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Dominion®

January 30, 2009

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

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

DOMINION ENERGY KEWAUNEE, INC.
KEWAUNEE POWER STATION
SUPPLEMENT 2 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 the KPS Technical Specification (TS) section 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 32,858 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.

During a telephone conference on January 27, 2009, the NRC staff requested additional information to complete their review of the proposed amendment.

Attachment 1 to this letter provides DEK's response to staff's questions and a supplement to the TS verbiage originally proposed in LAR 247. This change includes a further revision of the proposed TS. The revised TS limit proposed is now a total volume of at least 32,888 gallons. The conclusions of the no significant hazards consideration contained in reference 1 remain unaffected by the changes proposed in this supplement.

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 804-273-2784.

A001
NRR

Very truly yours,

Stephen E. Scace
Site Vice President – Kewaunee Power Station

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 30th day of January, 2009.

My Commission expires: March 28, 2010.

Notary Public

Attachments

1. Discussion of Change and Response to the NRC's Request for Additional Information

Enclosures

1. Marked Up Updated Safety Analysis Report (USAR), page 8.2-17
2. KPS Calculation C10033, "Safeguard's Diesel Fuel Oil Storage Volume Calculation," Revision 1.
3. KPS Emergency Diesel Generator Fuel Oil System Drawings
    a. A-203, "General Arrangement – Turbine and Administrative Building - Basement Floor," revision BC
    b. A-205, "General Arrangement – Turbine and Administrative Building - Mezzanine Floor," Revision AR
    c. E-1622, "Integrated Logic Diagram – Diesel Generator Mech. System," Revision W
    d. M-220, "Flow Diagram – Fuel Oil System," Revision AP
    e. M-271, "Diesel Generator Fuel Oil Piping," Revision Q
    f. M-272, "Diesel Generator Fuel Oil Piping," Revision T

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.

cc: Regional Administrator, Region III
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ATTACHMENT 1

SUPPLEMENT 2 TO LICENSE AMENDMENT REQUEST 247: EMERGENCY DIESEL GENERATOR FUEL OIL TECHNICAL SPECIFICATION CHANGES

DISCUSSION OF CHANGE AND RESPONSE TO THE NRC'S REQUEST FOR ADDITIONAL INFORMATION

KEWAUNEE POWER STATION
DOMINION ENERGY KEWAUNEE, INC.

Discussion of Change and
Response to the NRC's Request for Additional Information

During a conference call held on January 27, 2009, the Nuclear Regulatory Commission (NRC) staff requested additional information needed to complete their review of LAR 247. Both the questions and DEK's responses are provided below.

NRC Question 1:

In the proposed Technical Specification (TS) the word "either" is used (fuel oil for either diesel). Provide clarification as to what this means (i.e., whether this means that each underground diesel fuel oil storage tank will be maintained at the stated number of gallons or whether there will be a minimum number of gallons between the two tanks).

DEK Response

Kewaunee Power Station (KPS) does not currently have a reliable siphon arrangement between the two underground storage tanks. Therefore, the fuel oil volumes of the two storage tanks cannot be credited with combining to form a single volume that could be delivered to either emergency diesel generator (EDG). Each storage tank can only be credited with supplying fuel oil only to its associated EDG. Therefore, each storage tank must be capable of supplying the required volume of fuel oil to its respective EDG.

To clarify the requirement for the current fuel oil storage configuration, the proposed change to TS 3.7.a.7 is being revised to replace the term "either" with "each".

The KPS licensing basis requirement of being capable of supplying fuel oil to one EDG for seven days remains unchanged by this clarification.

The TS is also revised to increase the supply of useable fuel oil by 30 gallons to a total required useable volume of 32,888 gallons. This change was made to account for the increase in volume due to expansion of the fuel oil in the day tanks. This basis for this change is further described in the response to question 5.

The revised proposed change, stated below, replaces the originally proposed change in LAR 247 in its entirety. The description, background, technical analysis, regulatory safety analysis (including the "No Significant Hazards Consideration"), and environmental consideration provided in LAR 247 remain applicable and bounding to this revised change.

REVISED 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~~ each diesel generator is at least 32,888 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 each diesel generator is at least 32,888 gallons, including the day tanks. The day tanks for each diesel generator contain at least 1000 gallons of fuel oil.*

NRC Question 2:

Provide a copy of the proposed revisions to the Updated Safety Analysis Report (USAR) that will reflect the changes in number of gallons required.

DEK Response

A markup of the proposed revisions to the Updated Safety Analysis Report (USAR), which will reflect the changes in number of gallons required, is enclosed with this letter.

NRC Question 3:

How is the required level in the underground storage tanks administratively controlled (e.g., operator rounds)?

DEK Response

Fuel levels in the underground storage tanks are controlled by specifying the minimum required level on operator logs. Fuel oil storage tank levels are checked each shift and actions are specified to restore level to the required value if the minimum values are not met.

The log will specify a minimum volume, (e.g. 33,377 gallons) for each underground storage tank (1,733 gallons of this amount is not usable). The underground storage tank minimum volume is based on maintaining a minimum volume of 1,244 gallons in the associated EDG's day tanks (at the tank's low level alarm setpoint). The day tanks are actually maintained at a higher volume than the 1,244 gallons specified as the low-level alarm setpoint. Level in the day tanks is controlled automatically by refill from the associated underground storage tank. The low-level alarm setpoint would only be reached in the event of an abnormal condition. Administrative controls are specified to restore day tank level, if the low-level alarm setpoint is reached.

An operator-maintained usable volume of 31,644 gallons in an underground storage tank, combined with the administratively maintained volume of 1,244 gallons in the associated day tanks, results in a seven-day supply of fuel oil (32,888 gallons) to the associated EDG, while also ensuring at least 1000 gallons is maintained in the day tanks to satisfy TS requirements.

NRC Question 4:

Please provide a copy of the supporting calculation for the revised EDG fuel oil requirements.

DEK Response

A copy of the supporting calculation for the revised EDG fuel oil requirements (Calculation C10033) is provided in Enclosure 2.

NRC Question 5:

The temperature in the day tank is significantly different than the underground storage tank. How is this temperature difference addressed in the application?

DEK Response

Section 6.6 of Calculation C10033 addresses the ability of the day tank to cope with the increase in fuel volume due to thermal expansion. The day tank fuel oil volume

contents will expand by about 19 gallons if temperature increased from 60 F to 110 F if initially at the low level alarm. Conservatively, if the tanks were assumed to be full (1724 gallons rather than 1,272 gallons), the maximum change in volume would be 26 gallons [expansion of 1724 x (0.868/0.855) = 1750 gallons]. To address this potential volume effect on the determination of the volume of fuel oil available, an additional amount of required fuel oil will be added to the Technical Specification limit for conservatism (see the response to question 1).

The day tank low level alarm and fuel oil transfer pump (FOTP) controls utilize float switches. The float switches are set to a particular volume in the tank; therefore, the number of gallons would be unaffected. The level indication used by operations to monitor level in the day tank could be affected by changes in temperature as it is based on pressure (elevation head X density).

The calculation remains conservative in that the difference in level between the low level alarm and the FOTP start switch is 5 inches, or 76 gallons of tank volume. Even if the FOTP switch were at the low end of its calibration (1 inch low), there would still be 60.8 gallons [76 * (4/5)] between the low level alarm and the FOTP start switch setpoint. This is well above the 26-gallon effect that the temperature change could cause (60.8 gallons - 26 gallons = 34.8 gallons of fuel oil above the low level alarm).

NRC Question 6:

In section 6.4.2 of the supporting calculation, variable V_4 is substituted with the number 38, while section 6.3.2 defines V_5 as 3 gallons. This would appear to make V_4 equal 33 gallons.

DEK Response

The formula listed in the calculation inadvertently omitted a factor. However, the value of V_{A-D} was appropriately calculated using the correct formula. The results are not affected by this condition.

The correct formula should read: $V_{A-D} = [(V_3 + V_4 + V_5) - V_5 - V_{VORTEX-D}] \times 2$

The calculation is being revised to correct this typographical error.

NRC Question 7:

Please provide a more detailed description (and drawing) of the diesel fuel oil storage and transfer system that shows interlocks, start and stop levels and pump orientations.

DEK Response

The following drawings are enclosed with this letter:

- A-203, "General Arrangement – Turbine and Administrative Building - Basement Floor," revision BC
- A-205, "General Arrangement – Turbine and Administrative Building - Mezzanine Floor," Revision AR
- E-1622, "Integrated Logic Diagram – Diesel Generator Mech. System," Revision W
- M-220, "Flow Diagram – Fuel Oil System," Revision AP
- M-271, "Diesel Generator Fuel Oil Piping," Revision Q
- M-272, "Diesel Generator Fuel Oil Piping," Revision T

Kewaunee has two nominal 850-gallon "day" tanks that are located in enclosures within each diesel generator room (reference drawing A-203, location G-7 and G-9). Two nominal 35,000-gallon underground storage tanks supply fuel oil through immersion pumps to either pair of day tanks (reference drawing A-205, location G-5). A fuel oil transfer pump on each underground storage tank supplies the respective day tanks in the emergency DG Rooms through separate 1-1/2" lines (reference drawing M-220). Each fuel oil transfer pump maintains its associated day tanks at greater than 95% full when in automatic. A fuel supply header with two manual isolation valves can provide a crossover so that either underground storage tank can feed the day tanks for either emergency DG.

To provide fuel oil from the day tanks to the EDG, 1-inch fuel oil supply and return lines from the day tanks are connected at the DG through flexible hose connections. A suction strainer is installed before the DC driven (priming) and the engine driven fuel pump. A 125 VDC priming fuel pump is installed in parallel with an engine driven pump. Unused fuel is recirculated back through the fuel return line to the day tanks.

Control switches are located in the control room on the electrical control console. Controls are provided for each fuel oil transfer pump. The control switch is a four-position PULLOUT/STOP/AUTO/START switch that spring returns to AUTO from the START and STOP positions. EDG transfer pump A also has Control Switches located on the dedicated shutdown panel (DSP). Reference drawing E-1622 for the fuel oil transfer pump operation.

The fuel oil transfer pump can be controlled either manually or automatically. By rotating the STOP/AUTO/START switch to the START position, the associated fuel oil transfer pump starts and continues to run. When the switch is released and spring

returns to the AUTO position, the pump continues to run until the day tank reaches a high-level switch trip point. At the high level trip point (597' 4" elevation) the Fuel Oil Transfer Pump stops. Anytime the switch is rotated to the STOP or PULLOUT position, the pump stops if it has been running. The PULLOUT position is a maintained position and can be used to prevent automatic operation. When the control switch is in the AUTO position, the day tank level switch controls operation of the fuel oil transfer pump. When the day tank level drops below the low setpoint, 596'-10" elevation, the transfer pump starts and continues to run until the oil level in the day tank reaches the upper high-level setpoint, (597'-4") and then it stops.

Each day tank is equipped with level alarm switches that actuate a control room annunciator on abnormal level. The annunciator actuates on a high day tank level when the level reaches 597'-9" while the annunciator actuates on a low level when the level reaches 596'-5".

NRC Question 8:

The calculation indicates that the 7 day requirement will be satisfied by storing 1244 gallons in the day tanks. The TS for the day tanks has been left at 1000 gallons. If the combination of day tanks and the underground fuel oil storage tanks (UFOSTs) is allowed to demonstrate the onsite storage capability, then the TS for the day tanks needs to reflect the volume required to maintain 7 day storage (1244 gallons). So the options may be to have UFOST TS at 32,858 gallons and leave the day tank at 1000 gallons, or change both the numbers.

DEK Response

Requirements for on-site fuel oil storage capacity for the EDGs at Kewaunee Power Station are derived from the guidelines contained in ANS-59.51 / ANSI N195-1976 section 5.4 and section 6.1. Section 5.4 covers the calculation of on-site fuel oil storage capacity while section 6.1 covers the capacity guidance for day or integral tanks.

Section 5.2 states, in part, that for single unit sites:

> *"The on-site oil storage shall be sufficient to operate the minimum number of diesel-generators following the limiting design basis accident for either seven (7) days, or the time required to replenish the oil from sources outside the plant site following any limiting design-basis event without interrupting the operation of the diesel, whichever is longer."*

Section 5.4 states in part:

> *"A conservative alternative to calculating the total fuel storage based on time-dependent loads is to calculate the storage capacity by assuming that the diesel operates continuously for seven days at its rated capacity."*

Section 6.1 states in part:

> *"Each diesel shall be equipped with day or integral tank or tanks whose capacity is sufficient to maintain at least 60 minutes of operation at the level where oil is automatically added to the day or integral tank or tanks. This capacity shall be based on the fuel consumption at a load of 100% of the continuous rating of the diesel plus a minimum margin of 10%."*

By requiring a day tank volume of 1000 gallons, Kewaunee complies with section 6.1, as stated above and described in Kewaunee License Amendment 83 (reference 1). The combined volume of the day tanks and the storage tank complies with section 5.4. Therefore, no change is needed in required fuel oil volumes.

In addition, see response to Questions 3 and 5.

NRC Question 9:

The fuel oil calorific value (BTUs/gal) has been selected from a reference book. However, lab results on fuel with similar specific gravity or API number has shown significantly lower BTUs/gallon. Discuss whether fuel oil samples are tested for BTU content.

DEK Response

Testing for heat of combustion (Calorific Value Gross Heat or High Heat Value (HHV)) BTU/Gal of fuel stored in the underground storage tanks is performed in accordance with ASTM D-240 methodology on a quarterly basis with a control range of 137,000 - 143,100 BTU/Gal. Each delivery of new diesel fuel is tested in the same manner. The heat of combustion test is performed at a vendor laboratory with results returned to KPS within a few weeks of the sample date.

NRC Question 10:

The fuel consumption rate was based on data that was supplied by the manufacturer for a generic machine. Since there is no margin in the supporting design calculation, discuss whether site-specific consumption rate was evaluated.

DEK Response

KPS has not performed testing of the EDGs to develop a site-specific consumption rate for the EDGs. However, in response to this question, DEK did evaluate whether feasible results could be obtained by reviewing data from the last 24-hour test of each EDG.

Data required to perform this estimate included the average kW as well as the corresponding volume of fuel consumed during this period. Average kW values were retrieved for the KPS Plant Information system and fuel volume data was retrieved from the operator logs taken hourly during the 24-hour loaded run. A fuel consumption rate was then calculated based on this information and was compared to an expected consumption rate based on manufacturer data after being corrected for the HHV of the fuel being burned at that time.

The review of the data revealed mixed results. Some information supported a lower consumption rate than the vendor specified value and some data supported a higher consumption rate. These mixed results indicate that the level gauge accuracy in the UFOST does not allow a precise enough measurement to develop a quantitative response to this question. However, when the results were taken collectively (data points averaged together) the analysis showed that the fuel oil consumption rate was near the expected range provided by the manufacturer.

Fuel consumption rates used in calculation C10033 were based on vendor supplied data at various loading levels after being corrected for the lowest allowable HHV for diesel specified for use in the KPS EDGs. Significant margin in the volume of fuel oil required is demonstrated in the KPS response to question 12. Therefore, DEK believes adequate margin exists in the current calculation.

NRC Question 11:

ASTM D975 currently allows up to 5% biodiesel in No. 2 fuel oil (B5) without requiring labeling of the blend. Discuss the effects (if any) of using a blend of B5 fuel oil.

DEK Response

The supporting calculation did not directly consider biodiesel in EDG fuel oil mix. DEK's purchase specification explicitly prohibits vendors from supplying KPS with any biodiesel. DEK tests fuel received on site for the presence of biodiesel. The test results are obtained several weeks after new fuel is delivered and added to the storage tanks. KPS has never received biodiesel in any fuel shipment received to date.

As stated in the response to question 9, testing of the HHV is also initiated upon each delivery of new fuel. Therefore, any incremental change in high heating value caused by an inadvertent delivery of 5% biodiesel would be identified during initial testing and evaluated if not within the acceptable limits.

NRC Question 12:

KPS USAR Table 8.2-1 lists the diesel-generator loads and the times that they will sequence on if required. The maximum connected loads are 3541.1 kW for DG 1A and 3374.7 kW for DG 1B. Table 8.2-1 also gives a time dependent load list, which shows that the highest estimated loads are 2759 and 2776 kW for each respective diesel generator, which occurs at step 9 in the loading sequence. After adding all remaining factors (frequency, voltage, etc. *see note below related to this*), the maximum diesel generator loads are approximately 2848 kW for EDG A and 2854 kW for EDG B. These loads are less than the Continuous +10% overload (for 2 hours in any 24-hour period) rating of 2860 kW for the diesel generators. Operation of the safeguard diesel generators at frequencies other than 60 Hz, as allowed by the governor speed setting, has been shown by calculation to be within the Continuous and Continuous +10% overload (for 2 hours in any 24-hour period) ratings.

A note at the bottom of USAR Table 8.2-1 states:

> Table 8.2-1 totals reflect the improved calculation methods reflected in Reference 11 and include transformer, cable, and overload heater losses, but do not reflect elevated diesel frequency and voltage. Totals for the 60-120 minute time frame are not included because they were not calculated in Reference 11 due to being inconsequential.

In LAR 247, the licensee states the 'conservative alternate method' was used to compute the fuel oil requirements for the EDGs. This method used the nominal rating (2600KW) of the EDG to calculate the 7-day requirement. The licensee further clarifies that this method is conservative as loads such as containment spray (CS) will run for a short duration only. Per the USAR Table, the CS pump and associated valves are rated at 175.2. Removing this load from the postulated steady state load for EDG B (2854KW) yields 2678.8KW load for EDG B.

In view of the fact that the initial loading of the EDG at the onset of an event, coupled with loss of offsite power, is well above the 2600KW rating; and, there is a potential for EDG operation at higher frequencies and higher than nominal rating for an extended duration, please verify that the method used to compute fuel oil consumption is conservative.

DEK Response

As the question indicates for a short duration the USAR states that the EDG will be loaded at greater than the continuous duty rating (2600kW) than the fuel consumption calculation assumes. However, as is demonstrated below, this is only for a short duration. The analysis below demonstrates that when the full 7 days of operation of the EDG is considered the continuous duty rating is a bounding conservative value for demonstrating adequate fuel oil inventory.

DEK has a calculation for EDG post-accident loading for a duration of 240 minutes (4 hours). This calculation yields the results presented in the following table. This calculation is considered a worst-case EDG loading for a design bases accident. The bounding values at various time steps are presented below:

KW Total	Step 10	T=30	T=60	T=240
EDG A	2843.41	2844.84	2673.13	2038.04
EDG B	2849.93	2848.17	2677.51	2009.39

From the table, it can be seen that 2860 kW is a bounding value for the electrical loading for the first hour of the event, 2680 kW will bound hours 2-4 of the event, and 2040 kW will bound the remainder of the 7-days after initiation of the event.

If the ANSI N195-1976 prescribed time dependence method of calculating fuel oil requirement for a diesel generator is used, the following results are achieved (NOTE: all values for fuel consumption rates and HHV for loadings are derived from data available in C10033, provided in Enclosure 2):

First Hour consumption: The estimate for the first hour of the event, determined that 2860 kW will bound the EDG loading and the associated fuel consumption rate is 0.0747 gal/kW hr as specified in section 6.5.2 of calculation C10033. The volume of fuel required for the first hour is estimated to be 214 gallons.

Hours 2 – 4 consumption: For hours 2 - 4, 2680 kW will bound the EDG loading and a fuel consumption rate of 0.07452 gal/kW hr was derived from a best fit curve of the fuel consumption vendor data included in attachment 4 of calculation C10033. For hours 2-4 the volume fuel required is estimated to be 599 gallons.

Hours 5 – 168 consumption: For the remaining 164 hours, 2040 kW will bound the EDG loading and a fuel consumption rate of 0.07565 gal/kW hr was derived from the best fit curve of the fuel consumption vendor data included in attachment 4 of calculation C10033. The volume required for the remaining 164 hours is estimated to be 25,310 gallons.

Total consumption: Adding the values for the respective time increments above yields the total volume required for 7-days of operation to be 26,123 gallons. After adding a 272-gallon allowance for testing, and applying a 10 percent margin to the entire volume (as required by section 5.4 of ANSI N195), yields a final volume requirement of 29,035 gallons.

This value is 3823 gallons less than was specified in calculation C10033. This additional 3823 gallons represents over 24 additional hours of operation at the 2040 kW loading rate for a total available stored volume of over 8-days for EDG operation. Therefore, the calculation provided is considered conservative and bounding.

References:

1. Letter from Anthony T. Gody (NRC) to Ken H. Evers (WPSC), "Amendment NO. 83 to facility Operating License NO. DPR-43 (TAC NO. 73582)," dated October 25, 1989

ENCLOSURE 1

SUPPLEMENT 2 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 generator at full load. Two 35,000-gallon underground storage tanks supply fuel oil through immersion pumps to either pair of day tanks. The ~~combined~~ usable amount of fuel ~~oil~~ oil, available for each diesel generator, contained in the~~both~~ storage tanks and one set of day tanks would provide a minimum of 7 days fuel supply ~~for one diesel generator~~, 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. An additional 30 gallons is added to the usable volume 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. 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