



February 5, 2009

ATTN: Document Control Desk
U. S. Nuclear Regulatory Commission
Washington, DC 20555-0001

Serial No. 09-058C
LIC/JF/R0
Docket No.: 50-305
License No.: DPR-43

DOMINION ENERGY KEWAUNEE, INC.
KEWAUNEE POWER STATION
**SUPPLEMENT 3 TO LICENSE AMENDMENT REQUEST 247: EMERGENCY DIESEL
GENERATOR FUEL OIL TECHNICAL SPECIFICATION CHANGES**

On January 23, 2009, pursuant to 10 CFR 50.90, Dominion Energy Kewaunee, Inc. (DEK) submitted License Amendment Request (LAR) 247 to Facility Operating License Number DPR-43 for Kewaunee Power Station (KPS) (reference 1). This amendment would permit DEK to modify KPS Technical Specification (TS) 3.7.a.7 by revising the required volume of Emergency Diesel Generator (EDG) fuel oil. The proposed change would decrease the required fuel oil volume from a total volume of at least 36,000 gallons to a total volume of at least 32,888 gallons.

On January 26, 2009, DEK submitted Supplement 1 to LAR 247 (reference 2), requesting that the Nuclear Regulatory Commission (NRC) review and approve LAR 247 under the rules of 10 CFR 50.91(a)(6), which is applicable to amendments where exigent circumstances exist.

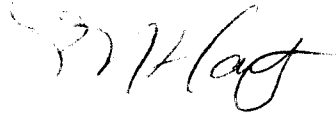
On January 27, 2009, the NRC staff requested additional information to complete their review of the proposed amendment. On January 30, 2009, DEK submitted Supplement 2 to LAR 247 (reference 3) to supply the requested information.

On February 2, 2009, DEK received additional questions from the NRC. Attachment 1 to this letter provides DEK's response to these questions. Attachment 2 contains a revised marked-up TS 3.7.a.7. Attachment 3 contains a revised marked-up TS Bases. Attachment 4 contains a revised proposed USAR update. Attachments 3 and 4 are provided for information only. The conclusions of the no significant hazards consideration contained in reference 1 remain unaffected by the changes proposed and information contained in this supplement.

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 804-273-2784.

Very truly yours,



Leslie N. Hartz
Vice President – Nuclear Support Services

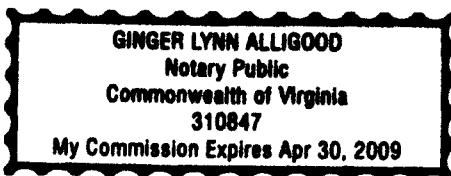
COMMONWEALTH OF VIRGINIA

COUNTY OF HENRICO

The foregoing document was acknowledged before me, in and for the County and Commonwealth aforesaid, today by Leslie N. Hartz, who is Vice President - Nuclear Support Services of Dominion Energy Kewaunee, Inc. She has affirmed before me that she 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 her knowledge and belief.

Acknowledged before me this 5th day of February, 2009.

My Commission expires: 4/30/09.




Notary Public

Attachments:

1. Response to the NRC's Request for Additional Information and Supplemental Information
2. Marked-Up Technical Specifications Page
3. Marked-Up Technical Specifications Bases Page
4. Marked-Up Updated Safety Analysis Report Page

Commitments made by this letter: None

References:

1. Letter from Stephen E. Scace (DEK) to Document Control Desk (NRC), "License Amendment Request 247: Emergency Diesel Generator Fuel Oil Technical Specification Changes," dated January 23, 2009.
2. Letter from Stephen E. Scace (DEK) to Document Control Desk (NRC), "Supplement 1 to License Amendment Request 247: Emergency Diesel Generator Fuel Oil Technical Specification Changes," dated January 26, 2009.
3. Letter from Stephen E. Scace (DEK) to Document Control Desk (NRC), "Supplement 2 to License Amendment Request 247: Emergency Diesel Generator Fuel Oil Technical Specification Changes," dated January 30, 2009.

cc: Regional Administrator, Region III
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ATTACHMENT 1

**SUPPLEMENT 3 TO LICENSE AMENDMENT REQUEST 247:
EMERGENCY DIESEL GENERATOR FUEL OIL
TECHNICAL SPECIFICATION CHANGES**

**RESPONSE TO THE NRC'S REQUEST FOR ADDITIONAL INFORMATION AND
SUPPLEMENTAL INFORMATION**

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

Response to the NRC's Request for Additional Information

On February 2, 2009, the Nuclear Regulatory Commission (NRC) staff notified Dominion Energy Kewaunee Inc. (DEK) that additional information was needed to complete their review of Kewaunee Power Station (KPS) License Amendment Request (LAR) 247. Each of the NRC's questions and DEK's responses are provided below.

NRC Question 1:

Please provide recent results of your Btu testing (quarterly) done at test labs.

DEK Response

The High Heating Value (HHV) test results of fuel oil samples from the Underground Fuel Oil Storage Tanks (UFOST) at KPS are provided below. The data provided includes the last six quarters of sampling data.

1A Diesel Fuel Oil Storage Tank: Heat of Combustion Vendor Btu/gal			1B Diesel Fuel Oil Storage Tank: Heat of Combustion Vendor Btu/gal		
<u>Date of Sample</u>		<u>Btu/gal</u>	<u>Date of Sample</u>		<u>Btu/gal</u>
11/6/2007		138,654	11/13/2007		138,000
1/28/2008		138,460	2/4/2008		137,077
5/11/2008		137,987	5/10/2008		138,664
7/15/2008		138,390	7/25/2008		138,374
10/7/2008		138,907	10/13/2008		137,739
1/10/2009		138,616	1/10/2009		139,646

The test results above demonstrate that a HHV of 137,000 Btu/gal used in the calculation for Emergency Diesel Generator (EDG) fuel consumption rate is a conservative value.

NRC Question 2:

Please provide actual consumption rates from a recent 24 hour run.

DEK Response

As discussed in DEK's response to Question 10 in LAR 247, Supplement 2 (reference 1), KPS has not performed testing to develop a site-specific fuel oil consumption rate for the EDGs.

DEK has developed a response to the NRC question above using data from the most recent 24-hour EDG surveillance tests, performed in accordance with TS 4.6.a.5. Tables 1 and 2 are provided below. Table 1 provides data for EDG 1A and Table 2 provides data for EDG 1B.

The data used to develop an estimate of the actual fuel consumption rate includes the average loading of each EDG during the 24-hour surveillance test (in kW) and the corresponding volume of fuel consumed during this period. The volume of fuel consumed is not considered reliable, as the instrument uncertainty is too high to determine a precise consumption rate for the EDGs. Average loading values (in kW) were retrieved from the KPS Plant Information system and fuel volume data was retrieved from the hourly operator logs taken during the 24-hour loaded run. The average fuel consumption rate was then calculated based on this information and was compared to the expected fuel consumption rate (based on manufacturer data) after being corrected for the HHV of the fuel being burned during the test.

From calculation C10033*, sections 4.2 and 6.3.4, the instrument uncertainty associated with the instrumentation used to determine the fuel oil volume in the UFOST is 564 gallons. This value accounts for uncertainty attributed to the indicator, meter and test equipment (M&TE), sensor drift, and rack readability. However, for the purposes of determining average fuel consumption rates for the EDGs using UFOST instrumentation, instrument uncertainty needs to be addressed as described below.

The drift component over the course of one day is considered insignificant. The value per the calculation is 0.5% of span for 18 months. Over the course of one day the drift would be equal to (1 day / 18 months) (0.5% of span), which equals 0.0009% of span or 0.315 gallons. This is insignificant and therefore has been neglected.

The M&TE uncertainty is important and considered when trying to determine the error associated with one reading in relation to tank capacity. However, when comparing two readings a shift or a day apart, the uncertainty due to M&TE would be the same since the instrument was not calibrated with the M&TE between readings. The actual value and direction of the uncertainty is not known, but the uncertainty associated with the

* Calculation C10033 was previously provided to the NRC in reference 1.

M&TE would have the same affect at both readings and is canceled out when performing the calculation of the difference between the two readings.

The remaining parameters are Indicator Accuracy (1% of full scale) and Rack Readability (0.3% of full scale). Part of Indicator Accuracy is "repeatability." From one day to the next the indication will have an uncertainty by the amount of the accuracy component. This is particularly true since the volume in the UFOST is decreasing over the period of the EDG 24-hour run. Therefore, this uncertainty is included in the instrument uncertainty associated with the calculation of the difference between the two readings. Readability, is likewise, present at both readings and must also be included.

Therefore, the uncertainty associated with the calculation of the difference between the readings of volume of fuel oil in the UFOSTs is as follows:

$$\text{Uncertainty} = (\text{Accuracy}_{\text{reading1}}^2 + \text{Readability}_{\text{reading1}}^2 + \text{Accuracy}_{\text{reading2}}^2 + \text{Readability}_{\text{reading2}}^2)^{1/2}$$

$$\text{Uncertainty} = (1.0\%^2 + 0.3\%^2 + 1.0\%^2 + 0.3\%^2)^{1/2}$$

$$\text{Uncertainty} = 1.4765\% \text{ or } 517 \text{ gallons}$$

Other uncertainties, such as day tank volume measurement, have been conservatively ignored in this analysis.

The expected fuel consumption rate was determined using the methodology prescribed in C10033, section 6.5.2 using the EDG manufacturer fuel consumption data (C10033, attachment 4) which was corrected for the High Heating Value (HHV) of the fuel being used at the time of the 24-hour tests. For EDG 1A, the HHV was estimated to be 138,200 Btu/gal (based on selection of a median value between the 1/28/2008 and the 5/11/2008 heat of combustion values provided in the table in response to question 1). For EDG 1B, the HHV was estimated to be 137,077 Btu/gal (based on the 2/4/2008 heat of combustion value provided in the table in response to question 1).

In order to determine an expected fuel consumption rate at the average kW load for the applicable EDG, a best-fit curve using the data described above was created. The expected fuel consumption rate was then determined by the intersection of the average kW load and the best-fit curve.

Table 1				
1A Emergency Diesel Generator Fuel Consumption During 24-hour Run				
Date of Test	Total Fuel consumed (gal)	Average kW load	Average fuel consumption rate (gal/kW-hr)	Expected fuel consumption rate (gal/kW-hr)
4/15/2008 - 4/16/2008	5155 ± 517	2785.6	0.07710 ± 0.00773	0.07392

The range of average fuel consumption rate values for 1A EDG during this test is 0.06937 - 0.08483 gal/kW-hr. The expected fuel consumption rate (0.07392 gal/kW-hr) is within that range.

Table 2				
1B Emergency Diesel Generator Fuel Consumption During 24-hour Run				
(Note: only 23 hours of data available)				
Date of Test	Total Fuel consumed (gal)	Average kW load	Average fuel consumption rate (gal/kW-hr)	Expected fuel consumption rate (gal/kW-hr)
4/23/2008 - 4/24/2008	4582 ± 517	2742.2	0.07265 ± 0.00820	0.07451

The range for average fuel consumption rate values for 1B EDG during this test is 0.06445 - 0.08085 gal/kW-hr. The expected fuel consumption rate (0.07451 gal/kW-hr) is within that range.

The results indicate that the expected fuel consumption rate for each EDG is within the average fuel consumption rate range when instrument uncertainty is applied.

Supplemental Information

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 and each diesel generator shall have:*
- A. *Day tanks containing a minimum volume of 1000 gallons;*
 - B. *An underground storage tank and corresponding day tanks containing a minimum volume of 32,888 gallons of useable fuel;*
 - C. *An OPERABLE diesel fuel oil transfer pump.*
- ~~*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 and each diesel generator shall have:*
- A. *Day tanks containing a minimum volume of 1000 gallons;*
 - B. *An underground storage tank and corresponding day tanks containing a minimum volume of 32,888 gallons of useable fuel;*
 - C. *An OPERABLE diesel fuel oil transfer pump.*

The change from the previously proposed version (reference 1, Attachment 1) of the TS includes a separate line item for a dedicated fuel transfer pump for each EDG. Other formatting changes have been made for clarity of the TS.

Background

A fuel oil transfer pump (FOTP) on each UFOST supplies the respective day tanks. The FOTPs are powered from the 480 VAC Electrical Distribution System. The FOTP maintains the day tanks above the low level alarm when the control switch is left in AUTO position. The FOTPs remain connected to the bus and automatic operation is not inhibited during a Safety Injection actuation or Loss of Offsite Power (LOOP) event.

Fuel oil is transferred from the UFOSTs to the day tanks by a FOTP. Each FOTP is associated with an UFOST and an EDG. For proper operation of the standby DGs, it is necessary to ensure the proper quantity of the fuel oil is available. The FOTP assures that fuel oil is supplied by the respective EDG. See LAR 247, Supplement 2 (reference 1) for further details on fuel oil transfer operations.

Analysis

The addition in the TS of “an OPERABLE diesel fuel oil transfer pump” meets the requirements for an OPERABLE EDG. The EDG cannot function for a full seven days

without an operable FOTP. The day tanks cannot contain a sufficient volume of fuel oil for a seven-day EDG run, therefore it is necessary to transfer fuel oil from the UFOSTs to the day tanks. The FOTP is required to support continuous operation of standby power sources. The design function of the fuel transfer pump is to transfer fuel oil from the UFOST to the respective day tanks of the EDG.

This change is acceptable as the FOTP is a component that must function in order to support EDG operability.

Reference:

1. Letter from Stephen E. Scace (DEK) to Document Control Desk (NRC), "Supplement 2 to License Amendment Request 247: Emergency Diesel Generator Fuel Oil Technical Specification Changes," dated January 30, 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 and each diesel generator shall have:
 - A. Day tanks containing a minimum volume of 1000 gallons;
 - B. An underground storage tank and corresponding day tanks containing a minimum volume of 32,888 gallons of useable fuel;
 - C. An OPERABLE diesel fuel oil transfer pump.
 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⁾

Kewaunee's design basis requires a specified volume of fuel be available at all times. The specified volume must be enough to run an EDG for 7 days plus the volume required to conduct one monthly surveillance test. Since Kewaunee does not have a safety related single failure proof method for moving fuel between the UFOSTs, each EDG must be aligned to its UFOST with a minimum of 32,888 gallons available to meet the design basis requirement.

A minimum of 7 days fuel supply for ~~one~~each diesel generator is maintained by requiring 36,000 a useable volume of 32,888 gallons of fuel oil in its associated storage tank and day tanks, thus assuring adequate time to restore off-site power or to replenish fuel. Included in the 32,888 gallons of fuel oil is enough fuel oil for the performance of a monthly surveillance test and to account for the expansion of the fuel oil from the storage tank to the day tanks. Additionally, the required capacity of the day tanks is approximately 4 times the amount needed to maintain at least 60 minutes of operation based on the fuel consumption at a load of 100% of the continuous rating of the diesel plus a minimum margin of 10%. 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. A diesel fuel oil transfer pump is considered operable when it is capable of maintaining the day tanks within the prescribed range during a design bases event.

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.

⁽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

ATTACHMENT 4

**SUPPLEMENT 3 TO LICENSE AMENDMENT REQUEST 247:
EMERGENCY DIESEL GENERATOR FUEL OIL
TECHNICAL SPECIFICATION CHANGES**

**MARKED UP UPDATED SAFETY ANALYSIS REPORT
(FOR INFORMATION)**

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

4. Response of the air receiver pressure switches can be tested and calibrated by valving in the standby air receivers, valving out the on-line receivers, opening the air compressor circuit breaker, and opening the receiver drain valve until an alarm occurs on the local and Control Room annunciators.

The motor-driven compressor associated with each diesel is fed from the emergency bus supplied from the same diesel. The control voltage for each diesel starting system is from its associated 125V dc station battery.

An audible and visual alarm system is located in the control room and will alarm off-normal conditions of jacket water temperature, lube oil temperature, fuel oil level, starting air pressure and Diesel Generator Stator Hi Temperature (1 of 12 inputs feeding the 4160 Volt Stator Temperature Hot annunciator). An alarm also sounds if a starting circuit is locked out, a control switch is not in "auto" position, or dc power for the controls at the diesel generator is lost. The alarm in the control room also alerts the operator to other various off-normal conditions including jacket water expansion tank level and pressure, engine crankcase pressure, and fuel oil pressure. Local audio and visual alarms are also provided at each diesel generator.

Reference 2 is a safety evaluation in which the NRC has concluded that, based on the review of submitted information and on-site inspections, the status annunciators for the diesel generators are acceptable. The review was specifically intended to ensure that any deliberately induced condition which may disable the diesel generators, and which is expected to occur more frequently than once per year, is automatically annunciated in the Control Room with devices worded to alert the operator of their abnormal status.

Two 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 diesel generator at full load. Two separate 35,000-gallon underground storage tanks supply fuel oil through dedicated immersion pumps to either each pair of day tanks. The combined usable amount of fuel oil, available for each diesel generator, contained in both the associated diesel generator underground storage tanks and one set of day tanks would provide a minimum of 7 days fuel supply for one diesel generator operation of the associated diesel generator at 100% of the continuous rated power, thus assuring adequate time to restore off-site power or to replenish fuel. Minimum calculated usable volume was determined to be 32,858 gallons, which provides for a 7-day fuel supply plus a monthly surveillance run on the respective diesel generator. An additional 30 gallons of usable volume is required to account for thermal expansion in the day tanks due to the temperature difference from the underground fuel oil storage tank to the day tanks. Thus the total usable volume required to be maintained in each underground storage tank and the associated day tanks must be at least 32,888 gallons. The diesel fuel oil storage capacity requirements are consistent with those specified in ANSI N195-1976/ANS-59.51, Section 5.2, 5.4 and 6.1. See Reference 3 and Technical Specification 3.7 for fuel oil storage requirements