

Attachment B

REVISED TECHNICAL SPECIFICATION 3/4.8.1.1

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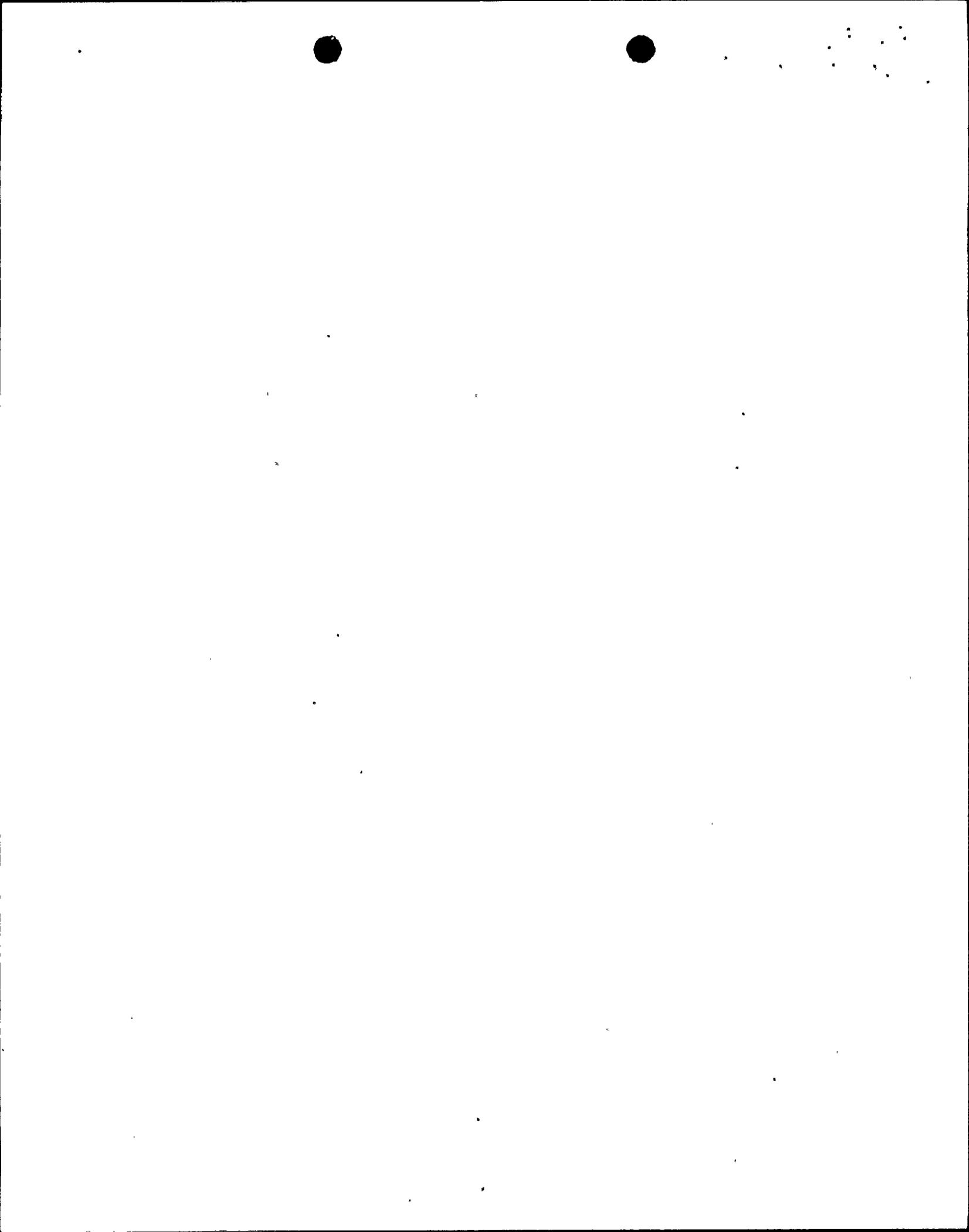
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3/4.8 ELECTRICAL POWER SYSTEMS

3/4.8.1 A.C. SOURCES

OPERATING

LIMITING CONDITION FOR OPERATION

3.8.1.1 As a minimum, the following A.C. electrical power sources shall be OPERABLE:

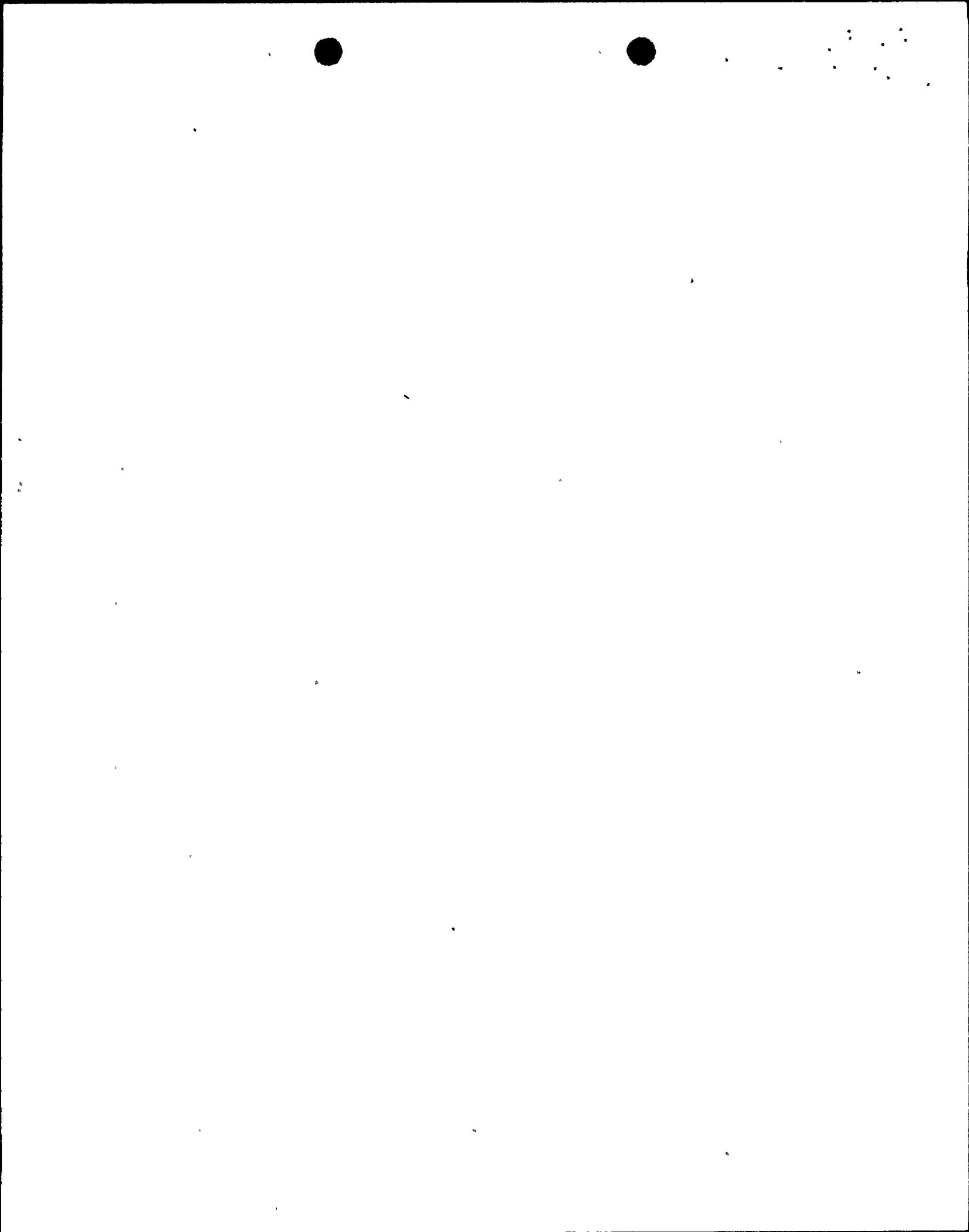
- a. Two independent circuits (one with delayed access) between the offsite transmission network and the Onsite Class 1E Distribution System, and
- b. Three separate and independent diesel generators,* each with:
 1. A separate engine-mounted fuel tank containing a minimum volume of 200 gallons of fuel, and
 2. Two supply trains of the Diesel Fuel Oil Storage and Transfer System with a combined storage of 31,023 gallons of fuel for one unit operation and 52,046 gallons of fuel for two unit operation.

APPLICABILITY: MODES 1, 2, 3, and 4.

ACTION:

- a. With one offsite circuit of the above required A.C. electrical power sources inoperable, demonstrate the OPERABILITY of the remaining A.C. sources by performing Specification 4.8.1.1.1a. within 1 hour and at least once per 8 hours thereafter. If each of the diesel generators have not been successfully tested within the past 24 hours demonstrate its OPERABILITY by performing Specification 4.8.1.1.2a.2) separately for each such diesel generator within 24 hours. Restore the offsite circuit to OPERABLE status within 72 hours or be in at least HOT STANDBY within the next 6 hours and in COLD SHUTDOWN within the following 30 hours.
- b. With a diesel generator of the above required A.C. electrical power sources inoperable, demonstrate the OPERABILITY of the A.C. offsite sources by performing Specification 4.8.1.1.1a within 1 hour and at least once per 8 hours thereafter; and if the diesel generator became inoperable due to any cause other than preventive maintenance or testing, demonstrate the OPERABILITY of the remaining OPERABLE diesel generators by performing Specification 4.8.1.1.2a.2) within 24 hours; restore the diesel generator to OPERABLE status within 72 hours or be in at least HOT STANDBY within the next 6 hours and in COLD SHUTDOWN within the following 30 hours.

* OPERABILITY of the third (common) diesel generator shall include the capability of functioning as a power source for the required unit upon automatic demand from that unit.



ACTION (Continued)

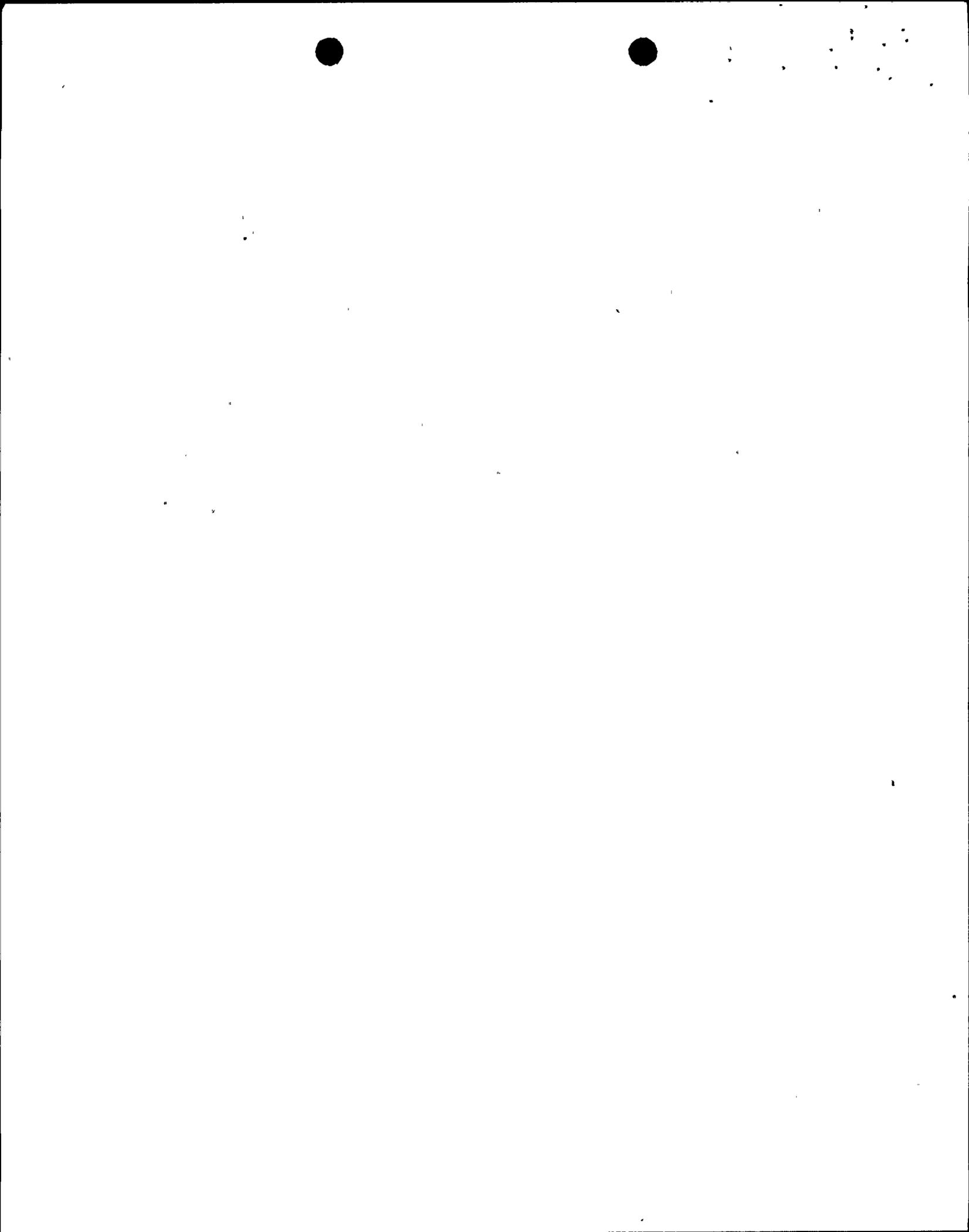
- c. With one offsite circuit and one diesel generator of the above required A.C. electrical power sources inoperable, demonstrate the OPERABILITY of the remaining A.C. sources by performing Specification 4.8.1.1.1a. within 1 hour and at least once per 8 hours thereafter; and if the diesel generator became inoperable due to any cause other than preventive maintenance or testing, demonstrate the OPERABILITY of the remaining OPERABLE diesel generators by performing Specification 4.8.1.1.2a.2) within 8 hours; restore at least one of the inoperable sources to OPERABLE status within 12 hours or be in at least HOT STANDBY within the next 6 hours and in COLD SHUTDOWN within the following 30 hours. Restore the other A.C. power source (offsite circuit or diesel generator) to OPERABLE status in accordance with ACTION a. or b., as appropriate with the time requirement of that ACTION statement based on the time of initial loss of the remaining inoperable A.C. power source. A successful test of diesel OPERABILITY per Specification 4.8.1.1.2a.2) performed under this ACTION statement for OPERABLE diesels or a restored to OPERABLE diesel satisfies the diesel generator test requirement of ACTION a. or b.
- d. With one diesel generator inoperable in addition to ACTION b. or c. above verify that:
1. All required systems, subsystems, trains, components and devices that depend on the remaining OPERABLE diesel generators as a source of emergency power are also OPERABLE, and
 2. When in MODE 1, 2, or 3 that at least two auxiliary feedwater pumps are OPERABLE.
- If these conditions are not satisfied within 2 hours be in at least HOT STANDBY within the next 6 hours and in COLD SHUTDOWN within the following 30 hours.
- e. With two of the above required offsite A.C. circuits inoperable, demonstrate the OPERABILITY of three diesel generators by performing the requirements of Specification 4.8.1.1.2a.2) within 8 hours, unless the diesel generators are already operating; restore at least one of the inoperable offsite sources to OPERABLE status within 24 hours or be in at least HOT STANDBY within the next 6 hours. Following restoration of one offsite source, follow ACTION a. with the time requirement of that ACTION statement based on the time of initial loss of the remaining inoperable offsite A.C. circuit. A successful test(s) of diesel generator OPERABILITY per Specification 4.8.1.1.2a.2) performed under this ACTION statement for the OPERABLE diesel generators satisfies the diesel generator test requirement of ACTION a.



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ACTION (Continued)

- f. With two or more of the above required diesel generators inoperable, demonstrate the OPERABILITY of two offsite A.C. circuits by performing the requirements of Specification 4.8.1.1.1a. within 1 hour and at least once per 8 hours thereafter; restore at least two of the diesel generators to OPERABLE status within 2 hours or be in at least HOT STANDBY within the next 6 hours and in COLD SHUTDOWN within the following 30 hours. With two diesel generators OPERABLE follow ACTION b. with the time requirement of that ACTION statement based on the time of initial loss of the remaining inoperable diesel generator. A successful test of diesel generator OPERABILITY per Specification 4.8.1.1.2a.2) performed under this ACTION statement for a restored to OPERABLE diesel generator satisfies the diesel generator test requirement of ACTION b.
- g. With one supply train of the Diesel Fuel Oil Storage and Transfer System inoperable, restore the inoperable system to OPERABLE status within 72 hours or be in at least HOT STANDBY within the next 6 hours and be in HOT SHUTDOWN within the following 6 hours.
- h. With both supply trains of the Diesel Fuel Oil Storage and Transfer System inoperable, restore at least one supply train, including the common storage system, to OPERABLE status within 1 hour or be in at least HOT STANDBY within the next 6 hours and be in COLD SHUTDOWN within the following 30 hours.



SURVEILLANCE REQUIREMENTS

4.8.1.1.1 Each of the above required independent circuits between the offsite transmission network and the Onsite Class 1E Distribution System shall be:

- a. Determined OPERABLE at least once per 7 days by verifying correct breaker alignments, indicated power availability, and
- b. Demonstrated OPERABLE at least once per 18 months during shutdown by:
 - 1) Transferring 4 kV vital bus power supply from the normal circuit to the alternate circuit (manually and automatically) and to the delayed access circuit (manually), and
 - 2) Verifying that on a Safety Injection test signal, without loss of offsite power, the preferred, immediate access offsite power source energizes the emergency busses with permanently connected loads and energizes the auto-connected emergency (accident) loads through sequencing timers.

4.8.1.1.2 Each diesel generator* shall be demonstrated OPERABLE:

- a. In accordance with the frequency specified in Table 4.8-1 on a STAGGERED TEST BASIS by:**
 - 1) Verifying the fuel level in the engine-mounted fuel tank,
 - 2) Verifying the diesel starts from ambient condition and accelerates to at least 900 rpm in less than or equal to 10 seconds. The generator voltage and frequency shall be 4160 ± 420 volts and 60 ± 1.2 Hz within 13 seconds after the start signal. The diesel generator shall be started for this test by using one of the following signals:
 - a) Manual, or
 - b) Simulated loss of offsite power by itself (Startup bus undervoltage), or
 - c) A Safety Injection actuation test signal by itself.

* Tests of Diesel Generator 3 to satisfy the frequency specified in Table 4.8-1 and in Surveillance Requirement 4.8.1.1.2b for one unit may be counted in determining whether the frequency specified in Table 4.8-1 and in Surveillance Requirement 4.8.1.1.2b for the other unit is satisfied. Unit-specific portions of this Surveillance Requirement for Diesel Generator 3 shall be performed on an alternating schedule with signals from Units 1 and 2.

** All diesel generator starts for the purpose of this surveillance test may be preceded by an engine prelube period. Further, all surveillance tests, with the exception of once per 184 days, may also be preceded by warmup procedures (e.g., gradual acceleration and/or gradual loading > 150 sec) as recommended by the manufacturer so that the mechanical stress and wear on the diesel engine is minimized.



SURVEILLANCE REQUIREMENTS (Continued)

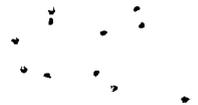
- 3) Verifying the generator is synchronized, loaded to greater than or equal to 2484 kW in less than or equal to 60 seconds, and operates for greater than or equal to 60 minutes,
 - 4) Verifying the diesel generator is aligned to provide standby power to the associated emergency busses,* and
 - 5) Verifying the diesel engine protective relay trip cutout switch is returned to the cutout position following each diesel generator test.
- b. At least once per 18 months, by:
- 1) Subjecting the diesel to an inspection in accordance with procedures prepared in conjunction with its manufacturer's recommendations for this class of standby service;
 - 2) Verifying that the load sequence timers are OPERABLE with each load sequence timer within the limits specified in Table 4.8-2;
 - 3) Verifying the generator capability to reject a load of greater than or equal to 508 kW while maintaining voltage at 4160 ± 420 volts and frequency at 60 ± 3 Hz;
 - 4) Verifying the generator capability to reject a load of greater than or equal to 2484 kW without tripping. The generator voltage shall not exceed 4580 volts during and following the load rejection;
 - 5) Simulating a loss of offsite power by itself, and;
 - a) Verifying de-energization of the emergency busses and load shedding from the emergency busses, and
 - b) Verifying the diesel starts on the auto-start signal, energizes the emergency busses with permanently connected loads within 10 seconds, energizes the required auto-connected loads through sequencing timers and operates for greater than or equal to 5 minutes while its generator is loaded with the permanent and auto-connected loads. After energization of these loads, the steady state voltage and frequency of the emergency busses shall be maintained at 4160 ± 420 volts and 60 ± 1.2 Hz during this test.

* May be the associated bus in the other unit if that unit is in MODE 1, 2, 3 or 4.



- 6) Verifying that on a Safety Injection test signal without loss of offsite power, the diesel generator starts on the auto-start signal and operates on standby for greater than or equal to 5 minutes. The generator voltage and frequency shall be 4160 ± 420 volts and 60 ± 1.2 Hz within 13 seconds after the auto-start signal; the steady state generator voltage and frequency shall be maintained within these limits during this test;
- 7) Simulating a loss of offsite power in conjunction with a Safety Injection test signal, and:
 - a) Verifying de-energization of the emergency busses and load shedding from the emergency busses;
 - b) Verifying the diesel starts on the auto-start signal, energizes the emergency busses with permanently connected loads within 10 seconds, energizes the auto-connected emergency (accident) loads through sequencing timers and operates for greater than or equal to 5 minutes while its generator is loaded with the emergency loads. After energization of these loads, the steady state voltage and frequency of the emergency busses shall be maintained at 4160 ± 420 volts and 60 ± 1.2 Hz during this test; and
 - c) Verifying that all automatic diesel generator trips, except engine overspeed, low lube oil pressure and generator differential, are bypassed when the diesel engine trip cutout switch is in the cutout position and the diesel is aligned for automatic operation.
- 8) Verifying the diesel generator operates for at least 24 hours. During the first 2 hours of this test, the diesel generator shall be loaded to greater than or equal to 2750 kW and during the remaining 22 hours of this test, the diesel generator shall be loaded to greater than or equal to 2484 kW. The generator voltage and frequency shall be 4160 ± 420 volts and 60 ± 1.2 Hz within 13 seconds after the start signal; the steady state generator voltage and frequency shall be maintained within these limits during this test. Within 5 minutes after completing this 24 hour test, perform Specification 4.8.1.1.2b.5)b);*
- 9) Verifying that the auto-connected loads to each diesel generator do not exceed the maximum rating of 2750 kW;
- 10) Verifying the diesel generator's capability to:

* If Specification 4.8.1.1.2b.5)b) is not satisfactorily completed, it is not necessary to repeat the preceding 24-hour test. Instead the diesel generator may be operated at 2484 kW for 1 hour or until operating temperature has stabilized.



SURVEILLANCE REQUIREMENTS (Continued)

- a) Synchronize its isolated bus with the offsite power source while the generator is loaded with its emergency loads upon a simulated restoration of offsite power,
 - b) Transfer its loads to the offsite power source, and
 - c) Be restored to its standby status.
- 11) Verifying that with the diesel generator operating in a test mode, connected to its bus, a simulated Safety Injection signal opens the auxiliary transformer breaker and automatically sequences the emergency loads onto the diesel generator; and
- 12) Verifying that the shutdown relay lockout feature prevents diesel generator starting only when required:
- a) Generator differential current-high, or
 - b) Engine lube oil pressure-low, or
 - c) Emergency stop button actuated, or
 - d) Overspeed trip actuated.
- c. At least once per 10 years or after any modifications which could affect diesel generator interdependence by starting all diesel generators simultaneously, during shutdown, and verifying that all diesel generators accelerate to at least 900 rpm in less than or equal to 10 seconds.
- d. At least once per 31 days and after each operation of the diesel where the period of operation was greater than or equal to 1 hour by checking for and removing accumulated water from the day tank.
- 4.8.1.1.3 The Diesel Fuel Oil Storage and Transfer System shall be demonstrated OPERABLE:
- a. At least once per 31 days by:
 - 1) Verifying the fuel level in the fuel storage tank, and
 - 2) Verifying that each fuel transfer pump starts and transfers fuel from the storage system to each engine-mounted tank via installed lines.
 - b. At least once per 31 days by checking for and removing accumulated water from the fuel oil storage tanks;
 - c. By sampling new fuel oil in accordance with ASTM-D4057 prior to addition to the storage tanks and:



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SURVEILLANCE REQUIREMENTS (Continued)

- 1) By verifying in accordance with the tests specified in ASTM-D975-81 prior to addition to the storage tanks that the sample has:
 - a) An API Gravity of within 0.3 degrees at 60°F, or a specific gravity of within 0.0016 at 60/60°F, when compared to the supplier's certificate, or an absolute specific gravity at 60/60°F of greater than or equal to 0.83 but less than or equal to 0.89, or an API gravity of greater than or equal to 27 degrees but less than or equal to 38 degrees;
 - b) A kinematic viscosity at 40°C of greater than or equal to 1.9 centistokes, but less than or equal to 4.1 centistokes, if gravity was not determined by comparison with the supplier's certification;
 - c) A flash point equal to or greater than 125°F; and
 - d) A clear and bright appearance with proper color when tested in accordance with ASTM-D4176-82.
 - 2) By verifying within 30 days of obtaining the sample that the other properties specified in Table 1 of ASTM-D975-81 are met when tested in accordance with ASTM-D975-81 except that the analysis for sulfur may be performed in accordance with ASTM-D1552-79 or ASTM-D2622-82.
- d. At least once every 31 days by obtaining a sample of fuel oil in accordance with ASTM-D2276-78, and verifying that total particulate contamination is less than 10 mg/liter when checked in accordance with ASTM-D2276-78, Method A;
 - e. At least once per 10 years by:
 - 1) Draining each fuel oil storage tank, removing the accumulated sediment and cleaning the tank using a sodium hypochlorite or equivalent solution, and
 - 2) Performing a visual examination of accessible piping during an operating pressure leak test.

4.8.1.1.4 Reports - All diesel generator failures, valid or non-valid, shall be reported as a Special Report within 30 days to the Commission pursuant to Specification 6.9.2. Reports of diesel generator failures shall include the information recommended in Regulatory Position C.3.b of Regulatory Guide 1.108, Revision 1, August 1977. If the number of failures (on a per diesel generator unit basis) in the last 20 valid tests is greater than or equal to 3, the report shall be supplemented to include the additional information recommended in Regulatory Position C.3.b of Regulatory Guide 1.108, Revision 1, August 1977.



TABLE 4.8-1

DIESEL GENERATOR TEST SCHEDULE

Number of Failures in
Last 20 Valid Tests*

Test Frequency

≤ 1

At least once per 31 days

≥ 2 **

At least once per 7 days

* Criteria for determining number of failures and number of valid tests shall be in accordance with Regulatory Position C.2.e of Regulatory Guide 1.108, Revision 1, August 1977, where the last 20 tests and failures are determined on a per diesel generator unit basis. For the purpose of this schedule, only valid tests conducted after the completion of the preoperational test requirements of Regulatory Guide 1.108, Revision 1, August 1977, shall be included in the computation of the "Last 20 Valid Tests." For the purpose of determining the required test frequency, the previous test failure count may be reduced to zero if the specific cause for the diesel unreliability has been identified and resolved; appropriate post-maintenance operation and testing have been completed; and if acceptable reliability has been demonstrated. The reliability criterion shall be the successful completion of 14 consecutive tests in a single series. These tests shall be in accordance with Specification 4.8.1.1.2a.2).

** The associated test frequency shall be maintained until seven consecutive failure free demands have been performed and the number of failures in the last 20 valid demands has been reduced to one.

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