

3.8 ELECTRICAL POWER SYSTEMS

3.8.3 Diesel Fuel Oil, Lube Oil, and Starting Air

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

APPLICABILITY: When associated DG is required to be OPERABLE.

ACTIONS

NOTE

Separate Condition entry is allowed for each DG.

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. One or more DGs with fuel oil level in associated storage tank <del>&lt; 21,900 gallons and &gt; 38,600 gallons.</del>	A.1 Restore fuel oil level to within limits.	48 hours
B. One or more DGs with lube oil sump level not visible in the sight glass.	B.1 Declare associated DG inoperable.	Immediately
C. One or more DGs with stored fuel oil total particulates not within limits.	C.1 Restore stored fuel oil total particulates to within limits.	7 days

< 47,570 gallons and > 41,018 gallons for DG A-D;  
< 60,480 gallons and > 52,340 gallons for DG E.

(continued)

SURVEILLANCE REQUIREMENTS

SURVEILLANCE	FREQUENCY
SR 3.8.3.1 Verify each fuel oil storage tank contains <del>at least 900 gallons</del>	31 days
SR 3.8.3.2 Verify lube oil sump level is visible in the sight glass.	31 days
SR 3.8.3.3 Verify fuel oil properties of new and stored fuel oil are tested in accordance with, and maintained within the limits of, the Diesel Fuel Oil Testing Program.	In accordance with the Diesel Fuel Oil Testing Program
SR 3.8.3.4 -----NOTE----- Not required to be met when DG is operating. ----- Verify each DG air start receiver pressure is $\geq 240$ psig.	31 days
SR 3.8.3.5 Check for and remove accumulated water from each fuel oil storage tank.	31 days

$\geq 47,570$  gallons for DG A-D;  
 $\geq 60,480$  gallons for DG-E.



BASES

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ACTIONS  
(continued)

E.1

With starting air receiver pressure < 240 psig in one or more air receivers, sufficient capacity for five successive DG start attempts does not exist. However, as long as all receiver pressures are > 180 psig, there is adequate capacity for at least one start attempt, and the DG can be considered OPERABLE while the air receiver pressure is restored to the required limit. A period of 48 hours is considered sufficient to complete restoration to the required pressure prior to declaring the DG inoperable. This period is acceptable based on the remaining air start capacity, the fact that most DG starts are accomplished on the first attempt, and the low probability of an event during this brief period. Entry into Condition E is not required when air receiver pressure is less than required limits following a successful start while the DG is operating.

F.1

With a Required Action and associated Completion Time of A through E not met, or the stored diesel fuel oil, lube oil, or starting air not within SR limits for reasons other than addressed by Conditions A, B, C, D or E, the associated DG may be incapable of performing its intended function and must be immediately declared inoperable.

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SURVEILLANCE  
REQUIREMENTS

SR 3.8.3.1

its continuous rated load.

This SR provides verification that there is an adequate inventory of fuel oil in the storage tanks to support each DG's operation for 7 days at ~~the maximum post-accident load demand~~ <sup>its continuous rated load</sup>. The 7 day period is sufficient time to place the unit in a safe shutdown condition and to bring in replenishment fuel from an offsite location.

The 31 day Frequency is adequate to ensure that a sufficient supply of fuel oil is available, since low level alarms are provided and unit operators would be aware of any large uses of fuel oil during this period.

(continued)

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APPLICABILITY: When associated DG is required to be OPERABLE.

ACTIONS

-----NOTE-----  
Separate Condition entry is allowed for each DG.  
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CONDITION	REQUIRED ACTION	COMPLETION TIME
A. One or more DGs with fuel oil level in associated storage tank <i>&lt; 44,900 gallons and &gt; 38,600 gallons</i>	A.1 Restore fuel oil level to within limits.	48 hours
B. One or more DGs with lube oil sump level not visible in the sight glass.	B.1 Declare associated DG inoperable.	Immediately

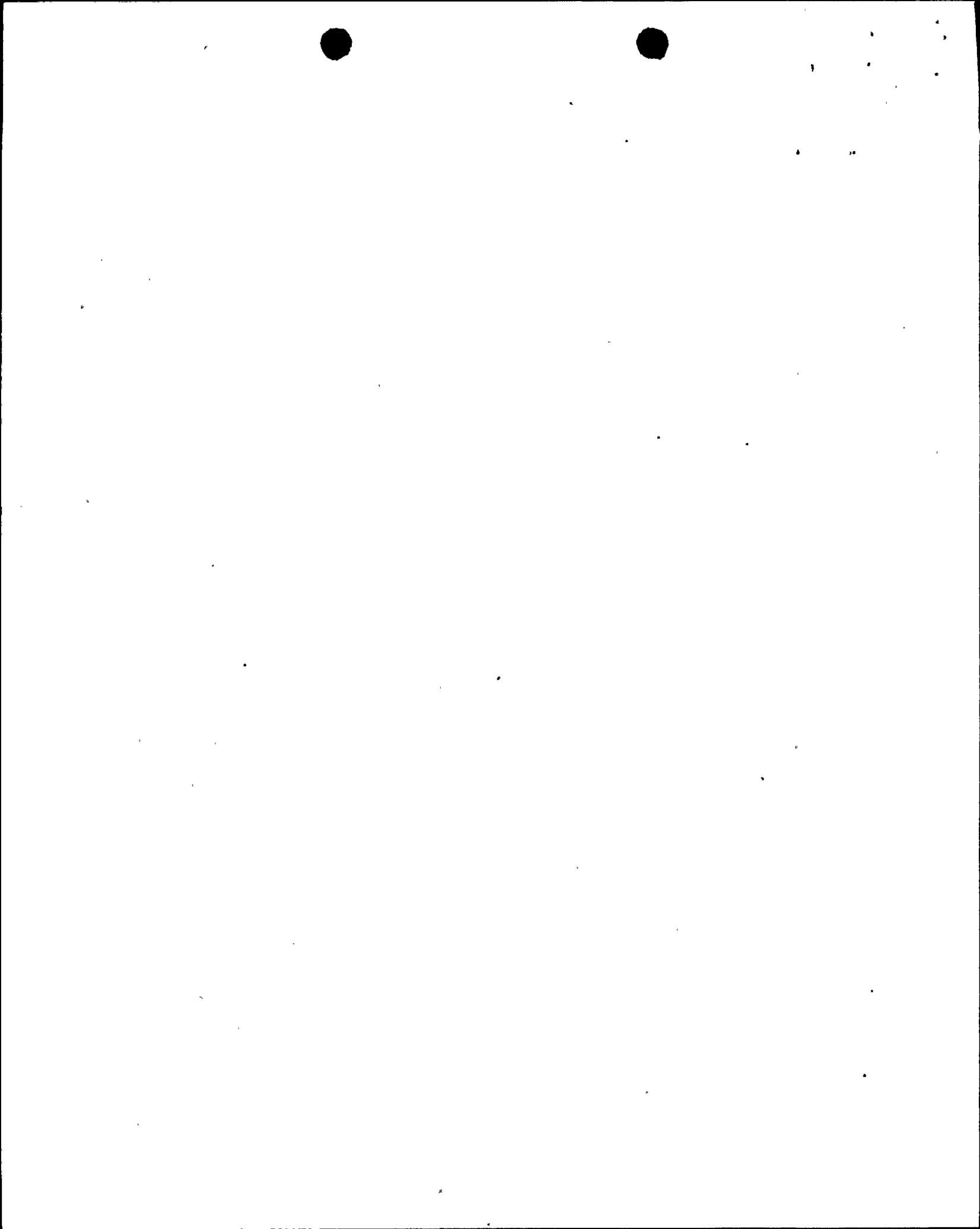
(continued)

*< 47,570 gallons and > 41,018 gallons for DG A-D;  
< 60,480 gallons and > 52,340 gallons for DG E.*

SURVEILLANCE REQUIREMENTS

SURVEILLANCE	FREQUENCY
SR 3.8.3.1 Verify each fuel oil storage tank contains <del>at least 1,900 gallons</del>	31 days
SR 3.8.3.2 Verify lube oil sump level is visible in the sight glass.	31 days
SR 3.8.3.3 Verify fuel oil properties of new and stored fuel oil are tested in accordance with, and maintained within the limits of, the Diesel Fuel Oil Testing Program.	In accordance with the Diesel Fuel Oil Testing Program
SR 3.8.3.4 -----NOTE----- Not required to be met when DG is operating. ----- Verify each DG air start receiver pressure is $\geq$ 240 psig.	31 days
SR 3.8.3.5 Check for and remove accumulated water from each fuel oil storage tank.	31 days

*> 47,570 gallons for DG A-D,  
> 60,480 gallons for DG E.*



B 3.8 ELECTRICAL POWER SYSTEMS

B 3.8.3 Diesel Fuel Oil, Lube Oil, and Starting Air

BASES

its continuous rated load, as

BACKGROUND

Each diesel generator (DG) is provided with a storage tank having a fuel oil capacity sufficient to operate that DG for a period of 7 days while the DG is supplying ~~maximum post-loss of coolant accident (LOCA) load demand~~ <sup>its continuous rated load, as</sup> discussed in FSAR, Section 9.5.4 (Ref. 1). The maximum load demand is calculated using the assumption that at least three DGs are available. This onsite fuel oil capacity is sufficient to operate the DGs for longer than the time to replenish the onsite supply from outside sources.

Fuel oil is transferred from storage tank to day tank by a transfer pump associated with each storage tank. Independent pumps and piping preclude the failure of one pump, or the rupture of any pipe, valve, or tank to result in the loss of more than one DG. All outside tanks, pumps, and piping are located underground.

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.

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. Each engine oil sump contains an inventory capable of supporting a minimum of 7 days of operation. This supply is sufficient to allow the operator to replenish lube oil from outside sources.

Each DG has an air start system with two air receivers (DG E has four air receivers) each of which provide adequate capacity for five successive start cycles on the DG without recharging the air start receivers.

(continued)

BASES

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ACTIONS  
(continued)

E.1

With starting air receiver pressure  $< 240$  psig in one or more air receivers, sufficient capacity for five successive DG start attempts does not exist. However, as long as all receiver pressures are  $> 180$  psig, there is adequate capacity for at least one start attempt, and the DG can be considered OPERABLE while the air receiver pressure is restored to the required limit. A period of 48 hours is considered sufficient to complete restoration to the required pressure prior to declaring the DG inoperable. This period is acceptable based on the remaining air start capacity, the fact that most DG starts are accomplished on the first attempt, and the low probability of an event during this brief period. Entry into Condition E is not required when air receiver pressure is less than required limits following a successful start while the DG is operating.

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With a Required Action and associated Completion Time of A through E not met, or the stored diesel fuel oil, lube oil, or starting air not within SR limits for reasons other than addressed by Conditions A, B, C, D or E, the associated DG may be incapable of performing its intended function and must be immediately declared inoperable.

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SURVEILLANCE  
REQUIREMENTS

SR 3.8.3.1

*its continuous rated load.*

This SR provides verification that there is an adequate inventory of fuel oil in the storage tanks to support each DG's operation for 7 days at the ~~maximum post accident load demand~~ *its continuous rated load.* The 7 day period is sufficient time to place the unit in a safe shutdown condition and to bring in replenishment fuel from an offsite location.

The 31 day Frequency is adequate to ensure that a sufficient supply of fuel oil is available, since low level alarms are provided and unit operators would be aware of any large uses of fuel oil during this period.

(continued)

**ATTACHMENT 4 TO PLA-5004**

**TECHNICAL SPECIFICATIONS CAMERA READY**



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APPLICABILITY: When associated DG is required to be OPERABLE.

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CONDITION	REQUIRED ACTION	COMPLETION TIME
A. One or more DGs with fuel oil level in associated storage tank < 47,570 gallons and > 41,018 gallons for DG A-D; < 60,480 gallons and > 52,340 gallons for DG E.	A.1 Restore fuel oil level to within limits.	48 hours
B. One or more DGs with lube oil sump level not visible in the sight glass.	B.1 Declare associated DG inoperable.	Immediately
C. One or more DGs with stored fuel oil total particulates not within limits.	C.1 Restore stored fuel oil total particulates to within limits.	7 days

(continued)

ACTIONS (continued)  
SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.8.3.1	Verify each fuel oil storage tank contains ≥ 47,570 gallons for DG A-D; ≥ 60,480 gallons for DG E.	31 days
SR 3.8.3.2	Verify lube oil sump level is visible in the sight glass.	31 days
SR 3.8.3.3	Verify fuel oil properties of new and stored fuel oil are tested in accordance with, and maintained within the limits of, the Diesel Fuel Oil Testing Program.	In accordance with the Diesel Fuel Oil Testing Program
SR 3.8.3.4	-----NOTE----- Not required to be met when DG is operating. -----  Verify each DG air start receiver pressure is ≥ 240 psig.	31 days
SR 3.8.3.5	Check for and remove accumulated water from each fuel oil storage tank.	31 days

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(continued)

SURVEILLANCE REQUIREMENTS

SURVEILLANCE	FREQUENCY
SR 3.8.3.1    Verify each fuel oil storage tank contains $\geq 47,570$ gallons for DG A-D; $\geq 60,480$ gallons for DG E.	31 days
SR 3.8.3.2    Verify lube oil sump level is visible in the sight glass.	31 days
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