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PG&E Letter DCL-05-034

U.S. Nuclear Regulatory Commission  
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Washington, D.C. 20555-0001

Docket No. 50-275, OL-DPR-80  
Docket No. 50-323, OL-DPR-82  
Diablo Canyon Units 1 and 2

Supplement 1 to License Amendment Request 04-04

Revision to Technical Specification 3.8.3, "Diesel Fuel Oil, Lube Oil, Starting Air, and Turbocharger Air Assist"

Dear Commissioners and Staff:

In Pacific Gas and Electric (PG&E) Company Letter DCL-04-118, "License Amendment Request 04-04, 'Revision to Technical Specification 3.8.3, "Diesel Fuel Oil, Lube Oil, Starting Air, and Turbocharger Air Assist,"'" dated September 23, 2004, PG&E submitted a request to amend Facility Operating License Nos. DPR-80 and DPR-82. License Amendment Request (LAR) 04-04 proposed to revise Technical Specification (TS) 3.8.3 to increase the required amount of stored emergency diesel fuel oil to support use of low-sulfur fuel oil required by the California Air Resources Board.

In January 2005, during an NRC inspection to assess the adequacy of Diablo Canyon Power Plant's design and the design implementation for selected risk-significant components and operator actions, the inspection team identified a deficiency in the calculation used to establish the required emergency diesel fuel oil storage volumes. The calculation understates the unusable volume needed to account for vortexing. When reviewing the calculation to address the vortexing assumption, PG&E engineers also identified that an additional unusable volume to account for a Final Safety Analysis Report Update assumption regarding a passive failure of the system pressure boundary was inadvertently left out of the calculation. Both deficiencies have been entered into PG&E's correction action program.

There is sufficient margin in the calculation to account for these effects for the current TS required storage volumes. However, there is not sufficient margin in the

AD01



calculation to support the storage volume increases proposed in LAR 04-04. This supplement to LAR 04-04 corrects the proposed required storage volumes.

Enclosure 1 contains an updated description of the proposed changes and the supporting technical analyses. Changes are indicated by revision bars. The no significant hazards consideration determination is included for completeness but remains unchanged from that submitted in DCL-04-118. New Enclosures 2, 3, and 4 replace those submitted with DCL-04-118. Enclosures 2 and 3 contain marked-up and retyped (clean) TS pages, respectively. Enclosure 4 provides the marked-up TS Bases changes for information only. TS Bases changes will be implemented pursuant to TS 5.5.14, "Technical Specifications Bases Control Program," at the time this amendment is implemented.

The changes in this LAR are not required to address an immediate safety concern. PG&E requests approval of this LAR no later than September 30, 2005, to allow implementation by January 1, 2006, to meet the new state regulations. PG&E requests the license amendments be made effective upon NRC issuance, to be implemented within 90 days from the date of issuance.

This submittal contains no new or revised commitments.

If you have any questions or require additional information, please contact Stan Ketelsen at (805) 545-4720.

Sincerely,

David H. Oatley  
*Vice President and General Manager - Diablo Canyon*

jer/3664  
Enclosures

cc: Edgar Bailey, DHS  
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cc/enc: Girija S. Shukla



## EVALUATION

### 1.0 DESCRIPTION

This letter is a request to amend Operating Licenses DPR-80 and DPR-82 for Units 1 and 2 of the Diablo Canyon Power Plant (DCPP), respectively.

The proposed changes would revise the Operating Licenses to revise Technical Specification (TS) 3.8.3, "Diesel Fuel Oil, Lube Oil, Starting Air, and Turbocharger Air Assist," to increase the required amount of stored diesel fuel to support implementing new California regulations requiring use of California Air Resources Board (CARB) and ultra-low sulfur (ULS) fuel oil in place of existing Environmental Protection Agency (EPA) red-dyed fuel oil. The new state regulations go into effect on January 1, 2006, for CARB fuel oil and June 1, 2006, for ULS fuel oil.

### 2.0 PROPOSED CHANGE

The following changes are proposed for TS 3.8.3:

Limiting Condition for Operation (LCO) 3.8.3.a - The combined storage for 2 units in Modes 1, 2, 3, and 4 will be increased from  $\geq 65,000$  gallons to  $\geq 79,000$  gallons.

LCO 3.8.3.b.1 and 2 - The combined storage for one unit in Modes 1, 2, 3, and 4, and each unit in Modes 5 and 6, will be increased from  $\geq 33,000$  gallons to  $\geq 41,000$  gallons, and from  $\geq 26,000$  gallons to  $\geq 31,000$  gallons, respectively.

LCO 3.8.3 Note - During performance of diesel fuel oil tank cleaning, with 1 tank removed from service for up to 10 days, the fuel oil storage requirement for 1 unit in operation in Modes 1, 2, 3, and 4 and 1 unit in Mode 6 with at least 23 feet of water above the reactor vessel flange or with the reactor vessel defueled will be increased from  $\geq 35,000$  gallons to  $\geq 41,000$  gallons. For the duration of tank cleaning, temporary onsite fuel storage will be increased from  $\geq 24,000$  gallons to  $\geq 25,000$  gallons.

TS 3.8.3 Required Action A.1.1 - Verification of combined fuel level for each unit operating in Modes 1, 2, 3, or 4 will be increased from  $\geq 29,000$  gallons to  $\geq 36,000$  gallons.

TS 3.8.3 Required Action A.1.2 - Verification of combined fuel level for each unit operating in Modes 5 or 6 will be increased from  $\geq 23,000$  gallons to  $\geq 27,000$  gallons.

The proposed TS changes are noted on the marked-up TS pages provided in Enclosure 2. The proposed retyped TS pages are provided in Enclosure 3. The

revised TS Bases, provided for information only in Enclosure 4, will be implemented pursuant to TS 5.5.14, "Technical Specifications Bases Control Program."

### 3.0 BACKGROUND

#### 3.1 System Description

The DCPD diesel fuel oil storage system consists of two common tanks with a nominal capacity of 50,000 gallons each. The TS-required fuel oil quantity is based on the calculated fuel oil consumption necessary to support the operation of the diesel generators (DGs) to power the minimum engineered safety feature (ESF) systems required to mitigate a design basis loss-of-coolant accident (LOCA) in one unit and those minimum required systems for a concurrent non-LOCA safe shutdown in the remaining unit (both units initially in Mode 1 operation). With those assumptions the fuel oil consumption is calculated for a period of 7 days operation. This requirement provides a sufficient operating period within which offsite power can be restored and/or additional fuel can be delivered to the site.

Fuel oil is transferred from the storage tanks via the diesel fuel oil storage and transfer system to replenish the day tanks as required. The design incorporates sufficient redundancy so that a malfunction of either an active or a passive component will not impair the ability of the system to supply fuel oil. Two redundant fuel oil transfer pumps supply fuel oil to the DG day tanks from either storage tank. One pump is adequate to supply the six DGs operating at full load.

LCO 3.8.3 contains a note that permits diesel fuel oil storage tank cleaning on a 10-year frequency. Performing tank cleaning requires a tank to be taken out of service. For this infrequent event, the inventory in the remaining tank plus additional temporary onsite storage prescribed by LCO 3.8.3 is sufficient to support operation of the DGs to supply the minimum required loads to maintain safe conditions for a period of 4 days with 1 unit in Mode 1, 2, 3, 4, 5, or 6 and the second unit in Mode 6 or defueled.

TS 3.8.3 Condition A must be entered if the combined fuel level in the storage tanks is not within limits. However, Condition A requires at least a 6-day supply of fuel oil based on the same assumptions as the TS 3.8.3.a LCO value - except for 6 days. The minimum required inventory is verified by Required Actions A.1.1 and A.1.2. Required Action A.2 requires restoring the fuel oil levels to within required limits within 48 hours. The restrictions provided by this action statement allow sufficient time for

obtaining replacement fuel oil and performing the analyses required prior to addition of fuel oil to the tank.

### 3.2 California Air Resources Board (CARB) Regulation

A change in California air pollution regulations will require DCPD to change the type of diesel fuel oil burned in the emergency DGs. California Code of Regulations, Title 17, Section 93115, as enacted by the CARB and implemented by the San Luis Obispo County Air Pollution Control District, will require DCPD to use CARB diesel fuel oil in the DGs beginning January 1, 2006. DCPD will have to discontinue use of EPA red-dyed diesel fuel oil and replace it with low-sulfur fuel oil. California Code of Regulations, Title 13, Section 2281 specifies the sulfur content of diesel fuel oil and establishes a timetable for implementation of the use of low sulfur fuel oil. Currently the sulfur limit for CARB diesel fuel oil is 500 parts per million (ppm). On June 1, 2006, this limit will drop to 15 ppm. The 15 ppm sulfur fuel oil is referred to as ULS fuel oil. The heat contents of CARB and ULS fuel oils are lower than the EPA fuel oil currently in use. This will result in a slightly higher consumption rate for the DCPD DGs; approximately 2 percent for CARB fuel oil and 5 percent for ULS fuel oil. The proposed increases in TS storage requirements are based on the ULS fuel oil 5 percent consumption increase.

## 4.0 TECHNICAL ANALYSIS

The TS 3.8.3 required fuel oil quantity is based on the calculated fuel oil consumption necessary to support operation of the DGs to power the minimum ESF systems required to mitigate a design basis LOCA in one unit and those minimum required systems for a concurrent non-LOCA safe shutdown in the remaining unit (both units initially in Mode 1 operation). With these assumptions, the fuel oil consumption is calculated for a period of 7 days operation. TS 3.8.3 Condition A requires storage levels to be restored to within required limits within 48 hours if they fall below the LCO requirement, but remain above minimum limits for a 6-day supply under the same assumed operating conditions.

The current TS 3.8.3 minimum fuel oil volumes are based on the technical evaluations submitted by LAR 92-03 (Reference PG&E Letters DCL-92-036 dated February 14, 1992, and DCL-92-131 dated June 5, 1992) to increase the required quantity of DG stored fuel oil for plant operation in Modes 1 through 6 and to provide for the storage tanks to be taken out of service for cleaning and inspection on a 10-year interval. LAR 92-03 was approved by NRC letter dated August 12, 1992, "Issuance of Amendments for Diablo Canyon Nuclear Power Plant Unit No. 1 (TAC No. M82960) and Unit No. 2 (TAC No. M82961)," that issued License Amendment 74 and 73 (LA 74/73) for Units 1 and 2, respectively.

To accommodate use of CARB and ULS fuel oils, the current LCO 3.8.3 volumes required to meet the minimum storage requirements were recalculated based on the slightly lower heat content of the CARB and ULS fuel oils. The revised volumes are based on the fuel oil with the lowest heat content, ULS fuel oil. Other assumptions used in the calculation, including minimum ESF operating conditions and the amount of unusable volume due to tank construction, were not changed from that reflected in LAR 92-03.

Recent review of the calculation revealed two deficiencies. The calculation understates the unusable volume needed to account for vortexing. Also, an additional volume to account for a Final Safety Analysis Report (FSAR) assumption regarding system design requirements to account for a passive failure of the system pressure boundary was inadvertently left out of the calculation. FSAR Section 3.1.1.1, "Definitions," states that a passive failure of a fluid system means a break in the pressure boundary resulting in leakage not exceeding 50 gpm for 30 minutes (1500 gallons). There is sufficient margin in the calculation to account for these effects for the current TS required storage volumes. However, there is not sufficient margin in the calculation to support the storage volume increases originally proposed in LAR 04-04. This supplement to LAR 04-04 corrects the proposed required storage volumes.

The current TS volumes were compared to the new calculated volumes and adjusted upward as necessary to provide acceptable margins. The results are provided in Table 1.

The 2 existing 50,000 gallon tanks are sufficiently large to accommodate the increased minimum volumes. There is no change to the DCPD licensing basis requirement to maintain a minimum fuel oil volume sufficient to support 7-day operation of the DGs to power the minimum ESF systems required to mitigate a design basis LOCA in one unit and those minimum required systems for a concurrent non-LOCA safe shutdown in the remaining unit (both units initially in Mode 1 operation). When this minimum fuel supply is not available, the required actions depend on whether or not at least a 6-day supply of fuel (under the same assumptions) is available. Also, during tank cleaning (10 year interval), LCO 3.8.3 requires the inservice tank plus onsite temporary storage to provide a 4-day supply (also under the same assumptions as used to determine the LCO 3.8.3 requirements). There is no change to the requirement to comply with a 6-day minimum supply when in TS 3.8.3 Condition A, or to maintain a 4-day supply during tank cleaning, as a result of the changes proposed by this LAR.

In addition to the impact of the ULS fuel on DG fuel oil consumption, other impacts of the new fuel oil on DG operation and fuel oil testing have been evaluated and are being addressed in accordance with the requirements of 10 CFR 50.59.

Table 1  
 Diesel Fuel Storage Requirements (Volumes are in gallons)

	Calculated Volume of ULS Fuel Required to Run DGs	Calculated Volume (previous column) Plus Additional to Account For Unusable Volume, Vortexing, and Passive Failure	Current TS	Revised TS
7-Day Supply for Two Unit Operation (Modes 1-4)	≥ 63,904	≥ 71,378	≥ 65,000	≥ 79,000
7-Day Supply for One Unit Operation (Modes 1-4)	≥ 33,011	≥ 36,748	≥ 33,000	≥ 41,000
7-Day Supply for One Unit Operation (Modes 5-6)	≥ 24,441	≥ 28,178	≥ 26,000	≥ 31,000
6-Day Supply for Each Unit (Modes 1-4)	≥ 28,599	≥ 32,336	≥ 29,000	≥ 36,000
6-Day Supply for Each Unit (Modes 5, 6)	≥ 20,949	≥ 24,686	≥ 23,000	≥ 27,000
4-Day Supply During Tank Cleaning: In-Service Tank	≥ 33,009	≥ 36,746	≥ 35,000	≥ 41,000
4-Day Supply During Tank Cleaning: Temporary Storage	N/A	N/A	≥ 24,000	≥ 25,000

## 5.0 REGULATORY ANALYSIS

### 5.1 No Significant Hazards Consideration

PG&E has evaluated whether or not a significant hazards consideration is involved with the proposed amendment by focusing on the three standards set forth in 10 CFR 50.92, "Issuance of amendment," as discussed below:

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

Response: No.

The proposed change revises the minimum amount of stored diesel fuel. The change is required to support the use of California Air Resources Board (CARB) fuel oil and ultra-low sulfur (ULS) fuel oil that is replacing the existing Environmental Protection Agency (EPA) red dyed fuel oil currently used at Diablo Canyon Power Plant (DCPP). Technical Specification (TS) 3.8.3, "Diesel Fuel Oil, Lube Oil, Starting Air, and Turbocharger Air Assist," requires, as a minimum, a supply of diesel fuel sufficient to support 7-days operation of the diesel generators (DGs) to power the minimum engineered safety feature (ESF) systems required to mitigate a design basis loss-of-coolant accident (LOCA) in one unit and those minimum required systems for a concurrent non-LOCA safe shutdown in the remaining unit (both units initially in Mode 1 operation). TS 3.8.3 Condition A requires storage levels to be restored to within limits within 48 hours if they fall below the 7-day minimum, but remain above minimum limits for a 6-day supply. TS 3.8.3 also provides for tank cleaning on a 10-year frequency. During tank cleaning, TS 3.8.3 requires maintaining at least a 4-day supply.

Because CARB and ULS fuel oils have a lower heat content than EPA fuel, it was necessary to recalculate the amount of fuel required to supply necessary loads for the required 7-day, 6-day, and 4-day time periods addressed in TS 3.8.3.

The DGs and associated support systems, such as the fuel oil storage and transfer systems, are designed to mitigate accidents, and are not accident initiators. Revising the minimum volumes of stored fuel in the storage tanks will not result in any increase in the probability of any accident previously evaluated.

Following implementation of this proposed change, there will be no change in the ability of the DGs to supply post-accident loads for 7 days, or 6 days if in TS 3.8.3 Condition A, or 4 days during tank cleaning. This is identical to the current requirements. Therefore, this change will not result in a significant increase in the consequences of any accident previously evaluated.

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

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

Response: No.

Following implementation of this change, the DGs will still be able to power the minimum ESF systems required to mitigate a design basis LOCA in one unit and those minimum required systems for a concurrent non-LOCA safe shutdown in the remaining unit (both units initially in Mode 1 operation). The current 7-day, 6-day, and 4-day fuel supply requirements will be maintained. The DGs and associated fuel oil storage systems are not accident initiators, but are designed to mitigate accidents.

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

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

Response: No.

Following implementation of this change, the DGs will still have sufficient fuel oil supply to power the minimum ESF systems required to mitigate a design basis LOCA in one unit and those minimum required systems for a concurrent non-LOCA safe shutdown in the remaining unit (both units initially in Mode 1 operation). When fuel inventory is below that required to support 7 days of operation, the required actions depend on whether or not a 6-day supply is available, or a 4-day supply is available during tank cleaning. The proposed storage limits will maintain these 7-day, 6-day, and 4-day fuel supply requirements, including current margins, following the change to CARB and ULS fuel oils.

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

Based on the above evaluation, PG&E concludes that the proposed change 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

Code of Federal Regulations, Title 10, Part 50 (10 CFR 50), Appendix A, "General Design Criteria for Nuclear Power Plants," states in part in General Design Criterion (GDC) 17:

*Criterion 17--Electric power systems. An onsite electric power system and an offsite 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.*

*Provisions shall be included to minimize the probability of losing electric power from any of the remaining supplies as a result of, or coincident with, the loss of power generated by the nuclear power unit, the loss of power from the transmission network, or the loss of power from the onsite electric power supplies.*

Safety Evaluation Report Supplement 13 (SSER 13), dated April 1981, states that NUREG/CR-0660, "Enhancement of Onsite Emergency Diesel Generator Reliability," made specific recommendations on increasing the reliability of nuclear power plant emergency DGs and that PG&E responded to the NUREG/CR-0660 recommendations in a letter dated November 25, 1980. It further states that the DCPD DG design meets the requirements of GDC-17, 18, and 21 of Appendix A of 10 CFR 50, and upon completion of additional changes specified in SSER 13, the design of the DGs and auxiliary systems will also be in conformance with recommendations of NUREG/CR-0660 for enhancement of DG reliability and related NRC guidelines and criteria.

PG&E submitted LAR 92-03 (Reference PG&E Letters DCL-92-036 dated February 14, 1992, and DCL-92-131 dated June 5, 1992) to increase the required quantity of emergency DG stored fuel oil for plant operation in Modes 1 through 6 and to provide for the storage tanks to be taken out of service for cleaning and inspection on a 10-year interval. LAR 92-03 was approved by NRC letter dated August 12, 1992, "Issuance of Amendments for Diablo Canyon Nuclear Power Plant Unit No. 1 (TAC No. M82960) and Unit No. 2 (TAC No. M82961)," that issued License Amendments 74 and 73 for Units 1 and 2, respectively.

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

PG&E has evaluated the proposed amendment and has determined that 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

### 7.1 References

1. PG&E Letter DCL-92-036, "License Amendment Request 92-03, Revision of Technical Specification 3/4.8.1 and 3/4.8.2 Increase Emergency Diesel Generator Fuel Oil Storage Requirements," dated February 14, 1992.
2. PG&E Letter DCL-92-131, "Response to NRC Questions on License Amendment Request 92-03, Revision of Technical Specifications 3/4.8.1 and 3/4.8.2 Increase Emergency Diesel Generator Fuel Oil Storage Requirements," dated June 5, 1992.
3. License Amendment No. 74 to Facility Operating License No, DPR-80 and License Amendment No. 73 to Facility Operating License No, DPR-82, "Issuance of Amendments for Diablo Canyon Nuclear Power Plant Unit No. 1 (TAC No. M82960) and Unit No. 2 (TAC No. M82961)," dated August 12, 1992.
4. NUREG/CR-0660, "Enhancement of On-site Emergency Diesel Generator Reliability," dated February 1979.
5. NUREG-0675, Supplement No. 13, "Safety Evaluation Report related to the operation of Diablo Canyon Nuclear Power Plant, Units 1 and 2," dated April 1981.

6. License Amendment No. 183 to Facility Operating License No. NPF-10 and License Amendment No. 174 to Facility Operating License No. NPF-15, "San Onofre Nuclear Generating Station, Units 2 and 3 - Issuance of Amendments Re: Technical Specification for Diesel Fuel Oil (TAC Nos. MB3601 and MB3602)," dated March 5, 2002.

7.2 Precedent

The proposed amendment is consistent with similar changes approved by the NRC for Southern California Edison Company's San Onofre Nuclear Generating Station Units 2 and 3 in License Amendment No. 183 to Facility Operating License No. NPF-10 and License Amendment No. 174 to Facility Operating License No. NPF-15, "San Onofre Nuclear Generating Station, Units 2 and 3 - Issuance of Amendments Re: Technical Specification for Diesel Fuel Oil (TAC Nos. MB3601 and MB3602)," dated March 5, 2002.

Proposed Technical Specification Changes (mark-up)

3.8 ELECTRICAL POWER SYSTEMS

3.8.3 Diesel Fuel Oil, Lube Oil, Starting Air, and Turbocharger Air Assist

LCO 3.8.3

The stored diesel fuel oil, lube oil, starting air, and turbocharger air assist subsystems shall be within limits for each required diesel generator (DG). The fuel level for the stored diesel fuel oil shall be within the following limits:

- a. Combined storage of  $\geq 65,000$  gal for two units in MODES 1, 2, 3, and 4; or
- b. Combined storage of
  - 1.  $\geq 33,000$  gal for one unit (if any) in MODES 1, 2, 3, and 4; and
  - 2.  $\geq 26,000$  gal for each unit in MODES 5 and 6.

79,000

41,000

31,000

-----NOTE-----

The performance of diesel fuel oil tank cleaning requires one fuel oil storage tank to be removed from service to be drained and cleaned. During this time, the fuel oil storage requirement for one unit operation in MODES 1, 2, 3, and 4 and one unit operation in MODE 6 with at least 23 feet of water above the reactor vessel flange or with the reactor vessel defueled is  $\geq 35,000$  gallons. The tank being cleaned may be inoperable for up to 10 days. For the duration of the tank cleaning, temporary onsite fuel oil storage of  $\geq 24,000$  gallons will be maintained. Prior to removal of a tank from service, the offsite circuits required by LCO 3.8.1 or 3.8.2 will be verified to be OPERABLE.

41,000

25,000

APPLICABILITY: When associated DG(s) is required to be OPERABLE.

ACTIONS

-----NOTE-----  
Separate Condition entry is allowed for each DG or fuel oil storage tank, except for Condition A.  
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CONDITION	REQUIRED ACTION	COMPLETION TIME
A. Combined fuel level in storage tanks not within limits.	A.1.1 Verify combined fuel oil level $\geq$ <del>29,000</del> gallons for each unit operating in MODES 1, 2, 3, or 4,  <u>AND</u>	Immediately  <div style="border: 1px solid black; padding: 2px; display: inline-block;">36,000</div>
	A.1.2 Verify combined fuel oil level $\geq$ <del>23,000</del> gallons for each unit operating in MODES 5 or 6.  <u>AND</u>	Immediately  <div style="border: 1px solid black; padding: 2px; display: inline-block;">27,000</div>
	A.2 Restore fuel oil level to within limits.	48 hours
B. Both units in MODE 1, 2, 3, or 4 with lube oil inventory < 650 gal and > 610 gal.  <u>OR</u> One unit in MODE 1, 2, 3, or 4 and one unit in MODE 5 or 6 with lube oil inventory < 590 gal and > 520 gal.	B.1 Restore lube oil inventory to within limits.	48 hours
C. One or more fuel oil storage tanks with stored fuel oil total particulates not within limit.	C.1 Restore fuel oil total particulates within limits.	7 days
D. One or more fuel oil storage tanks with new fuel oil properties not within limits.	D.1 Restore stored fuel oil properties to within limits.	30 days
E. One or more DGs with both starting air receiver pressures < 180 psig and $\geq$ 150 psig.	E.1 Restore one starting air receiver pressure per DG to $\geq$ 180 psig.	48 hours

(continued)

Proposed Technical Specification Changes (retyped)

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Insert Page

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3.8-15

3.8 ELECTRICAL POWER SYSTEMS

3.8.3 Diesel Fuel Oil, Lube Oil, Starting Air, and Turbocharger Air Assist

LCO 3.8.3 The stored diesel fuel oil, lube oil, starting air, and turbocharger air assist subsystems shall be within limits for each required diesel generator (DG). The fuel level for the stored diesel fuel oil shall be within the following limits:

- a. Combined storage of  $\geq 79,000$  gal for two units in MODES 1, 2, 3, and 4; or
- b. Combined storage of
  - 1.  $\geq 41,000$  gal for one unit (if any) in MODES 1, 2, 3, and 4; and
  - 2.  $\geq 31,000$  gal for each unit in MODES 5 and 6.

-----NOTE-----

The performance of diesel fuel oil tank cleaning requires one fuel oil storage tank to be removed from service to be drained and cleaned. During this time, the fuel oil storage requirement for one unit operation in MODES 1, 2, 3, and 4 and one unit operation in MODE 6 with at least 23 feet of water above the reactor vessel flange or with the reactor vessel defueled is  $\geq 41,000$  gallons. The tank being cleaned may be inoperable for up to 10 days. For the duration of the tank cleaning, temporary onsite fuel oil storage of  $\geq 25,000$  gallons will be maintained. Prior to removal of a tank from service, the offsite circuits required by LCO 3.8.1 or 3.8.2 will be verified to be OPERABLE.

APPLICABILITY: When associated DG(s) is required to be OPERABLE.

ACTIONS

-----NOTE-----  
 Separate Condition entry is allowed for each DG or fuel oil storage tank,  
 except for Condition A.  
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CONDITION	REQUIRED ACTION	COMPLETION TIME
A. Combined fuel level in storage tanks not within limits.	A.1.1 Verify combined fuel oil level $\geq$ 36,000 gallons for each unit operating in MODES 1, 2, 3, or 4,  <u>AND</u>	Immediately
	A.1.2 Verify combined fuel oil level $\geq$ 27,000 gallons for each unit operating in MODES 5 or 6.  <u>AND</u>	Immediately
	A.2 Restore fuel oil level to within limits.	48 hours
B. Both units in MODE 1, 2, 3, or 4 with lube oil inventory < 650 gal and > 610 gal.  <u>OR</u> One unit in MODE 1, 2, 3, or 4 and one unit in MODE 5 or 6 with lube oil inventory < 590 gal and > 520 gal.	B.1 Restore lube oil inventory to within limits.	48 hours
C. One or more fuel oil storage tanks with stored fuel oil total particulates not within limit.	C.1 Restore fuel oil total particulates within limits.	7 days
D. One or more fuel oil storage tanks with new fuel oil properties not within limits.	D.1 Restore stored fuel oil properties to within limits.	30 days
E. One or more DGs with both starting air receiver pressures < 180 psig and $\geq$ 150 psig.	E.1 Restore one starting air receiver pressure per DG to $\geq$ 180 psig.	48 hours

(continued)

Changes to Technical Specification Bases Pages  
(For information only)

No changes on this page

## B 3.8 ELECTRICAL POWER SYSTEMS

### B 3.8.3 Diesel Fuel Oil, Lube Oil, Starting Air, and Turbocharger Air Assist

#### BASES

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##### BACKGROUND

The diesel fuel oil storage system consists of two common tanks with a nominal capacity of 50,000 gallons each. The TS-required fuel oil quantity is based on the calculated fuel oil consumption necessary to support the operation of the DGs to power the minimum engineered safety feature (ESF) systems required to mitigate a design basis accident (LOCA) in one unit and those minimum required systems for a concurrent non-LOCA safe shutdown in the remaining unit (both units initially in MODE 1 operation). The fuel oil consumption is calculated for a period of 7 days operation of minimum ESF systems. This requirement provides a sufficient operating period within which offsite power can be restored and/or additional fuel can be delivered to the site.

Fuel oil is transferred from the storage tanks via the diesel fuel oil storage and transfer system to replenish the day tanks as required. The design incorporates sufficient redundancy so that a malfunction of either an active or a passive component will not impair the ability of the system to supply fuel oil. Two redundant fuel oil transfer pumps supply fuel oil to DG day tanks from either storage tank. One pump is adequate to supply the six DGs operating at full load. Each DG tank has two separate, redundant transfer pump start-stop level switches. Each level switch automatically starts a transfer pump and opens the supply header solenoid valve corresponding to the respective transfer pump, 0-1 or 0-2. In addition, high and low level alarms are provided on each day tank and activate alarms both locally and in the control room.

The diesel lube oil storage requirement is based upon a conservative usage factor of 1% of fuel oil consumption. The storage system used to meet this requirement is that located in the warehouse where 650 gallons of lube oil is stored in drums. This storage is augmented by a second storage location within the diesel engine itself. The lube oil level on each engine's dip stick is maintained 5 inches above the engine's operability limit. This provides approximately 120 gallons of usable lube oil within each of the 6 diesel engines.

For proper operation of the standby DGs, it is necessary to ensure the proper quality of the fuel oil. Regulatory Guide 1.137 (Ref. 2) addresses the recommended fuel oil practices as supplemented by ANSI N195 (Ref. 3). The fuel oil properties governed by these SRs are the water and sediment content, the kinematic viscosity, specific gravity (or API gravity), and impurity level.

(continued)

**BASES**

**BACKGROUND**  
(continued)

The DG fuel oil consumption is calculated for a period of 7 days operation of minimum ESF systems. This requirement provides a sufficient operating period within which offsite power can be restored and/or additional fuel can be delivered to the site.

The DG lubrication system is designed to provide sufficient lubrication to permit proper operation of its associated DG under all loading conditions. The system is required to circulate the lube oil to the diesel engine working surfaces and to remove excess heat generated by friction during operation. The total engine oil sump inventory (all engines) is capable of supporting a minimum of 7 days of operation at minimum ESF loads. The onsite storage inventory (warehouse) is in addition to the engine oil sump and is also sufficient to ensure 7 days of continuous operation. These supplies are sufficient to allow the operators to replenish lube oil from outside sources as a third resource.

Each DG has two redundant 100% capacity air start systems and a turbocharger air assist system with adequate capacity for three successive start attempts each on the DG without recharging the air start receivers or the turbocharger air assist air receiver.

**APPLICABLE SAFETY ANALYSIS**

The initial conditions of Design Basis Accident (DBA) and transient analyses in the FSAR, Chapter 6 (Ref. 4), and in the FSAR, Chapter 15 (Ref. 5), assume Engineered Safety Feature (ESF) systems are OPERABLE. The DGs are designed to provide sufficient capacity, capability, redundancy, and reliability to ensure the availability of necessary power to ESF systems so that fuel, Reactor Coolant System and containment design limits are not exceeded. These limits are discussed in more detail in the Bases for Section 3.2, Power Distribution Limits; Section 3.4, Reactor Coolant System (RCS); and Section 3.6, Containment Systems.

72,000

79,000

**LCO**

31,000

41,000

62,000

Since diesel fuel oil, lube oil, air start, and turbocharger air assist subsystems support the operation of the standby AC power sources, they satisfy Criterion 3 of 10 CFR 50.36(c)(2)(ii).

Stored diesel fuel oil is required to have sufficient supply for 7 days of minimum ESF systems operation. The required combined stored diesel fuel oil is a contained quantity with different storage requirements for unit operation in MODE 1, 2, 3, and 4 and for MODE 5 and 6. With both units operating in MODE 1, 2, 3, and 4, the required level is  $\geq 65,000$  gallons. With one unit operating in MODE 1, 2, 3, or 4, and the other unit in MODE 5 or 6, the required fuel oil level is 33,000 gallons plus 26,000 gallons, for a total of 59,000 gallons combined storage. With both units in MODE 5 or 6, the required fuel oil level is 52,000 gallons. The required combined stored fuel oil was revised by License Amendment 74 for Unit 1 and 73 for Unit 2.

(continued)

Amendments 74 and \_\_\_ for Unit 1 and 73 and \_\_\_

BASES

SURVEILLANCE  
REQUIREMENTS

SR 3.8.3.5 (continued)

means of controlling microbiological fouling. In addition, it eliminates the potential for water entrainment in the fuel oil during DG operation. Water may come from any of several sources, including condensation, ground water, rain water, contaminated fuel oil, or from breakdown of the fuel oil by bacteria. Frequent checking for and removal of accumulated water minimizes fouling and provides data regarding the watertight integrity of the fuel oil system. The Surveillance Frequencies are established by Regulatory Guide 1.137 (Ref. 2). This SR is for preventive maintenance. The presence of water does not necessarily represent failure of this SR, provided the accumulated water is removed during performance of the Surveillance.

SR 3.8.3.6

This Surveillance ensures that, without the aid of the refill compressor, sufficient turbocharger air assist air receiver capacity for each DG is available. The system design requirements provide for a minimum of three engine start cycles without recharging. Each start cycle is 15 seconds of cranking. The pressure specified in this SR is intended to reflect the lowest value at which three starts can be accomplished.

The 31 day Frequency takes into account the capacity, capability, redundancy, and diversity of the AC sources and other indications available in the control room, including alarms, to alert the operator to below normal turbocharger air assist air receiver pressure.

REFERENCES

1. FSAR, Section 9.5.4.2.
2. Regulatory Guide 1.137.
3. ANSI N195-1976, Appendix B.
4. FSAR, Chapter 6.
5. FSAR, Chapter 15.
6. ASTM Standards: D4057-81; D975-81; D4176-82; D1796-83; D1552-79; D2622-82; D2276-78, Method A.
7. ASTM Standards, D975, Table 1.
8. ASME, Boiler and Presser Vessel Code, Section XI.
9. License Amendment 74/73, August 12, 1992.

10. License Amendment \_\_/\_\_, \_\_\_\_\_