

ENCLOSURE 1 TO NLS-85-516

PROPOSED TECHNICAL SPECIFICATION PAGES

BRUNSWICK-1

DIESEL GENERATOR OPERABILITY

(85TSB01)

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(965MAT/mf)

SUMMARY LIST OF REVISIONS

<u>PAGE NO.</u>	<u>DESCRIPTION</u>
3/4 8-1	<p>Section 3/4 8.1 has been reformatted to more closely resemble those pages provided in Generic Letter 84-15.</p> <p>Former Action a has been divided into Action a, for an offsite circuit inoperable, and Action b, for a diesel generator inoperable.</p> <p>Action a:</p> <ol style="list-style-type: none">1) Extended time requirement for performing Surveillance Requirement 4.8.1.1.2.a.4 (Diesel Quick-Start) from within 2 hours to within 24 hours.2) Surveillance Requirement 4.8.1.1.2.a.5 (Diesel Loading) added.3) Surveillance Requirement 4.8.1.1.2.a.4 (Diesel Quick Start) interval lengthened from 12 hours to 72 hours.4) Extended the allowed outage time for an inoperable offsite circuit from 72 hours to 7 days. <p>Action b:</p> <ol style="list-style-type: none">1) Note added to clarify the definition of an inoperable diesel generator.2) Extended time requirement for performing Surveillance Requirement 4.8.1.1.2.a.4 (Diesel Quick Start) from within 2 hours to within 24 hours.3) Surveillance Requirement 4.8.1.1.2.a.5 (Diesel Loading) added.4) Surveillance Requirement 4.8.1.1.2.a.4 (Diesel Quick Start) interval lengthened from 12 hours to 72 hours.5) Extended the allowed outage time for an inoperable diesel generator from 72 hours to 7 days.
3/4 8-2	<p>Former Action b has been changed to Action c.</p> <p>Action c:</p> <ol style="list-style-type: none">1) Surveillance Requirement 4.8.1.1.2.a.5 (Diesel Loading) added.2) Restoration of both offsite circuits and four diesel generators to operable status required within 7 days from time of critical loss (consistent with Action a/b), previously limited to 72 hours.

Former Action c has been changed to Action d.

Action d:

- 1) Surveillance Requirement 4.8.1.1.a.5 (Diesel Loading) added.
- 2) Restoration of second offsite circuits to operable status lengthened from 72 hours to 7 days (consistent with Action a).
- 3) Addition of "Cold Shutdown within the following 24 hours" if at least one of inoperable offsite sources is not operable after going to Hot Shutdown.

Former Action d has been changed to Action e.

Action e:

- 1) Surveillance Requirement 4.8.1.1.a.5 (Diesel Loading) added.
- 2) Addition of restoration of one diesel generator as required by Action b.
- 3) Restoration of fourth diesel generator to operable lengthened from 72 hours to 7 days (consistent with Action b).

3/4 8-3

Note involving one time only exemption to Surveillance Requirement 4.8.1.1.2.d.3.b deleted.

Note regarding start time added (pertaining to Surveillance Requirement 4.8.1.1.2.a.4).

Mathematical symbols \leq and \geq changed to phrases.

3/4 8-4

Note involving one time only exemption to Surveillance Requirement 4.8.1.1.2.d.7 deleted.

Mathematical symbol \geq changed to "greater than or equal to".

3/4.8 ELECTRICAL POWER SYSTEMS3/4.8.1 A.C. SOURCESOPERATION OF ONE OR BOTH UNITSLIMITING CONDITION FOR OPERATION

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

- a. Two physically independent circuits between the offsite transmission network and the onsite Class 1E distribution system, and
- b. Four separate and independent diesel generators, each with:
 1. A separate engine-mounted fuel tank containing a minimum of 100 gallons of fuel,
 2. A separate day fuel tank containing a minimum of 22,650 gallons of fuel, and
 3. A separate fuel transfer pump.
- c. A plant fuel storage tank containing a minimum of 74,000 gallons of fuel.

APPLICABILITY: OPERATIONAL CONDITIONS 1, 2, and 3.

ACTION:

- a. With an offsite circuit of the above required A.C. electrical power sources inoperable, demonstrate the OPERABILITY of the remaining A.C. offsite sources by performing Surveillance Requirement 4.8.1.1.1.a within 2 hours and at least once per 12 hours thereafter; and demonstrate the OPERABILITY of the diesel generators by performing Surveillance Requirements 4.8.1.1.2.a.4 and 4.8.1.1.2.a.5 within 24 hours and at least once per 72 hours thereafter; restore the inoperable offsite circuit to OPERABLE status within 7 days or be in at least HOT SHUTDOWN within the next 12 hours and in COLD SHUTDOWN within the following 24 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 Surveillance Requirement 4.8.1.1.1.a within 2 hours and at least once per 12 hours thereafter; and demonstrate the OPERABILITY of the remaining diesel generators by performing Surveillance Requirements 4.8.1.1.2.a.4 and 4.8.1.1.2.a.5 within 24 hours and at least once per 72 hours thereafter; restore the inoperable diesel generator to OPERABLE status within 7 days or be in at least HOT SHUTDOWN within the next 12 hours and in COLD SHUTDOWN within the following 24 hours.

* A diesel generator shall be considered to be inoperable from the time of failure until it satisfies the requirements of Surveillance Requirement 4.8.1.1.2.

ELECTRICAL POWER SYSTEMSLIMITING CONDITION FOR OPERATION (Continued)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. offsite source and diesel generators by performing Surveillance Requirements 4.8.1.1.1.a, 4.8.1.1.2.a.4, and 4.8.1.1.2.a.5 within 2 hours and at least once per 12 hours thereafter; restore at least one of the inoperable sources to OPERABLE status within 12 hours or be in at least HOT SHUTDOWN within the next 12 hours and in COLD SHUTDOWN within the following 24 hours. With one A.C. power source restored, demonstrate the OPERABILITY of the remaining A.C. power sources as required in ACTION a or ACTION b as applicable; restore two offsite circuits and four diesel generators to OPERABLE status within 7 days from the time of initial loss or be in HOT SHUTDOWN within the next 12 hours and in COLD SHUTDOWN within the following 24 hours.
- d. With two of the above required offsite A.C. circuits inoperable, demonstrate the OPERABILITY of four diesel generators by performing Surveillance Requirements 4.8.1.1.2.a.4 and 4.8.1.1.2.a.5 within 2 hours and at least once per 12 hours thereafter 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 SHUTDOWN within the next 12 hours and in COLD SHUTDOWN within the following 24 hours. With one offsite source restored, demonstrate the OPERABILITY of the remaining A.C. power sources as required by ACTION a; restore two offsite circuits to OPERABLE status within 7 days from time of initial loss or be in at least HOT SHUTDOWN within the next 12 hours and in COLD SHUTDOWN within the following 24 hours.
- e. With two of the above required diesel generators inoperable, demonstrate the OPERABILITY of the offsite A.C. circuits and the remaining diesel generators by performing Surveillance Requirements 4.8.1.1.1.a, 4.8.1.1.2.a.4 and 4.8.1.1.2.a.5 within 2 hours and at least once per 12 hours thereafter; restore at least three diesel generators to OPERABLE status within 2 hours or be in at least HOT SHUTDOWN within the next 12 hours and in COLD SHUTDOWN within the following 24 hours. With one diesel generator restored, demonstrate the OPERABILITY of the remaining A.C. power sources as required by ACTION b; restore four diesel generators to OPERABLE status within 7 days from time of initial loss or be in at least HOT SHUTDOWN within the next 12 hours and in COLD SHUTDOWN within the following 24 hours.

ELECTRICAL POWER SYSTEMSSURVEILLANCE 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 and indicated power availability, and
- b. Demonstrated OPERABLE at least once per 18 months during shutdown by manually transferring unit power supply from the normal circuit to the alternate circuit.

4.8.1.1.2 Each diesel generator shall be demonstrated OPERABLE:

- a. At least once per 31 days on a STAGGERED TEST BASIS by:
 1. Verifying the fuel level in the engine-mounted fuel tank,
 2. Verifying the fuel level in the day fuel tank,
 3. Verifying the fuel transfer pump can be started and transfers fuel from the day tank to the engine mounted tank,
 4. Verifying the diesel starts and accelerates to at least 514 rpm in less than or equal to 10 seconds,*
 5. Verifying the generator is synchronized, loaded to greater than or equal to 1750 kw, and operates for greater than or equal to 15 minutes, and
 6. Verifying the diesel generator is aligned to provide standby power to the associated emergency buses.
- b. At least once per 31 days by verifying the fuel level in the plant fuel storage tank.
- c. At least once per 92 days by verifying that a sample of diesel fuel from the fuel storage tank, obtained in accordance with ASTM-D270-65, is within the acceptable limits specified in Table 1 of ASTM-D975-74 when checked for viscosity, water and sediment,

* The diesel generator start (10 seconds) from ambient conditions shall be performed at least once per 184 days in these surveillance tests. All other engine starts for the purpose of this surveillance testing may be preceded by a manually initiated engine prelube period and/or other warmup procedures recommended by the manufacturer so that mechanical stress and wear on the diesel engine is minimized.

ELECTRICAL POWER SYSTEMSSURVEILLANCE REQUIREMENTS (Continued)

- d. At least once per 18 months during shutdown 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 the generator capability to reject a load equal to one core spray pump without tripping,
 3. Simulating a loss of offsite power in conjunction with an emergency core cooling system test signal, and:
 - a) Verifying de-energization of the emergency buses and load shedding from the emergency buses.
 - b) Verifying the diesel starts from ambient condition on the auto-start signal, energizes the emergency buses with permanently connected loads, energizes the auto-connected loads through the load sequence relays and operates for greater than or equal to 5 minutes while its generator is loaded with the emergency loads.
 4. Verifying that on the emergency core cooling system test signal, all diesel generator trips except engine overspeed, generator differential, low lube oil pressure, reverse power, loss of field and phase overcurrent with voltage restraint, are automatically bypassed.
 5. Verifying the diesel generator operates for greater than or equal to 60 minutes while loaded to greater than or equal to 3500 kw.
 6. Verifying that the auto-connected loads to each diesel generator do not exceed the 2000 hour rating of 3850 kw.
 7. Verifying that the automatic load sequence relays are OPERABLE with each load sequence time within 10% of the required value.

ENCLOSURE 2 TO NLS-85-516

PROPOSED TECHNICAL SPECIFICATION PAGES

BRUNSWICK-2

DIESEL GENERATOR OPERABILITY

(85TSB01)

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 3. Verifying the fuel transfer pump can be started and transfers fuel from the day tank to the engine mounted tank,
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 5. Verifying the generator is synchronized, loaded to greater than or equal to 1750 kw, and operates for greater than or equal to 15 minutes, and
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ELECTRICAL POWER SYSTEMSSURVEILLANCE REQUIREMENTS (Continued)

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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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 3. Simulating a loss of offsite power in conjunction with an emergency core cooling system test signal, and:
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 - b) Verifying the diesel starts from ambient condition on the auto-start signal, energizes the emergency buses with permanently connected loads, energizes the auto-connected loads through the load sequence relays and operates for greater than or equal to 5 minutes while its generator is loaded with the emergency loads.
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