

ELECTRICAL POWER SYSTEMS

SURVEILLANCE REQUIREMENTS (Continued)

4.8.1.1.2 Each EDG 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 day tank and fuel storage tank.
 2. Verifying the fuel transfer pump can be started and transfers fuel from the storage system to the day tank.
 3. Verifying the diesel generator can start* and accelerate to synchronous speed (504 rpm) with generator voltage and frequency at 7200 ± 720 volts and 60 ± 1.2 Hz.
 4. Verifying the generator is synchronized, gradually loaded* to an indicated 4150-4250 kW** and operates for at least 60 minutes.
- b. 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 removing accumulated water from the day tank.
- c. At least once per 31 days by checking for and removing accumulated water from the fuel oil storage tanks;
- d. By sampling new fuel oil in accordance with ~~ASTM-D4057~~ ^{THE APPLICABLE ASTM STANDARD} prior to addition to storage tanks and:
 - 1) By verifying in accordance with the tests specified in ~~ASTM-D975-81~~ ^{the Applicable ASTM Standard} 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 39 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 (alternatively, Saybolt viscosity, SUS at 100°F of greater than or equal to 32.6, but not less than or equal to 40.1), if gravity was not determined by comparison with the supplier's certification;

*This test shall be conducted in accordance with the manufacturer's recommendations regarding engine pre-lube and warmup procedures, and as applicable regarding loading recommendations.

**This band is meant as guidance to avoid routine overloading of the engine. Loads in excess of this band shall not invalidate the test.

ELECTRICAL POWER SYSTEMS

SURVEILLANCE REQUIREMENTS (Continued)

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 4. Verifying the generator is synchronized, gradually loaded* to an indicated 4150-4250 kW** and operates for at least 60 minutes.
- b. 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 removing accumulated water from the day tank.
- c. At least once per 31 days by checking for and removing accumulated water from the fuel oil storage tanks;
- d. By sampling new fuel oil in accordance with the applicable ASTM standard prior to addition to storage tanks and:
 1. By verifying in accordance with the tests specified in the applicable ASTM standard 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 39 degrees;
 - b. A kinematic viscosity of 40°C of greater than or equal to 1.9 centistokes, but less than or equal to 4.1 centistokes (alternatively, Saybolt viscosity, SUS at 100°F of greater than or equal to 32.6, but not less than or equal to 40.1), if gravity was not determined by comparison with the supplier's certification;

* This test shall be conducted in accordance with the manufacturer's recommendations regarding engine prelube and warmup procedures, and as applicable regarding loading recommendations.

** This band is meant as guidance to avoid routine overloading of the engine. Loads in excess of this band shall not invalidate the test.

ELECTRICAL POWER SYSTEMS

SURVEILLANCE REQUIREMENTS (Continued)

- 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. *THE APPLICABLE ASTM STANDARD.*
- 2) By verifying within 30 days of obtaining the sample that the *SPECIFIED* ~~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.~~ *THE APPLICABLE ASTM STANDARD*
- e. At least once every 31 days by obtaining a sample of fuel oil in accordance with ~~ASTM-D2276-88~~, and verifying that total particulate contamination is less than 10 mg/liter when checked in accordance with ~~ASTM-D2276-88, Method A.~~ *THE APPLICABLE ASTM STANDARD.*
- f. At least once per 184 days by:
 - 1. Starting and accelerating the EDG to synchronous speed (504 rpm) with generator voltage and frequency at 7200 ± 720 volts and 60 ± 1.2 Hz within 10 seconds after the start signal. The EDG shall be started for this test by using one of the following signals:
 - a) Simulated loss of offsite power by itself.
 - b) Simulated loss of offsite power in conjunction with an ESF actuation test signal.
 - c) An ESF actuation test signal by itself.
 - d) Simulated degraded offsite power by itself.
 - e) Manual.
 - 2. The generator shall be manually synchronized, loaded to an indicated 4150-4250 kW** in less than or equal to 60 seconds, and operate for at least 60 minutes
- g. At least once every 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 on rejection of a load of greater than or equal to 729, the voltage and frequency are maintained at 7200 ± 720 volts and frequency at 60 ± 1.2 Hz.
 - 3. Verifying the generator capability to reject a load of 4250 kw without tripping. The generator voltage shall not exceed 7920 volts during and following the load rejection.

**This band is meant as guidance to avoid routine overloading of the engine. Loads in excess of this band shall not invalidate the test.

ELECTRICAL POWER SYSTEMS

SURVEILLANCE REQUIREMENTS (Continued)

- 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 the applicable ASTM standard.
- 2. By verifying within 30 days of obtaining the sample that the specified properties are met when tested in accordance with the applicable ASTM standard.
- e. At least once every 31 days by obtaining a sample of fuel oil in accordance with the applicable ASTM standard, and verifying that total contamination is less than 10 mg/liter when checked in accordance with the applicable ASTM standard.
- f. At least once per 184 days by:
 - 1. Starting and accelerating the EDG to synchronous speed (504 rpm) with generator voltage and frequency at 7200 ± 720 volts and 60 ± 1.2 Hz within 10 seconds after the start signal. The EDG shall be started for this test by using one of the following signals:
 - a) Simulated loss of offsite power by itself.
 - b) Simulated loss of offsite power in conjunction with an ESF actuation test signal.
 - c) An ESF actuation test signal by itself.
 - d) Simulated degraded offsite power by itself.
 - e) Manual.
 - 2. The generator shall be manually synchronized, loaded to an indicated 4150-4250 kW** in less than or equal to 60 seconds, and operate for at least 60 minutes.
- g. At least once every 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,
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ADMINISTRATIVE CONTROLS

CORE OPERATING LIMITS REPORT

(Methodology for Specification 3.1.1.3 - Moderator Temperature Coefficient, 3.1.3.5 - Shutdown Bank Insertion Limit, 3.1.3.6 - Control Bank Insertion Limit, 3.2.1 - Axial Flux Difference, 3.2.2 - Heat Flux Hot Channel Factor, and 3.2.3 - Nuclear Enthalpy Rise Hot Channel Factor).

- b. ^{Rev / A,} WCAP-10216-P-A, "RELAXATION OF CONSTANT AXIAL OFFSET CONTROL FQ SURVEILLANCE TECHNICAL SPECIFICATION", ~~June 1983~~ (W Proprietary).
^{FEB. 1994}

(Methodology for Specifications 3.2.1 - Axial Flux Difference (Relaxed Axial Offset Control) and 3.2.2 - Heat Flux Hot Channel Factor (FQ Methodology for W(Z) surveillance requirements).)

- c. WCAP-10266-P-A, Rev. 2, "THE 1981 VERSION OF WESTINGHOUSE EVALUATION MODEL USING BASH CODE", March 1987 (W Proprietary).

(Methodology for Specification 3.2.2 - Heat Flux Hot Channel Factor).

The core operating limits shall be determined so that all applicable limits (e.g., fuel thermal-mechanical limits, core thermal-hydraulic limits, nuclear limits such as shutdown margin, and transient and accident analysis limits) of the safety analysis are met.

The CORE OPERATING LIMITS REPORT, including any mid-cycle revisions or supplements there to shall be provided upon issuance, for each reload cycle, to the NRC Document Control Desk with copies to the Regional Administrator and Resident Inspector.

ADMINISTRATIVE CONTROLS

CORE OPERATING LIMITS REPORT (Continued)

(Methodology for Specification 3.1.1.3 - Moderator Temperature Coefficient 3.1.3.5 - Shutdown Bank Insertion Limit, 3.1.3.6 - Control Bank Insertion Limit, 3.2.1 - Axial Flux Difference, 3.2.2 - Heat Flux Hot Channel Factor, and 3.2.3 - Nuclear Enthalpy Rise Hot Channel Factor).

- b. WCAP-10216-P-A, Rev. 1A, "RELAXATION OF CONSTANT AXIAL OFFSET CONTROL FQ SURVEILLANCE TECHNICAL SPECIFICATION", February 1994 (W Proprietary).

(Methodology for Specifications 3.2.1 - Axial Flux Difference (Relaxed Axial Offset Control) and 3.2.2 - Heat Flux Hot Channel Factor (FQ Methodology for W(Z) surveillance requirements).)

- c. WCAP-10266-P-A, Rev. 2, "THE 1981 VERSION OF WESTINGHOUSE EVALUATION MODEL USING BASH CODE", March 1987 (W Proprietary).

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