

License Amendment Request 96-25

May 30, 1996

Enclosure 3

TECHNICAL SPECIFICATIONS
MARK-UPS

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SURVEILLANCE REQUIREMENTS

SURVEILLANCE	FREQUENCY
SR 3.8.3.1 Verify each fuel oil storage tank contains $\geq 45,495$ gal of fuel.	31 days
SR 3.8.3.2 Verify lube oil inventory is: a. ≥ 367 gal for DGs 1A and 1B; and b. ≥ 295 gal for DG 1C.	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 Verify each required DG air start receiver pressure is ≥ 160 psig. a. ≥ 160 psig for DGs 1A and 1B; and b. ≥ 200 psig for DG 1C.	31 days
SR 3.8.3.5 Check for and remove accumulated water from each fuel oil storage tank.	31 days
SR 3.8.3.6 For each fuel oil storage tank: a. Drain the fuel oil; b. Remove the sediment; and c. Clean the tank.	10 years

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Enclosure 4

TECHNICAL SPECIFICATIONS BASES
MARK-UPS

B 3.8 ELECTRICAL POWER SYSTEMS

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

BASES

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 load demand (Ref. 1). The maximum load demand is calculated using the assumption that at least two 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 each storage tank to its respective day tank by a transfer pump associated with each storage tank. Redundancy of pumps and piping precludes 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. The fuel oil level in the storage tank is indicated in the control room.

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 adequate capacity for ~~multiple~~ ^{five successive} start attempts on the DG without recharging the air start receiver(s).

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BASES

SURVEILLANCE
REQUIREMENTS

SR 3.8.3.3 (continued)

The Frequency of these Surveillances on the stored fuel oil takes into consideration fuel oil degradation trends indicating that overall fuel oil quality is unlikely to change between Frequency intervals.

SR 3.8.3.4

This Surveillance ensures that, without the aid of the refill compressor, sufficient air start capacity for each DG is available. For DG 1A and 1B either the forward or rear air start subsystem is capable of starting the respective DG when air receiver pressure is within limits. For DG 1C both forward and rear air start subsystem pressures must be within limits to start the DG. The pressure specified in this SR reflects the value at which this can be accomplished, but is not so high as to result in failing the limit due to normal cycling of the recharge compressor.

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 air start pressure.

SR 3.8.3.5

Microbiological fouling is a major cause of fuel oil degradation. There are numerous bacteria that can grow in fuel oil and cause fouling, but all must have a water environment in order to survive. Removal of water from the storage tanks once every 31 days eliminates the necessary environment for bacterial survival. This is the most effective 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, and from breakdown of the fuel oil by bacteria. Frequent checking for and removal of accumulated water minimizes fouling and provides

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For DG 1A and 1B, each starting air system is sized to have the capacity for at least one emergency DG start attempt above the air pressure interlock, and multiple manual start attempts below the interlock, without recharging its start receiver(s). For DG 1C, the starting air system is sized to have the capacity for at least five successive start attempts without recharging its air start receiver(s). For each DG, either the forward or rear air start subsystem has the capacity to satisfy these multiple start requirements.