5 KPS Storage Tank Availability

The KPS diesel fuel oil is stored in two sets of tanks as described in section 3.0, the EDG "day" tanks (two tanks per EDG) and the Underground Fuel Oil Storage Tanks (UFOSTs).

Two nominal 850-gallon "day" tanks are located in enclosures within each diesel generator room. The two tanks provide capacity for approximately four hours of operation for one generator at 2600kW. KPS TS 3.7.a.7 requires these "day" tanks be maintained with a minimum of 1000 gallons of fuel oil. The calculated useable capacity of the two "day" tanks is 1244 gallons, accounting for the affects of vortexing, and the unavailable volume. This value is primarily limited by the day tanks low-level alarm setpoint.

The useable capacity of a single UFOST is 33,259 gallons, accounting for the affects of vortexing, instrument uncertainty and the UFOST unavailable volume.

4.6 Calculation Conservatism

This calculation of KPS required fuel oil storage requirements is conservative based on the following:

- The calculation for fuel oil requirements assumes a conservative BTU/gallon rate (137,000 BTU/gallon) to account for uncertainties in diesel fuel oil properties. The BTU/gallon rate that corresponds to the fuel typically used by KPS is 141,200 BTU/gallon. The calculation assumption results in a 3.1% increase in the fuel consumption rate, which leads to a higher fuel oil volume requirement.
- The calculation of the fuel oil capacity assumes the EDG is running at its continuous duty rating throughout the seven days. This is conservative as the EDG loading will be highest during the early hours of an event and would be lower later in the event. For example, during a loss-of-coolant-accident after completion of the safety injection phase (full refueling water storage tank injection) the containment spray pumps would no longer be required. The safety injection phase is typically modeled at less than 30 minutes.

- The UFOSTs contain stiffening plates for rotational guidance at the suction of the fuel oil transfer pumps (FOTPs). These plates provide vortex suppression, however, the calculation reduced the available volume in the UFOST to account for vortexing. The calculated reduction of available fuel to account for FOTP vortexing is about 848 gallons in an UFOST.

Therefore, the proposed TS value of 32,858 gallons for the useable fuel oil volume is appropriate and conservative.

5.0 REGULATORY SAFETY ANALYSIS

5.1 No Significant Hazards Consideration

The proposed change would revise the KPS TS 3.7.a.7 for Operating License DPR-43 to reduce the required volume of EDG fuel oil from 35,000 gallons to a useable volume of 32,858 gallons. Dominion Energy Kewaunee (DEK) has evaluated whether or not a significant hazards consideration is involved with the proposed amendment(s) by focusing on the three standards set forth in 10 CFR 50.92, "Issuance of amendment," as discussed below:

1. Does the proposed amendment involve a significant increase in the probability or consequences of an accident previously evaluated?

No. The probability or consequences of accidents previously evaluated in the Updated Safety Analysis Report are unaffected by this proposed change. There is no change to any equipment response or accident mitigation scenario, and this change results in no additional challenges to fission product barrier integrity. The proposed change does not alter the design, configuration, operation, or function of any plant system, structure, or component. As a result, the outcomes of previously evaluated accidents are unaffected. The proposed change maintains the current required 7 days of available fuel oil to the emergency diesel generators consistent with the requirements of ANSI N195-1976/ANS-59.51, section 5.4.

Therefore, the proposed change does not involve a significant increase in the probability or consequences of an accident previously evaluated.

2. Does the proposed amendment create the possibility of a new or different kind of accident from any accident previously evaluated?

No. No new accident scenarios, failure mechanisms, or limiting single failures are introduced as a result of the proposed change. The proposed change does not challenge the performance or integrity of any safety-related system. The proposed change does not install or remove any plant equipment. The proposed change does not alter the design, physical configuration, or mode of

operation of any plant structure, system, or component. No physical changes are being made to the plant, so no new accident causal mechanisms are being introduced. The proposed change maintains the current required 7 days of available fuel oil to the emergency diesel generators consistent with the requirements of ANSI N195-1976/ANS-59.51, section 5.4.

Therefore, the proposed change does not create the possibility of a new or different kind of accident from any previously evaluated.

3. Does the proposed amendment involve a significant reduction in a margin of safety?

No. The margin of safety associated with the acceptance criteria of any accident is unchanged. The proposed change will have no effect on the availability, operability, or performance of the safety-related systems and components. The proposed change does not alter the design, configuration, operation, or function of any plant system, structure, or component. The ability of operable structures, systems, and components to perform their designated safety function is unaffected by this proposed change. The proposed change maintains the current required 7 days of available fuel oil to the emergency diesel generators consistent with the requirements of ANSI N195-1976/ANS-59.51, section 5.4.

Therefore, the proposed change does not involve a significant reduction in a margin of safety.

Based on the above, DEK concludes that the proposed amendment presents no significant hazards consideration under the standards set forth in 10 CFR 50.92(c), and, accordingly, a finding of "no significant hazards consideration" is justified.

5.2 Applicable Regulatory Requirements/Criteria

The US Atomic Energy Commission (AEC) issued their Safety Evaluation (SE) of the Kewaunee Power Station (KPS) on July 24, 1972 with supplements dated December 18, 1972 and May 10, 1973. In the AEC's SE, section 3.1, "Conformance with AEC General Design Criteria," described the conclusions the AEC reached associated with the General Design Criteria in effect at the time. The AEC stated:

"The Kewaunee plant was designed and constructed to meet the intent of the AEC's General Design Criteria, as originally proposed in July 1967. Construction of the plant was about 50% complete and the Final Safety Analysis Report (Amendment No. 7) had been filed with the Commission before publication of the revised General Design Criteria in February 1971 and the present version of the criteria in July 1971. As a result, we did not require the applicant to reanalyze the plant or resubmit the FSAR.

However, our technical review did assess the plant against the General Design Criteria now in effect and we are satisfied that the plant design generally conforms to the intent of these criteria."

As such the appropriate General Design Criteria are listed below with the associated criteria KPS is licensed to from the Final Safety Analysis (Amendment 7), which has been updated and now titled the Updated Safety Analysis Report (USAR).

Criterion 39 – Emergency Power For Engineered Safety Features

Alternate power systems shall be provided and designed with adequate independency, redundancy, capacity, and testability to permit the functioning required of the Engineered Safety Features. As a minimum, the on-site power system and the off-site power system shall each, independently, provide this capacity assuming a failure of a single active component in each power system.

The above Criterion 39 is as suggested by AIF in its October 2, 1967 comments on the then-proposed AEC Criteria. The design also meets Wisconsin Public Service Company's understanding of the intent of the Criteria as originally proposed by AEC in July, 1967. In the case of Criterion 39, where a difference existed, the more stringent AEC criterion was followed. As a result, in our opinion the emergency power systems as designed also meet the intent of the GDC 17, adopted February 20, 1971, as amended July 7, 1971, the text of which follows:

Criterion 17 - Electric Power Systems

An on-site electric power system and an off-site electric power system shall be provided to permit functioning of structures, systems, and components important to safety. The safety function for each system (assuming the other system is not functioning) shall be to provide sufficient capacity and capability to assure that:

1. specified acceptable fuel design limits and design conditions of the reactor coolant pressure boundary are not exceeded as a result of anticipated operational occurrences, and
2. the core is cooled and containment integrity and other vital functions are maintained in the event of postulated accidents.

The on-site electric power supplies, including the batteries, and the on-site electric distribution system, shall have sufficient independence, redundancy, and testability to perform their safety functions assuming a single failure.

In conclusion, based on the considerations discussed above, (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 the amendment will not be inimical to the common defense and security or to the health and safety of the public.

6.0 ENVIRONMENTAL CONSIDERATION

A review has determined that the proposed amendment would change a requirement with respect to installation or use of a facility component located within the restricted area, as defined in 10 CFR 20, or would change an inspection or surveillance requirement. However, the proposed amendment does not involve (i) a significant hazards consideration, (ii) a significant change in the types or significant increase in the amounts of any effluent that may be released offsite, or (iii) a significant increase in individual or cumulative occupational radiation exposure. Accordingly, the proposed amendment meets the eligibility criterion for categorical exclusion set forth in 10 CFR 51.22(c)(9). Therefore, pursuant to 10 CFR 51.22(b), no environmental impact statement or environmental assessment need be prepared in connection with the proposed amendment.

7.0 REFERENCES

- 1 Kewaunee Power Station Technical Specifications.
- 2 Kewaunee Power Station Updated Safety Analysis Report, Revision 21.
- 3 ANSI N195-1976/ANS-59.51, "Fuel Oil Systems for Standby Diesel-Generators," dated April 2, 1976.
- 4 Regulatory Guide 1.137, "Fuel Oil Systems for Standby Diesel Generators," dated October 1979.
- 5 KPS Calculation C10033, Revision 1, "Safeguard's Diesel Fuel Oil Storage Volume Calculation," dated January 16, 2009.

ATTACHMENT 2

**LICENSE AMENDMENT 247
EMERGENCY DIESEL GENERATOR FUEL OIL
TECHNICAL SPECIFICATION CHANGES**

**MARKED-UP TECHNICAL SPECIFICATIONS PAGES:
TS 3.7-1**

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

3.7 AUXILIARY ELECTRICAL SYSTEMS

APPLICABILITY

Applies to the availability of electrical power for the operation of plant auxiliaries.

OBJECTIVE

To define those conditions of electrical power availability necessary to provide 1) safe reactor operation and 2) continuing availability of engineered safety features.

SPECIFICATION

- a. The reactor shall not be made critical unless all of the following requirements are satisfied:
 1. The reserve auxiliary transformer is fully operational and energized to supply power to the 4160-V buses.
 2. A second external source of power is fully operational and energized to supply power to emergency buses 1-5 and 1-6.
 3. The 4160-V buses 1-5 and 1-6 are both energized.
 4. The 480-V buses 1-52 and 1-62 and their MCC's are both energized from their respective station service transformers.
 5. The 480-V buses 1-51 and 1-61 are both energized from their respective station service transformers.
 6. Both station batteries and both DC systems are OPERABLE, except during testing and surveillance as described in TS 4.6.b.
 7. Both diesel generators are OPERABLE. ~~The two underground storage tanks combine to supply at least 35,000 gallons of useable fuel oil for either diesel generator~~ is at least 32,858 gallons, and the including the day tanks. The day tanks for each diesel generator contain at least 1,000 gallons of fuel oil.
 8. At least one pair of physically independent transmission lines serving the substation is OPERABLE. The three pairs of physically independent transmission lines are:
 - A. R-304 and Q-303
 - B. F-84 and Y-51
 - C. R-304 and Y-51

ATTACHMENT 3

**LICENSE AMENDMENT 247
EMERGENCY DIESEL GENERATOR FUEL OIL
TECHNICAL SPECIFICATION CHANGES**

**MARKED-UP TECHNICAL SPECIFICATIONS BASES PAGES:
TS B3.7-1**

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

BASIS – Auxiliary Electrical Systems (TS 3.7)

The intent of this TS is to provide assurance that 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.

Plant safeguards auxiliary power is normally supplied by two separate external power sources which have multiple off-site network connections ⁽¹⁾: the reserve auxiliary transformer from the 138-KV portion of the plant substation, and a tertiary winding on the substation auto transformer. Either source is sufficient to supply all necessary accident and post-accident load requirements from any one of four available transmission lines.

Each diesel generator is connected to one 4160-V safety features bus and has sufficient capacity to start sequentially and operate the engineered safety features equipment supplied by that bus. The set of safety features equipment items supplied by each bus is, alone, 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 diesel generator starts automatically upon low voltage on its associated bus, and both diesel generators start in the event of a safety injection signal.⁽²⁾ A minimum of 7 days fuel supply for one diesel generator is maintained by requiring a useable volume of 36,000-32,858 gallons of fuel oil, thus assuring adequate time to restore off-site power or to replenish fuel. The diesel fuel oil storage capacity requirements are consistent with those specified in ANSI N195-1976/ANS-59.51, Sections 5.2, 5.4, and 6.1.

The plant safeguards 125-V d-c power is normally supplied by two batteries each of which will have a battery charger in service to maintain full charge and to assure adequate power for starting the diesel generators and supplying other emergency loads. A third charger is available to supply either battery.⁽³⁾

The arrangement of the auxiliary power sources and equipment and this TS ensure that no single fault condition will deactivate more than one redundant set of safety features equipment items and will therefore not result in failure of the plant protection systems to respond adequately to a loss-of-coolant accident.

DG Operability Testing With One Inoperable DG – (TS 3.7.B.2)

Ts 3.7.B.2.a provides an allowance to avoid unnecessary testing of the OPERABLE DG. If it can be determined that the cause of the inoperable DG does not exist on the OPERABLE DG, SR 4.6.a.1.A is not required to be performed. If the cause of the operability exists on the OPERABLE DG, the other DG would be declared inoperable upon discovery and TS 3.7.b.7 would be entered. Once the common cause failure is repaired on both DGs, the common cause failure no longer exists, and TS 3.7.b.2 is satisfied. If the cause of the initial inoperable DG cannot be confirmed not to exist on the remaining DG, or it is decided not to pursue a common cause evaluation, performance of SR 4.6.a.1.A suffices to provide assurance of continued OPERABILITY of the OPERABLE DG. In the event the inoperable DG is restored to OPERABLE status prior to completing either 3.7.b.2.A or 3.7.b.2.B, the corrective action program will continue to evaluate the common cause possibility. This continued evaluation, however, is no longer under the 24-hour constraint imposed while in TS

⁽¹⁾ USAR Figure 8.2-1 and 8.2-2

⁽²⁾ USAR Section 8.2.3

⁽³⁾ USAR Section 8.2.2 and 8.2.3