ELECTRICAL POWER SYSTEMS

LIMITING CONDITION FOR OPERATION

ACTION (continued)

f. With two of the above required diesel generators inoperable, demonstrate the OPERABILITY of two offsite A.C. circuits by performing Surveillance Requirement 4.8.1.1.1.a within one hour and at least once per 8 hours thereafter; restore one of the inoperable 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. Following restoration of one diesel generator unit, follow Action Statement 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 Surveillance Requirement 4.8.1.1.2.a.5 performed under this Action Statement for a restored to OPERABLE diesel generator satisfies the diesel generator test requirement of Action Statement b.

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 transferring (manually and automatically) unit power supply from the normal circuit to the alternate circuit. → each REFUELING INTERVAL

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 day tank,
2) Verifying the fuel level in the fuel storage tank,
3) Verifying the fuel transfer pump starts and transfers fuel from the storage system to the day tank,
4) Verifying the lubricating oil inventory in storage,
5) Verifying the diesel starts from standby conditions and achieves generator voltage and frequency at 4160 ± 420 volts and 60 ± 0.8 Hz. The diesel generator shall be started for this test by using one of the following signals:

a) Manual, or

*All planned starts for the purpose of these surveillances may be preceded by an engine prelube period.

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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;

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, ASTM-D2622-82 or ASTM-D4294-83.

f. 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;

g. At least once per 18 months, during shutdown, each REFUELING INTERVAL, 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 of greater than or equal to 595 kW while maintaining voltage at 4160 ± 420 volts and frequency at 60 ± 3 Hz;

3) Verifying the generator capability to reject a load of 4986 kW without tripping. The generator voltage shall not exceed 5000 volts during and 4784 volts following the load rejection;

4) Simulating a loss-of-offsite power by itself, and:

a) Verifying deenergization of the emergency busses and load shedding from the emergency busses, and

b) Verifying the diesel starts from standby conditions on the auto-start signal, energizes the emergency busses with permanently connected loads within 11 seconds, energizes the auto-connected shutdown loads through the load sequencer and operates for greater than or equal to 5 minutes while its generator is loaded with the shutdown loads. After energization, the steady-state voltage and frequency of the emergency busses shall be maintained at 4160 ± 420 volts and 60 ± 0.8 Hz during this test.

ELECTRICAL POWER SYSTEMS

SURVEILLANCE REQUIREMENTS (Continued)

No change FOR INFO ONLY

5) Verifying that on an ESF Actuation test signal, without loss- of-offsite power, the diesel generator starts from standby conditions 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 ± 0.8 Hz within 11 seconds after the auto-start signal; the steady-state generator voltage and frequency shall be maintained within these limits during this test;

6) Simulating a loss-of-offsite power in conjunction with an ESF Actuation test signal, and:

a) Verifying deenergization of the emergency busses and load shedding from the emergency busses;

b) Verifying the diesel starts from standby conditions on the auto-start signal, energizes the emergency busses with permanently connected loads within 11 seconds, energizes the auto-connected emergency (accident) loads through the load sequencer and operates for greater than or equal to 5 minutes while its generator is loaded with the emergency loads. After energization, the steady-state voltage and frequency of the emergency busses shall be maintained at 4160 ± 420 volts and 60 ± 0.8 Hz during this test; and

c) Verifying that all automatic diesel generator trips, except engine overspeed, lube oil pressure low (2 of 3 logic) and generator differential, are automatically bypassed upon loss of voltage on the emergency bus concurrent with a Safety Injection Actuation signal.

7) 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 5485 kW and during the remaining 22 hours of this test, the diesel generator shall be loaded to greater than or equal to 4986 kW. The generator voltage and frequency shall be 4160 ± 420 volts and 60 ± 0.8 Hz within 11 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 4.8.1.1.2.a.5);**

*Diesel generator loadings may include gradual loading as recommended by the manufacturer.

**If Surveillance Requirement 4.8.1.1.2.a.5) is not satisfactorily completed, it is not necessary to repeat the preceding 24-hour test. Instead, the diesel generator may be operated at 4986 kW for 2 hours or until operating temperature has stabilized.

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ELECTRICAL POWER SYSTEMS

SURVEILLANCE REQUIREMENTS (Continued)

8) Verifying that the auto-connected loads to each diesel generator do not exceed the 2000-hour rating of 5335 kW;

9) Verifying the diesel generator's capability to:

a) Synchronize 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.

10) Verifying that with the diesel generator operating in a test mode, connected to its bus, a simulated Safety Injection signal overrides the test mode by: (1) returning the diesel generator to standby operation, and (2) automatically energizing the emergency loads with offsite power;

11) Verifying that the fuel transfer pump transfers fuel from each fuel storage tank to the day tank of each diesel via the installed cross-connection lines;

12) Verifying that the automatic load sequence timer is OPERABLE with the interval between each load block within ± 10% of its design interval; and

13) Verifying that the following diesel generator lockout features prevent diesel generator starting:

a) Engine overspeed,

b) Lube oil pressure low (2 of 3 logic),

c) Generator differential, and

d) Emergency stop.

h. At least once per 10 years or after any modifications which could affect diesel generator interdependence by starting both diesel generators simultaneously, during shutdown, and verifying that both diesel generators achieve generator voltage and frequency at 4160 ± 420 volts and 60 ± 0.8 Hz in less than or equal to 11 seconds; and

i. 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 solution, and

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No change
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ELECTRICAL POWER SYSTEMS

3/4.8.2 D.C. SOURCES

OPERATING

LIMITING CONDITION FOR OPERATION

3.8.2.1 As a minimum, the following D.C. electrical sources shall be OPERABLE:

a. 125-volt Battery Bank 301A-1, and an associated full capacity charger,

b. 125-volt Battery Bank 301A-2, and an associated full capacity charger,

c. 125-volt Battery Bank 301B-1 and an associated full capacity charger, and

d. 125-volt Battery Bank 301B-2 and an associated full capacity charger.

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

ACTION:

a. With either Battery Bank 301A-1 or 301B-1, and/or one of the required full capacity chargers inoperable, restore the inoperable battery bank and/or full capacity charger 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.

b. With either Battery Bank 301A-2 or 301B-2 inoperable, and/or one of the required full capacity chargers inoperable, restore the inoperable battery bank and/or full capacity charger to OPERABLE status within 24 hours or be in at least HOT STANDBY within the next 6 hours and in COLD SHUTDOWN within the following 30 hours.

SURVEILLANCE REQUIREMENTS

4.8.2.1 Each 125-volt battery bank and charger shall be demonstrated OPERABLE:

a. At least once per 7 days by verifying that:

1) The parameters in Table 4.8-2a meet the Category A limits, and

2) The total battery terminal voltage is greater than or equal to 129 volts on float charge.

b. At least once per 92 days and within 7 days after a battery discharge with battery terminal voltage below 110 volts, or battery overcharge with battery terminal voltage above 150 volts, by verifying that:

1) The parameters in Table 4.8-2a meet the Category B limits,

2) There is no visible corrosion at either terminals or connectors, or the connection resistance of these items is less than 150×10^{-6} ohm, and

3) The average electrolyte temperature of six connected cells is above 60°F.

c. At least once per 18 months (each REFUELING INTERVAL) by verifying that: |

1) The cells, cell plates, and battery racks show no visual indication of physical damage or abnormal deterioration,

2) The cell-to-cell and terminal connections are clean, tight, and coated with anticorrosion material,

3) The resistance of each cell-to-cell and terminal connection is less than or equal to 150×10^{-6} ohm, and

4) Each battery charger will supply at least the amperage indicated in Table 4.8-2b at 125 volts for at least 24 hours.

d. At least once per 18 months, during shutdown, (each REFUELING INTERVAL) by verifying that the battery capacity is adequate to supply and maintain in OPERABLE status all of the actual or simulated emergency loads for the design duty cycle when the battery is subjected to a battery service test; |

e. At least once per 60 months, during shutdown, by verifying that the battery capacity is at least 80% of the manufacturer's rating when subjected to a performance discharge test. Once per 60-month interval this performance discharge test may be performed in lieu of the battery service test required by Specification 4.8.2.1d.; and |

f. At least once per 18 months, during shutdown, (each REFUELING INTERVAL) by giving performance discharge tests of battery capacity to any battery that shows signs of degradation or has reached 85% of the service life expected for the application. Degradation is indicated when the battery capacity drops more than 10% of rated capacity from its average on previous performance tests, or is below 90% of the manufacturer's rating. |

ELECTRICAL POWER SYSTEMS

3/4.8.4 ELECTRICAL EQUIPMENT PROTECTIVE DEVICES

CONTAINMENT PENETRATION CONDUCTOR OVERCURRENT PROTECTIVE DEVICES

LIMITING CONDITION FOR OPERATION

3.8.4.1 All containment penetration conductor overcurrent protective devices shall be OPERABLE.

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

ACTION:

With one or more of the containment penetration conductor overcurrent protective device(s) inoperable:

a. Restore the protective device(s) to OPERABLE status or deenergize the circuit(s) by tripping the associated backup circuit breaker or racking out or removing the inoperable circuit breaker within 72 hours, declare the affected system or component inoperable, and verify the backup circuit breaker to be tripped or the inoperable circuit breaker racked out or removed at least once per 7 days thereafter; or

b. Be in at least HOT STANDBY within the next 6 hours and in COLD SHUTDOWN within the following 30 hours.

SURVEILLANCE REQUIREMENTS

4.8.4.1 All containment penetration conductor overcurrent protective devices shall be demonstrated OPERABLE:

a. At least once ~~per 18 months~~ each REFUELING INTERVAL:

1) By verifying that the medium voltage (4-15 kV) circuit breakers are OPERABLE by selecting, on a rotating basis, at least 10% of the circuit breakers of each voltage level, and performing the following:

a) A CHANNEL CALIBRATION of the associated protective relays,

b) An integrated system functional test which includes simulated automatic actuation of the system and verifying that each relay and associated circuit breakers and control circuits function as designed, and

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NO CHANGE
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c) For each circuit breaker found inoperable during these functional tests, an additional representative sample of at least 10% of all the circuit breakers of the inoperable type shall also be functionally tested until no more failures are found or all circuit breakers of that type have been functionally tested.

2) By selecting and functionally testing a representative sample of at least 10% of each type of lower voltage circuit breakers. Circuit breakers selected for functional testing shall be selected on a rotating basis.

Testing of air circuit breakers shall consist of injecting a current with a value equal to 300% of the pickup of the long-time delay trip element and 150% of the pickup of the short-time delay trip element, and verifying that the circuit breaker operates within the time delay band width for that current specified by the manufacturer. The instantaneous element shall be tested by injecting a current equal to ± 20% of the pickup value of the element and verifying that the circuit breaker trips instantaneously with no intentional time delay.

Molded case circuit breakers and unitized starters (a frame size of 250 amps or less) shall be tested for long time delay at 300% as described above, and in addition tested for the instantaneous trip by injecting a current value which falls within +40% (of the upper limit) and -25% (of the lower limit) of the manufacturers instantaneous trip current range and verifying the breaker trips instantaneously with no intentional time delay. For those molded case circuit breakers/unitized starters used in 480V circuits, if single pole instantaneous test results fall outside these tolerances, additional instantaneous testing shall be conducted using two poles in series, including A-B, B-C and C-A phase combinations. All combination test results shall fall within the specified tolerances.

Circuit breakers found inoperable during functional testing shall be restored to OPERABLE status prior to resuming operation. For each circuit breaker found inoperable during these functional tests, an additional representative sample of at least 10% of all the circuit breakers of the inoperable type shall also be functionally tested until no more failures are found or all circuit breakers of that type have been functionally tested.

b. At least once per 60 months by subjecting each circuit breaker to an inspection and preventive maintenance in accordance with procedures prepared in conjunction with its manufacturer's recommendations.

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ELECTRICAL POWER SYSTEMS

MOTOR-OPERATED VALVES THERMAL OVERLOAD PROTECTION

LIMITING CONDITION FOR OPERATION

3.8.4.2.1 Each thermal overload protection bypassed only under accident conditions for safety-related motor-operated valves shall be bypassed by an OPERABLE bypass device integral with the motor starter.

APPLICABILITY: Whenever the motor-operated valve is required to be OPERABLE.

ACTION:

With the thermal overload protection for one or more of the above required valves not bypassed under conditions for which it is designed to be bypassed, restore the inoperable device or provide a means to bypass the thermal overload within 8 hours, or declare the affected valve(s) inoperable and apply the appropriate ACTION Statement(s) of the affected system(s).

SURVEILLANCE REQUIREMENTS

4.8.4.2.1 The thermal overload protection for the above required valves shall be verified to be bypassed by the appropriate accident signal(s) by performance of a TRIP ACTUATION DEVICE OPERATIONAL TEST of the bypass circuitry during COLD SHUTDOWN or REFUELING at least once per 18 months.

each REFUELING INTERVAL

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ELECTRICAL POWER SYSTEMS

MOTOR-OPERATED VALVES THERMAL OVERLOAD PROTECTION NOT BYPASSED

LIMITING CONDITION FOR OPERATION

3.8.4.2.2 Each thermal overload protection not bypassed under accident conditions for safety-related motor-operated valves shall be operable.

APPLICABILITY: Whenever the motor-operated valve is required to be OPERABLE.

ACTION:

With the thermal overload protection for one or more of the above required valves inoperable, bypass the inoperable thermal overload within 8 hours; restore the inoperable thermal overload to OPERABLE status within 30 days or declare the affected valve(s) inoperable and apply the appropriate ACTION Statement(s) for the affected system(s).

SURVEILLANCE REQUIREMENTS

4.8.4.2.2 The thermal overload protection for the above required valves shall be demonstrated OPERABLE at least once ~~per 18 months~~ each REFUELING INTERVAL and following maintenance on the motor starter by the performance of a CHANNEL CALIBRATION of a representative sample of at least 25% of all thermal overloads for the above required valves.

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Attachment 2

Millstone Nuclear Power Station, Unit No. 3

Proposed Revision to Technical Specifications
24-Month Fuel Cycle
Electrical Power Systems

Retyped Pages

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LIMITING CONDITION FOR OPERATION

ACTION (continued)

f. With two of the above required diesel generators inoperable, demonstrate the OPERABILITY of two offsite A.C. circuits by performing Surveillance Requirement 4.8.1.1.1.a within one hour and at least once per 8 hours thereafter; restore one of the inoperable 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. Following restoration of one diesel generator unit, follow Action Statement 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 Surveillance Requirement 4.8.1.1.2.a.5 performed under this Action Statement for a restored to OPERABLE diesel generator satisfies the diesel generator test requirement of Action Statement b.

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 each REFUELING INTERVAL by transferring (manually and automatically) unit power supply from the normal circuit to the alternate circuit.

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 day tank,
2) Verifying the fuel level in the fuel storage tank,
3) Verifying the fuel transfer pump starts and transfers fuel from the storage system to the day tank,
4) Verifying the lubricating oil inventory in storage,
5) Verifying the diesel starts from standby conditions and achieves generator voltage and frequency at 4160 ± 420 volts and 60 ± 0.8 Hz. The diesel generator shall be started for this test by using one of the following signals:

a) Manual, or

*All planned starts for the purpose of these surveillances may be preceded by an engine prelube period.

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;

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, ASTM-D2622-82 or ASTM-D4294-83.

f. 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;

g. At least once each REFUELING INTERVAL, 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 of greater than or equal to 595 kW while maintaining voltage at 4160 ± 420 volts and frequency at 60 ± 3 Hz;

3) Verifying the generator capability to reject a load of 4986 kW without tripping. The generator voltage shall not exceed 5000 volts during and 4784 volts following the load rejection;

4) Simulating a loss-of-offsite power by itself, and:

a) Verifying deenergization of the emergency busses and load shedding from the emergency busses, and

b) Verifying the diesel starts from standby conditions on the auto-start signal, energizes the emergency busses with permanently connected loads within 11 seconds, energizes the auto-connected shutdown loads through the load sequencer and operates for greater than or equal to 5 minutes while its generator is loaded with the shutdown loads. After energization, the steady-state voltage and frequency of the emergency busses shall be maintained at 4160 ± 420 volts and 60 ± 0.8 Hz during this test.

SURVEILLANCE REQUIREMENTS (Continued)

b. At least once per 92 days and within 7 days after a battery discharge with battery terminal voltage below 110 volts, or battery overcharge with battery terminal voltage above 150 volts, by verifying that:

1) The parameters in Table 4.8-2a meet the Category B limits,

2) There is no visible corrosion at either terminals or connectors, or the connection resistance of these items is less than 150×10^{-6} ohm, and

3) The average electrolyte temperature of six connected cells is above 60°F.

c. At least once each REFUELING INTERVAL by verifying that:

1) The cells, cell plates, and battery racks show no visual indication of physical damage or abnormal deterioration,

2) The cell-to-cell and terminal connections are clean, tight, and coated with anticorrosion material,

3) The resistance of each cell-to-cell and terminal connection is less than or equal to 150×10^{-6} ohm, and

4) Each battery charger will supply at least the amperage indicated in Table 4.8-2b at 125 volts for at least 24 hours.

d. At least once each REFUELING INTERVAL by verifying that the battery capacity is adequate to supply and maintain in OPERABLE status all of the actual or simulated emergency loads for the design duty cycle when the battery is subjected to a battery service test;

e. At least once per 60 months by verifying that the battery capacity is at least 80% of the manufacturer's rating when subjected to a performance discharge test. Once per 60-month interval this performance discharge test may be performed in lieu of the battery service test required by Specification 4.8.2.1d.; and

f. At least once each REFUELING INTERVAL by giving performance discharge tests of battery capacity to any battery that shows signs of degradation or has reached 85% of the service life expected for the application. Degradation is indicated when the battery capacity drops more than 10% of rated capacity from its average on previous performance tests, or is below 90% of the manufacturer's rating.

ELECTRICAL POWER SYSTEMS

3/4.8.4 ELECTRICAL EQUIPMENT PROTECTIVE DEVICES

CONTAINMENT PENETRATION CONDUCTOR OVERCURRENT PROTECTIVE DEVICES

LIMITING CONDITION FOR OPERATION

3.8.4.1 All containment penetration conductor overcurrent protective devices shall be OPERABLE.

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

ACTION:

With one or more of the containment penetration conductor overcurrent protective device(s) inoperable:

a. Restore the protective device(s) to OPERABLE status or deenergize the circuit(s) by tripping the associated backup circuit breaker or racking out or removing the inoperable circuit breaker within 72 hours, declare the affected system or component inoperable, and verify the backup circuit breaker to be tripped or the inoperable circuit breaker racked out or removed at least once per 7 days thereafter; or

b. Be in at least HOT STANDBY within the next 6 hours and in COLD SHUTDOWN within the following 30 hours.

SURVEILLANCE REQUIREMENTS

4.8.4.1 All containment penetration conductor overcurrent protective devices shall be demonstrated OPERABLE:

a. At least once each REFUELING INTERVAL:

1) By verifying that the medium voltage (4-15 kV) circuit breakers are OPERABLE by selecting, on a rotating basis, at least 10% of the circuit breakers of each voltage level, and performing the following:

a) A CHANNEL CALIBRATION of the associated protective relays,

b) An integrated system functional test which includes simulated automatic actuation of the system and verifying that each relay and associated circuit breakers and control circuits function as designed, and

ELECTRICAL POWER SYSTEMS

MOTOR-OPERATED VALVES THERMAL OVERLOAD PROTECTION

LIMITING CONDITION FOR OPERATION

3.8.4.2.1 Each thermal overload protection bypassed only under accident conditions for safety-related motor-operated valves shall be bypassed by an OPERABLE bypass device integral with the motor starter.

APPLICABILITY: Whenever the motor-operated valve is required to be OPERABLE.

ACTION:

With the thermal overload protection for one or more of the above required valves not bypassed under conditions for which it is designed to be bypassed, restore the inoperable device or provide a means to bypass the thermal overload within 8 hours, or declare the affected valve(s) inoperable and apply the appropriate ACTION Statement(s) of the affected system(s).

SURVEILLANCE REQUIREMENTS

4.8.4.2.1 The thermal overload protection for the above required valves shall be verified to be bypassed by the appropriate accident signal(s) by performance of a TRIP ACTUATION DEVICE OPERATIONAL TEST of the bypass circuitry during COLD SHUTDOWN or REFUELING at least once each REFUELING INTERVAL.

ELECTRICAL POWER SYSTEMS

MOTOR-OPERATED VALVES THERMAL OVERLOAD PROTECTION NOT BYPASSED

LIMITING CONDITION FOR OPERATION

3.8.4.2.2 Each thermal overload protection not bypassed under accident conditions for safety-related motor-operated valves shall be operable.

APPLICABILITY: Whenever the motor-operated valve is required to be OPERABLE.

ACTION:

With the thermal overload protection for one or more of the above required valves inoperable, bypass the inoperable thermal overload within 8 hours; restore the inoperable thermal overload to OPERABLE status within 30 days or declare the affected valve(s) inoperable and apply the appropriate ACTION Statement(s) for the affected system(s).

SURVEILLANCE REQUIREMENTS

4.8.4.2.2 The thermal overload protection for the above required valves shall be demonstrated OPERABLE at least once each REFUELING INTERVAL and following maintenance on the motor starter by the performance of a CHANNEL CALIBRATION of a representative sample of at least 25% of all thermal overloads for the above required valves.

Docket No. 50-423
B15245

Attachment 3

Millstone Nuclear Power Station, Unit No. 3

Description of the Proposed Technical
Specification Changes
Electrical Power Systems

June 1995

Millstone Nuclear Power Station, Unit No. 3
Description of the Proposed Technical Specification Changes

Introduction

On June 7, 1995, Millstone Unit No. 3 began operating on a nominal 24-month fuel cycle instead of the previous 18-month fuel cycles. To take advantage of this longer fuel cycle, Northeast Nuclear Energy Company (NNECO) is proposing to modify the frequency of a number of the surveillance requirements existing in the Millstone Unit No. 3 Technical Specifications. The proposed changes are described below:

1. Surveillance Section 4.8.1.1.1.b, Offsite Power Sources

   The proposed change to Section 4.8.1.1.1.b will extend the frequency for the offsite circuit testing from at least once per 18 months to at least once each refueling interval. In addition, the words "during shutdown" have been deleted. Because the terms "Hot and Cold Shutdown" are defined in the technical specifications as operating modes or conditions, the added restriction to perform certain surveillances during shutdown may be misinterpreted. In Generic Letter (GL) 91-04, the NRC has concluded that the technical specifications need not restrict surveillances as only being performed during shutdown. However, the NRC indicated that if the performance of a refueling interval surveillance during plant operation would adversely affect safety, the licensee should postpone the surveillance until the unit is shut down for refueling or is in a condition or mode that is consistent with safe conduct of that surveillance.

2. Section 4.8.1.1.2.g, Diesel Generator

   The proposed change to Section 4.8.1.1.2.g will increase the interval for testing the diesel generators from 18 months to a maximum of 30 months (i.e., 24 months +25%). In addition, the words "during shutdown" have been deleted. Refer to the previous paragraph for additional information concerning this deletion.

3. Section 4.8.2.1, DC sources, Surveillance Requirements

   Surveillance Requirement 4.8.2.1 verifies the operability of each 125-volt battery bank and charger by performing various tests at various intervals. Surveillance Requirement 4.8.2.1.d verifies that each battery bank meets the design duty cycle at least once per 18 months. The battery performance discharge test (i.e., Surveillance Requirement 4.8.2.1.f) is performed at least once per 18 months. This

test is to determine if the rating of the battery in the as-found condition is holding up. This test is also used to determine if the battery is in a degraded condition. Surveillance Requirement 4.8.2.1.c verifies the operability of the battery banks and the battery charges at least once per 18 months. NNECO proposes to extend the frequency of Surveillance Requirements 4.8.2.1.c, 4.8.2.1.d, and 4.8.2.1.f from at least once per 18 months to at least once each refueling (i.e., 24 months). In addition, the phrase "during shutdown" in Surveillance Requirements 4.8.2.1.d, 4.8.2.1.e, and 4.8.2.1.f is being deleted. Because the terms "Hot Shutdown" and "Cold Shutdown" are defined in the Millstone Unit No. 3 Technical Specifications as operating modes or conditions, the added restrictions to perform certain surveillances during shutdown may be misinterpreted. This change is consistent with the recommendations of GL 91-04. No changes are proposed to the Bases Section.

4. Section 4.8.4.1, Containment Penetration Conductor Overcurrent Protective Devices, Surveillance Requirement

Surveillance Requirement 4.8.4.1.a verifies the operability of the containment penetration conductor overcurrent protective devices at least once per 18 months. NNECO proposes to extend the frequency of the Surveillance Requirement 4.8.4.1.a from at least once per 18 months to at least once each refueling interval (i.e., 24 months). No changes are proposed to the Bases Section.

5. Section 4.8.4.2.1, Motor-Operated Valves Thermal Overload Protection, Surveillance Requirement

Surveillance Requirement 4.8.4.2.1 requires that the thermal overload protection for the required motor-operated valves (MOVs) shall be verified to be bypassed by the appropriate accident signal(s) by performance of a trip actuating device operational test of the bypass circuitry at least once per 18 months. NNECO proposes to extend the frequency of Surveillance Requirement 4.8.4.2.1 from at least once per 18 months to at least once each refueling (i.e., 24 months). No changes are proposed to the Bases Section.

6. Section 4.8.4.2.2, MOVs Thermal Overload Protection Not Bypassed, Surveillance Requirement

Surveillance Requirement 4.8.4.2.2 requires that the thermal overload protection for the required valves shall be demonstrated operable at least once per 18 months by the performance of a channel calibration of a representative

sample of at least 25% of all thermal overload for the required valves. NNECO proposes to extend the frequency of Surveillance Requirement 4.8.4.2.2 from at least once per 18 months to at least once each refueling (i.e., 24 months). No changes are proposed to the Bases Section.

Attachment 4

Millstone Nuclear Power Station, Unit No. 3

Proposed Revision to Technical Specifications
24-Month Refuel Cycle
Electrical Power System

Safety Assessment and Significant Hazards Consideration for:

I. Safety Assessment and Significant Hazards Consideration for Changes to:

- AC Sources Operating (Offsite Power Supply and Diesel Generators)
- DC Sources Operating
- Containment Penetration Conductor Overcurrent Protective Devices
- Motor-Operated Valves Thermal Overload Protection

June 1995

Millstone Nuclear Power Station, Unit No. 3
Proposed Revision to Technical Specifications
24-Month Refuel Cycle
Electrical Power System
Safety Assessment and Significant Hazards Consideration

I. SAFETY ASSESSMENT AND SIGNIFICANT HAZARDS CONSIDERATION FOR CHANGES TO AC SOURCES OPERATING (OFFSITE POWER SUPPLY AND DIESEL GENERATORS)

Background

On June 7, 1995, Millstone Unit No. 3 began operating on a nominal 24-month fuel cycle instead of the previous 18-month cycles. To be consistent with this longer fuel cycle, Northeast Nuclear Energy Company (NNECO) is proposing to modify the frequency of a number of surveillance requirements existing in the Millstone Unit No. 3 Technical Specifications. The safety assessment and significant hazards consideration for the proposed changes to Sections 4.8.1.1.1.b (offsite power supply) and 4.8.1.1.2.g.1 through 13 (onsite power supply) are described below. In the near future, NNECO will be proposing additional changes to the Millstone Unit No. 3 Technical Specifications to prepare for the conversion to nominal 24-month fuel cycles. Each of these submittals will contain evaluations that are independent and which stand alone.

A. OFFSITE POWER SUPPLY, SURVEILLANCE REQUIREMENT 4.8.1.1.1.b

Safety Assessment

Surveillance Requirement 4.8.1.1.1.b verifies the operability of the offsite power circuits by transferring (manually and automatically) unit power supply from the normal circuit to the alternate circuit once per 18 months. NNECO proposes to extend the frequency of Surveillance Requirement 4.8.1.1.1.b from at least once per 18 months to at least once each refueling interval (i.e., nominal 24 months). In addition, the words "during shutdown" have been deleted. Because the terms "Hot Shutdown" and "Cold Shutdown" are defined in the Millstone Unit No. 3 Technical Specifications as operating modes or conditions, the added restriction to perform certain surveillances during shutdown may be misinterpreted. In Generic Letter (GL) 91-04, the NRC has concluded that the technical specifications need not restrict surveillances as only being performed during shutdown. However, the NRC indicated that if the performance of a refueling interval surveillance during plant operation would adversely affect safety, the licensee should postpone the surveillance until

the plant is shut down for refueling, or is in a condition or mode that is consistent with safe conduct of that surveillance. NNECO agrees with the NRC in its conclusion. NNECO believes that the deletion of the words "during shutdown" has no safety impact as long as the surveillances are conducted at any mode or condition without impacting the plant safety.

The proposed change to Surveillance Requirement 4.8.1.1.1.b does not alter the intent or method by which the surveillance is conducted, does not involve any physical changes to the plant, does not alter the way any structure, system, or component functions, and does not modify the manner in which the plant is operated. As such, the proposed change to the frequency of Surveillance Requirement 4.8.1.1.1.b will not degrade the ability of the plant's normal offsite power supply circuit or alternate circuit to perform its intended function.

Equipment performance over the last four operating cycles was evaluated to determine the impact of extending the frequency of Surveillance Requirement 4.8.1.1.1.b. This evaluation included a review of surveillance results, preventive maintenance, and corrective maintenance. The 4160 volt switchgear is Class 1E with components of high reliability and a long mean time to failure. The manual and automatic transfer of the offsite power supply is not time critical in that there is no drift or calibration of the components involved. No failures were observed during the last four operating cycle surveillance tests. A review of maintenance history and failure reports have not revealed any adverse conditions that would disable the bus transfer as designed. In addition, Surveillance Requirement 4.8.1.1.1.a verifies the operability of the offsite circuits (normal and alternate) by verifying correct breaker alignments and indicated power availability at least once per 7 days.

Based on the above evaluation, there is a reasonable assurance that the frequency of Surveillance Requirement 4.8.1.1.1.b can be extended from at least once per 18 months to at least once each refueling interval (i.e., nominal 24 months).

A probabilistic risk assessment (PRA) evaluation of the proposed surveillance frequency change concluded that there is no measurable impact on plant risk.

Significant Hazards Consideration

NNECO has reviewed the proposed change in accordance with 10CFR50.92 and has concluded that the change does not involve

a significant hazards consideration (SHC). The basis for this conclusion is that the three criteria of 10CFR50.92(c) are not compromised. The proposed change does not involve an SHC because the change would not:

1. Involve a significant increase in the probability or consequences of an accident previously evaluated.

   The proposed change to Surveillance Requirement 4.8.1.1.1.b extends the frequency for demonstrating operability of the offsite circuits by transferring the (manually and automatically) plant power supply from the normal circuit to the alternate circuit. The proposal would extend the frequency from at least once per 18 months to at least once each refueling (i.e., nominal 24 months) and delete the words "during shutdown."

   The proposed change to Surveillance Requirement 4.8.1.1.1.b does not alter the intent or the method by which the surveillance is conducted. In addition, the acceptance criterion for the surveillance is unchanged. As such, the proposed change to the frequency of Surveillance Requirement 4.8.1.1.1.b will not degrade the ability of the normal circuit or the alternate circuit of the offsite power supply to perform its intended function.

   An evaluation of past surveillances and preventive maintenance has concluded that decreasing the surveillance frequency will have little impact on safety. Since the proposed change only affects the surveillance frequency, the proposed change cannot affect the probability of any previously analyzed accident. While the proposed change can lengthen the interval between surveillances, the increase in the interval has been evaluated and it is concluded that there is no significant impact on the availability of the offsite power supply normal or alternate circuit to function, and consequently, there is no impact on the consequences of any analyzed accident.

2. Create the possibility of a new or different kind of accident from any accident previously evaluated.

   The proposed change to Surveillance Requirement 4.8.1.1.1.b does not modify the design or operation of any plant system. The proposed change does not alter the intent or method by which the surveillance is conducted other than increasing the interval from 18 months to 24 months (nominal). The proposed change does not introduce a new failure mode. Therefore, the proposed

change does not create the possibility of a new or different kind of accident from any previously analyzed.

3. Involve a significant reduction in a margin of safety.

Changing the frequency of Surveillance Requirement 4.8.1.1.1.b from at least once per 18 months to at least once per refueling interval does not change the basis for frequency. The proposed change does not alter the intent or method by which the surveillance is conducted, does not involve any physical changes to the plant, does not alter the way any structure, system, or component functions, and does not modify the manner in which the plant is operated. Further, the previous history of reliability of the offsite normal and alternate circuits provides assurance that the change will not affect the reliability of the offsite circuits. Therefore, the proposed change has no impact on the margin of the safety.

B. SURVEILLANCE REQUIREMENTS 4.8.1.1.2.g.1 through 4.8.1.1.2.g.13

Safety Assessment

The emergency AC power source consists of two 4.16 kV, 3-phase, 60 Hz, diesel engine driven synchronous generators. The capacity of each diesel generator (DG) is rated 4986 kW continuous and 5335 kW (2,000 hr). Each DG is capable of automatically starting and accelerating to the rated speed, and subsequent loading of all engineered safety features (ESF) and essential shutdown loads, in the required sequence, within minimum time intervals established by the accident analysis. The capacity of one DG is sufficient to meet the ESF demand. The DGs are started on a loss of power (LOP) to the respective 4.16 kV bus to which each DG is connected, by a safety injection signal (SIS), or by a containment depressurization actuation (CDA) signal, or manually. Sequential loading is achieved by a DG load sequencer. The loading sequence prevents system instability during motor starting. A fast responding exciter and a voltage regulator ensure quick voltage recovery after any load step.

The safety function of the DG is to provide electrical power for the operation of the ESF and safe shutdown equipment during and following the shutdown of the plant when the offsite power supply is not available.

The DG must have the capability to (1) start and accelerate a number of large loads (motors) in rapid succession, and (2) to supply power continuously to the equipment needed

to maintain the plant in a safe condition, if an extended loss of offsite power occurs.

The proposed change to Surveillance Requirements 4.8.1.1.2.g.1 through 4.8.1.1.2.g.13 will increase the interval between surveillance from at least once per 18 months to at least once a refueling interval (i.e., nominal 24 months). In addition, the words "during shutdown" have been deleted. Because the terms "Hot Shutdown and "Cold Shutdown" are defined in the Millstone Unit No. 3 Technical Specifications as operating modes or conditions, the added restriction to perform certain surveillances during shutdown may be misinterpreted. In GL 91-04, the NRC has concluded that the technical specifications need not restrict surveillances as only being performed during shutdown. However, the NRC indicated that if the performance of a refueling interval surveillance during plant operation would adversely affect safety, the licensee should postpone the surveillance until the plant is shutdown for refueling or is in condition or mode that is consistent with safe conduct of that surveillance. NNECO agrees with the NRC that the deletion of the words "during shutdown" has no safety impact as long as the surveillance is conducted at any mode or condition without impacting the plant safety.

The proposed change to Surveillance Requirements 4.8.1.1.2.g.1 through 4.8.1.1.2.g.13 does not alter the intent or method by which the surveillance is conducted, does not involve any physical changes to the plant, does not alter the way any structure/system or component functions, and does not modify the manner in which the plant is operated. As such, the proposed change to the frequency of Surveillance Requirements 4.8.1.1.2.g.1 through 4.8.1.1.2.g.13 will not degrade the ability of each DG to perform its intended function.

Equipment (i.e., DG and its supporting components) performance over the last four operating cycles was evaluated to determine the impact of extending the frequency of Surveillance Requirements 4.8.1.1.2.g.1 through 4.8.1.1.2.g.13. This evaluation included a review of surveillance results, preventive maintenance and frequency, and type of corrective maintenance. The summary of the evaluation for each of Surveillance Requirements 4.8.1.1.2.g.1 through 4.8.1.1.2.g.13 is provided below:

A PRA evaluation of the proposed surveillance frequency change concluded that there is no measurable impact on plant risk.

Surveillance Requirement 4.8.1.1.2.g.1, DG Inspection

Surveillance Requirement 4.8.1.1.2.g.1 requires that the DG be inspected in accordance with the manufacturer's recommendations. Maintenance Procedure SP 3712K. "Emergency Diesel Generator Surveillance Inspection" contains specific inspection tasks that are performed on the diesel engine in order to satisfy Surveillance Requirement 4.8.1.1.2.g.1. NNECO proposes to extend the frequency of Surveillance Requirement 4.8.1.1.2.g.1 from at least once per 18 months to at least once each refueling interval (i.e., nominal 24 months). The impact of the proposed extension in the surveillance inspection interval on the DG performance during an LOP has been reviewed. Each inspection task was reviewed, past experience was discussed with the maintenance and system engineers, and possible consequences of extending the particular task were evaluated. Alternative indirect methods available through plant trending data were also identified and their suitability as a substitute for the actual inspection in predicting engine part deterioration or pending failure were also evaluated. Existing engine monitoring programs, i.e., start time trending, cylinder temperature trending, and monthly lube oil analyses provides indirect indication of possible engine problems. The data is collected during monthly surveillance runs. Start times are trended and are used for an early detection of engine problems, especially the starting air system. Early detection of a deteriorating engine condition is also available through evaluation of the lube oil analyses results. Lube oil samples are taken at two locations: the rocker arm area and from the engine sump. Lube oil is tested for water content which indicates an internal engine leak. Metal particle contamination of the lube oil is an indication of excessive parts wear, or bearing problems if tin and/or lead are detected. The tests are performed monthly. Also, cylinder temperatures during monthly engine runs are collected and reviewed by the maintenance engineer. Any deviation from specified temperature is evaluated and action taken to correct the problem (the lower than required cylinder temperature indicates malfunction of the injection nozzle or injection pump). Additionally, NNECO has decided to implement a supplemental inspection in order to better evaluate engine performance. Maintenance personnel on a six-month basis will measure cylinder firing pressure and evaluate the results. This will allow evaluation of the engine timing.

The past performance of the engine has always been satisfactory. With limited numbers of additional hours of diesel operation, no deterioration of the EDG equipment is expected. The total number of hours the engine operates

between refueling outages is approximately 44 hours (for an 18-month fuel cycle with 25% allowance per Specification 4.0.2, maximum 22 months tests, approximately 2 hours each). An increase of the fuel cycle by a maximum of 8 months (nominal 24-month cycle with 25% allowance per Specification 4.0.2) will result in only 8 additional monthly tests, each of approximately 2 hours duration resulting in a total engine run time of approximately 60 hours. This is considered insignificant and no changes in the engine condition should occur.

Based on the above evaluation, it is concluded that the ongoing engine monitoring programs and monthly engine tests provide adequate information about the engine condition. The proposed change has no adverse affect on the diesel engine operation and reliability, and therefore, the proposed extension has a minimal impact on safety.

A review of the corrective and preventive maintenance activities indicates that the proposed extension will not cause deterioration in the system condition or performance.

NNECO has also contacted the engine manufacturer [Colt/ Fairbanks Morse; (FM)] for their recommendation on the proposed surveillance inspection extension. FM provided a recommendation which, in addition to a normal surveillance inspection every 24 months, proposes the following additional activities:

1. At 12 months time, FM would review engine operational data, lube oil analyses, and other reports of maintenance activities (repairs or modifications) and generate an "engine health report."

2. A mini-inspection of the engine (1-2 day inspection) between the 12th and 18th month to determine the condition of components which cannot be evaluated by the above data review.

Both aspects of the proposal were reviewed by NNECO, and NNECO has concluded that item one of the proposal is fulfilled through our internal review of lube oil analyses, starting times, cylinder temperatures, and rack setting data. It is our opinion that the NNECO maintenance organization has considerable experience with the FM diesel generators to be able to interpret and analyze this data. Should a situation arise that this expertise may not be sufficient, we will consult with FM in this specific area. It has always been our position that if additional vendor expertise is needed to resolve a specific problem, this expertise is rapidly

obtained. The vendor has, in NNECO's opinion, always provided excellent support when required.

Additionally, we have decided to implement a supplemental inspection in order to better evaluate engine performance. Currently only rack settings and temperatures are monitored during diesel surveillance runs. Maintenance on a six-month basis will measure cylinder firing pressure and evaluate the results. This will allow an evaluation of the engine timing (retard or advanced) and fuel mixture (too rich or too lean).

Regarding item "2" of the FM proposal, based on our review of test and trending data NNECO concluded that a mid-cycle inspection is not warranted at this point in time. Should our trending data or inspection results indicate a need for such an inspection in the future, we would perform them until our confidence is restored. Our position is that a mid-cycle inspection would place one of the generators in an inoperable status for one to two days. Work performed under LCO time limits (72 hours per technical specification) increases the risk of equipment damage and, in our opinion, the inspection benefits do not offset the risk.

PRA Analysis

There are two possible plant conditions for performing a mid-cycle diesel inspection. One is operating under a 72 hour Limiting Condition for Operation (LCO). The second option is to shut down the plant for the purpose of performing the inspection.

A PRA evaluation of the risk associated with the mid-cycle inspection of the DG showed that the first proposed scenario (i.e., performing inspection under 72 hour LCO condition with one DG out of service), will result in increasing the instantaneous core melt frequency (CMF) by a factor of approximately three. The instantaneous increase in CMF can be tolerated only when there is a pressing operational need with other benefits that justify this risk. The second proposed scenario assumes plant shutdown for the purpose of performing the inspection. The PRA evaluation concluded that the gain in DG reliability does not justify the risk associated with exposing plant equipment to the changes in state.

Based on the above evaluation, the proposed change has a minimal impact on safety.

Surveillance Requirements 4.8.1.1.2.g.2 and 4.8.1.1.2.g.3, DG Load Rejection Test

Surveillance Requirements 4.8.1.1.2.g.2 and 4.8.1.1.2.g.3 verifies that the DG maintains voltage and frequency within the limits when subjected to part load and full load rejection and that it does not trip when the output breaker is opened while carrying full load at least once per 18 months. NNECO proposes to extend the frequency of Surveillance Requirements 4.8.1.1.2.g.2 and 4.8.1.1.2.g.3 from at least once per 18 months to at least once each refueling interval (i.e., nominal 24 months). The equipment covered under the surveillance requirements are the engine governor and the voltage regulator.

Surveillances for part load rejection capability in the scope of Surveillance Requirement 4.8.1.1.2.g.2 are covered by Surveillance Procedures SP 3646B.20.1 and SP 3646B.20.2. Surveillances for full load rejection capability in the scope of Surveillance Requirement 4.8.1.1.2.g.3 are covered by Surveillance Procedures SP 3646B.10-1 and SP 2646B.11-1. Based on the review of the past surveillance test results of the DG load rejection tests over the last four operating cycles, it can be concluded that the overall performance of the DG was very good with only one failure noted due to a deficiency in the test procedure. The subject procedure was corrected and the retest was successful. The review of corrective maintenance and preventive maintenance records for the voltage regulator and engine governor (performance of these two pieces of equipment is critical to diesel generator ability to accept load rejection while maintaining voltage within the acceptance criteria) over the last four operating cycles indicated that there is no indication that the proposed extension could cause deterioration in the system condition or performance. Based on the above evaluation, the proposed change has a minimal impact on safety.

Surveillance Requirement 4.8.1.1.2.g.4, DG Loss of Power Surveillance

Surveillance Requirement 4.8.1.1.2.g.4 verifies deenergization of emergency buses and that the DG starts on an auto signal, energizes emergency buses with permanently connected loads within 11 seconds, and maintains steady state voltage and frequency in response to a simulated LOP signal at least once per 18 months. NNECO proposes to extend the frequency of Surveillance Requirement 4.8.1.1.2.g.4 from at least once per 18 months to at least once each refueling interval (i.e., nominal 24 months). The equipment covered under this surveillance requirement is:

3EGS*EG-A - Diesel Generator 'A'
3EGS*EG-B - Diesel Generator 'B'

Surveillance for LOP in the scope of Surveillance Requirement 4.8.1.1.2.g.4 are covered by Surveillance Procedure SP 3646A.15-1 for Train 'A' DG and SP 3646B.16-1 for Train 'B' DG. There were six LOP surveillances on each of the DGs. The only failure of the DG occurred on Train 'B' in March 1987 when the engine failed to reach its full speed within 10 seconds. The starting time limit was exceeded by only 0.1 second. From the safety perspective, this failure is not significant as the engine could have performed its intended function. (It is noted that the test acceptance criterion was later revised from a maximum of 10 seconds to a maximum of 11 seconds, and the current criterion is 11 seconds in the technical specification and in the safety analysis.) All other surveillances met the acceptance criteria and no problems were noted.

Corrective maintenance records for the DG were reviewed. The review concluded that even though there were a large number of maintenance activities performed on the DG, none of them indicated any deterioration in the engine's ability to perform its functions. One of the major preventive maintenance requirements for the DG which is performed at an 18-months frequency includes an engine overhaul. This activity is described in Surveillance Requirement 4.8.1.1.2.g.1 above.

Based on the above evaluation, the proposed change has a minimal impact on safety.

Surveillance Requirement 4.8.1.1.2.g.5, DG Autostart on an ESF Signal

Surveillance Requirement 4.8.1.1.2.g.5 verifies that the DG starts automatically on an ESF test signal without loss of power and attains the rated voltage and frequency within 11 seconds of the start signal at least once per 18 months. NNECO proposes to extend the frequency of Surveillance Requirement 4.8.1.1.2.g.5 from at least once per 18 months to at least once each refueling interval (i.e., nominal 24 months). This surveillance requirement is covered by Surveillance Procedure SP 3646A.21.1 and SP 3646A.21.2. The equipment covered under this surveillance is DG 'A' and DG 'B.' Based on the review of the past four operating cycle surveillance test results, it can be concluded that the overall performance of the DG has been very good. In addition, monthly surveillance testing (Surveillance Requirement 4.8.1.1.2.a.5) of the DG exercise the same logic relays and control circuits that start the DG for all modes

of operation. Also, there have been no corrective or preventive maintenance required for the components covered under this surveillance.

Based on the above evaluation, the proposed change has a minimal impact on safety.

Surveillance Requirements 4.8.1.1.2.g.6, 4.8.1.1.2.g.7, 4.8.1.1.2.g.8, and 4.8.1.1.2.g.9, DG LOP and ESF Actuation, 24-Hour Load Run, Auto Connected Load and Restoration

Surveillance Requirements 4.8.1.1.2.g.6 through 4.8.1.1.2.g.9 verifies (1) the DG's ability to start and load ESF loads under simulated accident conditions (e.g., LOP in conjunction with an ESF test signal), (2) the DG's hot restart capability after 24 hour run test, (3) verification of the nondestructive trips signal are bypassed to allow the DG to continue running on a LOP concurrent with a SIS signal, and (4) the DG's capability to synchronize with the offsite power source, transfer the bus load, and restore the DG to the standby condition. NNECO proposes to extend the frequency of Surveillance Requirements 4.8.1.1.2.g.6 through 4.8.1.1.2.g.9 from at least once per 18 months to at least once each refueling interval (i.e., nominal 24 months). The surveillance requirements are covered by the procedures SP 3646A.15-1, SP 3646A.16-1, SP 3646A.17-1, and SP 3646A.18-1. Based on the review of the past four operating cycle surveillance test results, it can be concluded that the overall performance of the DG was very good.

In addition, the monthly DG surveillance (i.e., Surveillance Requirement 4.8.1.1.2.a.5) verifies the operability of the DG to start and maintain the correct voltage and frequency. The ESF actuation system under voltage circuits are verified monthly (Surveillance Requirement 4.3.2.1, Table 4.3-2, Functional Unit 8, LOP) which performs a functional check of the relays that monitor the emergency bus voltage.

Based on this evaluation, the proposed change has a minimal impact on safety.

Surveillance Requirement 4.8.1.1.2.g.10, SIS Transfer of DG from Test to Standby

The safety injection signal causes a DG running in the test mode and connected to its AC bus to return to the standby mode and maintain the emergency bus energized from the offsite power supply.

Surveillance Requirement 4.8.1.1.2.g.10 verifies that a simulated SIS returns a running DG in the test mode to standby operation and the emergency loads remain energized with the offsite power source. NNECO proposes to extend the frequency of Surveillance Requirement 4.8.1.1.2.g.10 from at least once per 18 months to at least once each refueling interval (i.e., 24 months). Based on the review of the past four operating cycle surveillance test results, it can be concluded that the overall performance of the DG was very good. The components used in the DG control circuits are highly reliable having a long mean time to failure. Monthly testing of the DG operate the same logic relays and control circuit that switch the DG to the standby mode. There have been no corrective or preventive maintenance required on the SIS to the DG's control circuits.

Based on this evaluation, the proposed change has a minimal impact on safety.

Surveillance Requirement 4.8.1.1.2.g.11, DG Fuel Oil System Transfer Capabilities

The fuel oil transfer system provides fuel oil to the DG for operation under all plant operating conditions and during all design basis accidents. There is a separate fuel oil storage and transfer flow path for each DG. Each flow path consists of a fuel oil storage tank, two 100% capacity fuel oil transfer pumps and strainers, a day tank, and piping to each respective DG. Only one primary pump is required to transfer fuel oil from a storage tank to the day tank. A backup pump is available if the primary pump should fail. An interconnection with two normally locked-closed valves between the two DG fuel oil supply headers is provided to facilitate the use of either tank to supply either DG. One pump on each tank is arranged to allow transfer from the 'A' electrical bus to the 'B' electrical bus, or vice versa, by means of a manually operated transfer switch.

Surveillance Requirement 4.8.1.1.2.g.11 verifies that the fuel transfer pump can transfer fuel from each fuel storage tank to the day tank of each DG via the installed cross-section lines. This ensures that either tank is able to supply either DG. NNECO proposes to extend the frequency of Surveillance Requirement 4.8.1.1.2.g.11 from at least once per 18 months to at least once each refueling (i.e., nominal 24 months). The components covered by Surveillance Requirement 4.8.1.1.2.g.11 are listed in Table 1.

Surveillances for the DG fuel transfer system covered by Surveillance Requirement 4.8.1.1.2.g.11 are performed per Surveillance Procedures SP 3646.6-1 for Train 'A' and

SP 3646B.6-2 for Train "B." There have been five surveillances performed on Train 'A' and five on Train 'B.' All surveillances met the acceptance criteria and no problems were noted.

A review of the corrective maintenance records indicates that there were some design deficiencies in circuit breakers manufactured by Telemecanique, and some problems with accelerated aging of Model J10 relays also manufactured by Telemecanique. The deficient equipment was replaced. It is noted that these maintenance tasks could be performed with the plant on line.

Review of preventive maintenance indicated only two tasks scheduled on an 18-month basis. These include a periodic calibration of the discharge flow instrument for the fuel oil transfer pump. This is covered under Surveillance Requirement 4.8.1.1.2.g.1. The other one, the fuel oil strainer pressure differential alarm calibration, could be performed with the plant on line.

Based on this evaluation, the proposed change has minimal impact on safety.

Surveillance Requirement 4.8.1.1.2.g.12, Diesel Generator Sequencer Actuation Timer Test

The diesel sequence timers are used to add loads to the DG bus in discrete steps and proper order to avoid overloading the engine. The LOP and load sequence method is described in the Millstone Unit No. 3 FSAR, Section 8.3. The diesel sequencer actuation timer tests are performed to ensure that the timer intervals have not changed from the desired value and have an accuracy within 10 percent of the design setting.

Surveillance Requirement 4.8.1.1.2.g.12 verifies that the automatic load sequence timer is operable with the interval between each load block within ± 10 percent of its design interval. NNECO proposes to extend the frequency of Surveillance Requirement 4.8.1.1.2.g.12 from at least once per 18 months to at least once each refueling interval (i.e., nominal 24 months). The equipment covered under this surveillance is the DG sequencer panel 'A' and the DG sequencer panel 'B.'

Review of the past surveillance results indicate that the timing intervals to be consistent and within the minimum resolution of 0.1 second. Review of maintenance history has indicated that there is no indication that the proposed extension could cause deterioration in the load sequencer condition or performance.

Based on the above evaluation, there is a reasonable assurance that the frequency of Surveillance Requirement 4.8.1.1.2.g.12 can be extended from at least once per 18 months to at least once each refueling interval (i.e., nominal 24 months).

Surveillance Requirement 4.8.1.1.2.g.13, Diesel Generator Lockout Test

The lockout protection prevents the diesel engine from starting or trips a running diesel engine for the following conditions:

1. Engine Overspeed
2. Lube Oil Pressure Low (2 of 3 pressure switches)
3. Generator Differential Protection
4. Emergency Stop (2 switches)

Surveillance Requirement 4.8.1.1.2.g.13 verifies the operability of the DG by verifying that the DG lockout features will prevent the DG from starting. NNECO proposes to extend the frequency of Surveillance Requirement 4.8.1.1.2.g.13 from at least once per 18 months to at least once each refueling interval (i.e., 24 months). The components covered by this Surveillance Requirement are the DGs.

A review of the past surveillance results indicate that the DG performance has been very good. Since 1986, only one corrective maintenance action was performed while performing this surveillance. Fuses were blown in the control circuit during testing. The surveillance procedure was revised to have the fuses removed during testing to prevent the overload that may cause the fuses to blow.

Based on the above evaluation, the proposed change has a minimal impact on safety.

Significant Hazards Consideration

NNECO has reviewed the proposed changes in accordance with 10CFR50.92 and concluded that the changes do not involve an SHC. The basis for this conclusion is that the three criteria of 10CFR50.92(c) are satisfied. The proposed changes do not involve an SHC because changes would not:

1. Involve a significant increase in the probability or consequences of an accident previously evaluated.

   The proposed changes will increase the interval between the surveillances that are performed during plant shutdown from

once per 18 months to a maximum of once per 24 months (24 months ± 25 percent as allowed by Specification 4.0.2.). The proposed changes to Surveillance Requirements 4.8.1.1.2.g.1 through 4.8.1.1.2.g.13 do not alter the intent or the method by which the surveillances are conducted. In addition, the acceptance criterion for the surveillances is unchanged. As such, the proposed changes will not degrade the ability of the DG to perform its intended function.

A review of the past surveillances, inspections, and maintenance of the DG indicates that the appropriate acceptance criterion was met in each case. Therefore, the proposed change to the testing frequency will not change the response of a DG to a LOP as described in the Millstone Unit No. 3 Final Safety Analysis Report (FSAR). Since the plant response to an accident will not change, there is no change in the potential for an increase in the consequences of an accident previously analyzed. Additional assurance of the DG operability is provided by Surveillance Requirements 4.8.1.1.2.a.5 and 4.8.1.1.2.a.6, and 4.8.1.1.2.b (i.e., monthly and six month testing of the diesel generators). In addition, since a failure of DG cannot cause any of the accidents evaluated in the Millstone Unit No. 3 FSAR, the proposed changes do not adversely affect the probability of an accident previously analyzed.

2. Create the possibility of a new or a different kind of accident from any accident previously evaluated.

   The proposed changes regarding the testing frequency of the DG [i.e., from once per 18 months to a maximum of once per 24 months (24 months + 25 percent as allowed by Specification 4.0.2)] does not affect the operation or response of any plant equipment, including the DG, or introduce any new failure mechanism. The proposed changes do not affect the test acceptance criteria of the DGs. The DG will be verified to be operable and their response to a loss of voltage as well as loading or rejection part or full load will be unchanged. The plant equipment will respond per design and analyses, and there will not be a malfunction of a new or any type introduced by the testing frequency revision to the DG surveillance requirements. As such, the changes do not create the possibility of a new or different kind of accident from any previously analyzed.

3. Involve a significant reduction in a margin of safety.

   The base of the Technical Specification 3/4.8, Electrical Power Systems, state that the operability of the AC and DC power systems and associated distribution systems ensure that sufficient power will be available to supply the safety-

related equipment required for safe shutdown and mitigation and control of accident conditions. The bases also states that the surveillance requirements for determining the operability of the DGs are in accordance with the recommendations of Regulatory Guide 1.108, Revision 1. The revision of surveillance requirements establishes tests that will continue to verify that the DGs are operable. Operable DGs ensure that the assumptions in the bases of the technical specifications are not affected and ensures that the margin of safety is not reduced. Therefore, the assumptions in the Bases of Technical Specifications are not affected and these changes do not result in a significant reduction in the margin of safety.

II. Safety Assessment and Significant Hazards Consideration for Changes to DC Sources Operating, Containment Penetration Conductor Overcurrent Protective Devices and Motor-Operated Valves Thermal Overload Protection

Background

On June 7, 1995, Millstone Unit No. 3 began operating on a nominal 24-month cycle instead of the previous 18-month cycle. To take advantage of this longer fuel cycle, NNECO will be proposing to modify the frequency of a number of the Surveillance Requirements existing in the Millstone Unit No. 3 Technical Specifications.

This request modifies Surveillance Requirement 4.8.2.1.e by the removal of the phrase "during shutdown" and also modifies the frequency of Surveillance Requirements 4.8.2.1.c, d, f, and 4.8.4.1.a.1, 4.8.4.1.a.2, 4.8.4.2.1, and 4.8.4.2.2 of the Millstone Unit No. 3 Technical Specifications. These surveillance requirements deal with verification of the operability of the Class 1E DC power system, the verification of the containment penetration conductor overcurrent protection devices, the verification of the thermal overload protection for safety-related motor-operated valves that are, and are not, bypassed under accident conditions.

In the near future, NNECO will be proposing additional changes to the Millstone Unit No. 3 Technical Specifications to prepare for the conversion to a nominal 24-month fuel cycle. Each of these submittals will contain evaluations that are independent and which stand-alone.

A. DC Power System, Surveillance Requirements 4.8.2.1.c, 4.8.2.1.d, 4.8.2.1.e, and 4.8.2.1.f

Safety Assessment

The Class 1E DC power system consists of four redundant and independent DC systems, each consisting of a battery with its own charger and distribution system. One standby charger backs up each pair of operating chargers. The Class 1E DC redundant load groups have no automatic connection to any other load group and no provisions for automatically transferring loads between these redundant load groups. The Class 1E DC power system has sufficient independence, redundancy, and testability to perform its intended safety function assuming a single failure.

The Class 1E DC power system is operated at a normal float charge voltage level to maintain the batteries in a fully charged condition. The battery chargers, associated with each battery, are rated to supply the largest combined demands of the various

steady state loads and the charging capacity to restore the battery from the design minimum charge state to the fully charged state irrespective of the status of the plant when these demands occur. Each battery is sized to carry safety loads for at least two hours following loss of all AC power. Each battery voltage level is continuously monitored and displayed in the control room. Low voltage is alarmed in the control room.

Surveillance Requirements 4.8.2.1.a through f of the Millstone Unit No. 3 Technical Specifications contain provisions to demonstrate the operability of the Class 1E DC power system. They are:

- Surveillance Requirement 4.8.2.1.a requires the verification, at least once per seven days, that each battery has parameters within those specified by Table 4.8-2a of the Millstone Unit No. 3 Technical Specifications and that the total battery terminal voltage is greater than or equal to 129 volts on float charge.

- Surveillance Requirement 4.8.2.1.b requires the verification, at least once per 92 days and within seven days after a battery discharge with a battery terminal voltage below 110 volts, or battery overcharge with battery terminal voltage above 150 volts, that 1) the parameters in Table 4.8-2a of the Millstone Unit No. 3 Technical Specifications meet the Category B limits, 2) there is no visible corrosion at either terminals or connectors, or the connection resistance of these items is less than 150 x 10^{-6} ohms, and 3) the average electrolyte temperature of six connected cells is above 60°F.

- Surveillance Requirement 4.8.2.1.c requires the verification, at least once per 18 months, that 1) the cells, cell plates, and battery racks show no visual indication of physical damage or abnormal deterioration, 2) the cell-to-cell and terminal connections are clean, tight, and coated with anticorrosion material, 3) the resistance of each cell-to-cell and terminal connection is less than or equal to 150 X 10^{-6}ohm, and 4) each battery charger will supply at least the amperage indicated in Table 4.8-2b of the Millstone Unit No. 3 Technical Specifications for at least 24 hours.

- Surveillance Requirement 4.8.2.1.d requires the verification, at least once per 18 months, that the battery charger is adequate to supply and maintain in operable status all of the actual or simulated emergency loads for the design duty cycle when the battery is subjected to a battery service test.

- Surveillance Requirement 4.8.2.1.e requires the verification, at least once per 60 months during shutdown, that the battery capacity is at least 80 percent of the manufacturer's rating when subjected to a performance discharge test.

- Surveillance Requirement 4.8.2.1.f requires the performance, at least once per 18 months, of discharge tests of battery capacity for any battery that shows signs of degradation or has reached 85 percent of the service life expected for the application.

NNECO is proposing to change the frequency of Surveillance Requirements c, d, and f to a frequency of at least once each refueling outage. The components covered by these surveillance requirements are listed in Attachment 1. In addition, the phrase "during shutdown" in Surveillance Requirements 4.8.2.1.d, 4.8.2.1.e, and 4.8.2.1.f is being deleted. Because the terms "Hot Shutdown" and "Cold Shutdown" are defined in the Millstone Unit No. 3 Technical Specifications as operating modes or conditions, the added restrictions to perform certain surveillances may be misinterpreted. The proposed deletion of the term "during shutdown" is consistent with the recommendations of GL 91-04.

In GL 91-04, the NRC has concluded that the technical specifications need not restrict surveillances as only being performed during shutdown. However, the NRC indicated that if the performance of a refueling interval surveillance during plant operation would adversely affect safety, the licensee should postpone the surveillance until the plant is shut down for refueling or in a condition or mode consistent with safe conduct of that surveillance. NNECO agrees with the NRC in its conclusion. NNECO believes that the deletion of the words "during shutdown" has no safety impact as long as the surveillances are conducted in any mode or condition without impacting the plant safety. Based on this, the term "during shutdown" may be removed from Surveillance Requirement 4.8.2.1.d, 4.8.2.1.e, and 4.8.2.1.f.

The proposed changes to Surveillance Requirements 4.8.2.1.d, 4.8.2.1.e, and 4.8.2.1.f do not alter the intent or method by which the surveillances are conducted, do not involve any physical changes to the plant, do not alter the way any structure, system, or component functions, and do not modify the manner in which the plant is operated. As such, the proposed changes to Surveillance Requirements 4.8.2.1.d, 4.8.2.1.e, and 4.8.2.1.f will not degrade the ability of the Class 1E DC power system to perform its safety function.

Equipment performance over the last four operating cycles was evaluated to determine the impact of extending the frequency of Surveillance Requirements 4.8.2.1.c, d, and f. This evaluation included a review of surveillance results, preventive maintenance records, and the frequency and type of corrective maintenance.

For the surveillances that have been performed during the last four operating cycles to comply with Surveillance Requirements 4.8.2.1.c and d, the equipment for the Class 1E DC power system

have met the acceptance criteria of the surveillances. In one case, a bolt on a battery was corroded. This degradation would have been discovered during a quarterly surveillance.

There have been no surveillances performed to comply with Surveillance Requirement 4.8.2.1.f, since the batteries were only placed in the degraded condition after the fourth refueling outage. This surveillance was performed during the fifth refueling outage to comply with Surveillance Requirement 4.8.2.1.f and the batteries met the acceptance criteria.

The only preventive maintenance that is performed on an 18-month frequency for the Class 1E DC power system is the application of an equalizing charge. Equalizing charges may be performed on a quarterly basis if required by the quarterly surveillance. Since the need for equalizing charges is established each quarter, the 18-month preventive maintenance may be extended to at least once each refueling outage (nominal 24 months).

Corrective maintenance performed on the batteries during the last four cycles has included installing bubblers, replacing intercell connectors, investigating alarms, and other minor actions. Corrective maintenance performed on the battery chargers during the last four cycles has included installing new control boards, replacing relays, investigating alarms, and other minor actions. In each case, repairs were made with no adverse impact on plant operation.

The surveillance results, preventive maintenance activities, and corrective maintenance activities demonstrate that the Class 1E DC power system is a very reliable system. Based on this, the frequencies for Surveillance Requirements 4.8.2.1.c, d, and f can be extended without adversely affecting public health and safety. A PRA review of the proposed change concluded that there is negligible impact on public health and safety.

Significant Hazards Consideration

NNECO has reviewed the proposed changes in accordance with 10CFR50.92 and concluded that the changes do not involve a SHC. The basis for this conclusion is that the three criteria of 10CFR50.92(c) are not compromised. The proposed changes do not involve a SHC because the changes would not:

1. Involve a significant increase in the probability or consequences of an accident previously evaluated.

   NNECO is proposing to modify the frequency of Surveillance Requirements 4.8.2.1.c, d, and f of the Millstone Unit No. 3 Technical Specifications from at least once per 18 months to at least once each refueling interval. NNECO is also proposing to delete the term "during shutdown" contained in Surveillance Requirements 4.8.2.1.d, 4.8.2.1.e, and

4.8.2.1.f. These surveillance requirements verify the operability of components of the Class 1E DC power system.

Additional assurance of the operability of the Class 1E DC power system is provided by Surveillance Requirements 4.8.2.1.a, b, and e. Also, battery voltage level for each battery is continuously monitored and displayed in the control room, and low voltage and low charging current alarms are provided in the control room.

The proposed changes do not alter the intent or method by which the surveillances are conducted, do not involve any physical changes to the plant, do not alter the way any structure, system, or component functions, and do not modify the manner in which the plant is operated. As such, the proposed changes in the frequency of Surveillance Requirements 4.8.2.1.c, d, and f will not degrade the ability of the Class 1E DC power system to perform its intended safety function. Also, the Class 1E DC power system is designed to perform its intended safety function even in the event of a single failure.

Equipment performance over the last four operating cycles was evaluated to determine the impact of extending the frequency of Surveillance Requirements 4.8.2.1.c, d and f. This evaluation included a review of surveillance results, preventive maintenance records, and the frequency and type of corrective maintenance. It concluded that the Class 1E DC power system is highly reliable, and that there is no indication that the proposed extension could cause deterioration in the condition or performance of any of the subject Class 1E DC power system components.

The deletion of the phrase "during shutdown" in Surveillance Requirement 4.8.2.1.e is acceptable. The phrase COLD Shutdown and Hot Shutdown are defined in the Millstone Unit No. 3 Technical Specifications as operating modes or conditions and may be misinterpreted with the term during shutdown contained in the Surveillance Requirement.

Based on the above, the proposed changes to Surveillance Requirements 4.8.2.1.c, d, e, and f of the Millstone Unit No. 3 Technical Specifications does not involve a significant increase in the probability or consequences of an accident previously analyzed.

2. Create the possibility of a new or different kind of accident from any accident previously evaluated.

NNECO is proposing to modify the frequency of Surveillance Requirements 4.8.2.1.c, d, and f of the Millstone Unit No. 3 Technical Specifications from at least once per 18 months to at least once each refueling interval. NNECO is also

proposing to delete the term "during shutdown" contained in Surveillance Requirements 4.8.2.1.d, 4.8.2.1.e, and 4.8.2.1.f. These surveillance requirements verify the operability of components of the Class 1E DC power system.

The proposed changes do not alter the intent or method by which the surveillances are conducted, do not involve any physical changes to the plant, do not alter the way any structure, system, or component functions, and do not modify the manner in which the plant is operated. As such, the proposed changes to Surveillance Requirements 4.8.2.1.c, d, e, and f will not introduce a new failure mode.

Based on the above, the proposed changes to Surveillance Requirements 4.8.2.1.c, d, e, and f of the Millstone Unit No. 3 Technical Specifications will not create the possibility of a new or different kind of accident from any previously evaluated.

3. Involve a significant reduction in a margin of safety.

NNECO is proposing to modify the frequency of Surveillance Requirements 4.8.2.1.c, d, and f of the Millstone Unit No. 3 Technical Specifications from at least once per 18 months to at least once each refueling interval. NNECO is also proposing to delete the term "during shutdown" contained in Surveillance Requirements 4.8.2.1.d, 4.8.2.1.e, and 4.8.2.1.f. These surveillance requirements verify the operability of components of the Class 1E DC power system.

Equipment performance over the last four operating cycles was evaluated to determine the impact of extending the frequency of Surveillance Requirements 4.8.2.1.c, d and f. This evaluation included a review of surveillance results, preventive maintenance records, and the frequency and type of corrective maintenance. It concluded that the Class 1E DC power system is highly reliable, and that there is no indication that the proposed extension could cause deterioration in the condition or performance of any of the subject Class 1E DC power system components.

Additional assurance of the operability of the Class 1E DC power system is provided by Surveillance Requirements 4.8.2.1.a, b, and e. Also, battery voltage level for each battery is continuously monitored and displayed in the control room, and low voltage and low charging current alarms are provided in the control room.

Since decreasing the surveillance frequency does not involve a significant increase in the consequences of a design basis accident previously analyzed, the proposed changes to Surveillance Requirements 4.8.2.1.c, d, e, and f of the

Millstone Unit No. 3 Technical Specifications do not involve a significant reduction in the margin of safety.

B. **Containment Penetration Conductor Overcurrent Protection Devices, Surveillance Requirement 4.8.4.1.a**

Safety Assessment

NNECO has met the requirements of General Design Criterion (GDC) 50, "Containment Design Bases," with respect to electrical penetrations containing circuits of the safety-related and nonsafety-related onsite power systems through the installation of coordinated fault current interrupting devices. GDC 50 requires, in part, that the reactor containment structures, including penetrations, be designed so that the containment structure and its internal compartments can accommodate the calculated pressure and temperature conditions resulting from any loss-of-coolant accident without exceeding the design leakage rate and with sufficient margin.

NNECO has addressed this requirement based on the fact that all circuits that pass through containment electrical penetrations have primary and backup protection. This is consistent with the guidance of Regulatory Guide 1.63, and in compliance with GDC 50.

Millstone Unit No. 3 has four medium voltage (4-15 kV) circuit breakers that supply power into the containment for the reactor coolant pump motors and has 305 low voltage containment penetrations that require testing.

Surveillance Requirements 4.8.4.1.a.1, 4.8.4.1.a.2, and 4.8.4.1.b of the Millstone Unit No. 3 Technical Specifications contain provisions to demonstrate the operability of the containment penetration conductor overcurrent protection devices.

- Surveillance Requirement 4.8.4.1.a.1 requires that at least once per 18 months that the medium voltage circuit breakers are verified to be operable, by selecting, on a rotating basis, at least a 10 percent sample and performing a channel calibration on the associated protective relays; an integrated system functional test; and for each circuit found inoperable during the functional tests, additional circuits of that type shall be tested.

- Surveillance Requirement 4.8.4.1.a.2 requires that a representative sample of the lower voltage circuit breakers have a functional test performed on them. In addition, testing shall include air circuit breakers and molded case circuit breakers.

  Testing of air circuit breakers shall consist of injecting a current with a value equal to 300 percent of the pickup of the long-time delay trip element and 150 percent of the

pickup of the short-time delay trip element, and verifying that the circuit breaker operates within the time delay band width for that current specified by the manufacturer. The instantaneous element shall be tested by injecting a current equal to ± 20 percent of the pickup value of the element and verifying that the circuit breaker trips instantaneously with no intentional time delay.

Molded case circuit breakers and unitized starters (a frame size of 250 amps or less) shall be tested for long time delay at 300 percent as described above and, in addition, tested for the instantaneous trip by injecting a current value which falls within +40 percent (of the upper limit) and -25 percent (of the lower limit) of the manufacturers' instantaneous trip current range and verifying the breaker trips instantaneously with no intentional time delay. For those molded case circuit breakers/unitized starters used in 480V circuits, if single-pole instantaneous test results fall outside these tolerances, additional instantaneous testing shall be conducted using two poles in series, including A-B, B-C, and C-A phase combinations. All combination test results shall fall within the specified tolerances.

For each circuit breaker found inoperable during these functional tests, an additional representative sample of at least 10 percent of all the circuit breakers of the inoperable type shall also be functionally tested until no more failures are found or all circuit breakers of that type have been functionally tested.

Surveillance Requirement 4.8.4.1.b requires that at least once per 60 months each circuit breaker shall be subjected to an inspection and preventive maintenance in accordance with the manufacturers' recommendations.

NNECO is proposing to change the frequency of Surveillance Requirements 4.8.4.1.a.1 and 4.8.4.1.a.2 from its current interval of once per 18 months to once each refueling interval. The components covered by Surveillance Requirement 4.8.4.1.a.1 and identified in Table 2, and the components covered by Surveillance Requirement 4.8.4.1.a.2 are listed in the Millstone Unit No. 3 Technical Requirements Manual.

The proposed changes to Surveillance Requirement 4.8.2.1.a do not alter the intent or method by which the surveillances are conducted, do not involve any physical changes to the plant, do not alter the way any structure, system, or component functions, and do not modify the manner in which the plant is operated. As such, the proposed changes to Surveillance Requirement 4.8.4.1.a will not degrade the ability of the containment penetration conductor overcurrent protection devices to perform their safety function.

Medium voltage containment penetration conductor overcurrent protection is achieved by eight IAC overcurrent relays on each of the four reactor coolant pump circuit breaker cubicles. These relays measure the A, B, and C phase currents of the running reactor coolant pumps (RCP)motors. A trip of the individual RCP breakers occurs if the primary protection operates. If the backup protective relay operates, the entire 6.9 kV bus is tripped to prevent an overload condition from causing damage to the penetration assembly.

A manual switch on the front of the panel of each RCP breaker selects the hot or cold protection scheme that is active and is changed according to operating procedures when the RCP running current is over or under 500 Amperes.

The medium voltage (8,000 volts) penetration assemblies are durable devices that meet the specification requirements for the fault currents and starting inrush current.

The IAC overcurrent relays used for this protection feature are reliable and stable devices. Previous surveillance data for the "as-found" setpoints that were recorded were compared to the protection curve given in the specification to determine if penetration protection was achieved. A system functional test was also successfully conducted at each surveillance test.

In 1991, the surveillance test calibration and relay data sheets were revised to require recording of the "as-found" setpoint. The relay data sheets required the "as-left" value to be within 5 percent of the trip value, while the acceptance criteria is ± 10 percent of the desired trip valve. This procedure of maintaining a closer tolerance on the "as-left" setting assures that the trip value will be within the acceptance criteria on a future surveillance.

This fact coupled with the known stability of the IAC overcurrent relays provides confidence that an increase in the test interval to a maximum of 30 months will not affect the performance of the containment penetration protection.

Two corrective maintenance adjustments were made to the hot trip settings in 1992. A review of service records revealed no adverse conditions that would prevent the protective relays from operating as designed.

The lower voltage circuit breaker histories were also reviewed, focusing on the results of operational surveillances, review of preventive maintenance needs, review of corrective maintenance and frequency, Nuclear Plant Reliability Data System reviews, and vendor consultation as required to justify the extension of the surveillance from 18 months ± 25 percent to 24 months (± 25 percent).

The Technical Specification Surveillance Requirement 4.8.4.1.a.2 requires that at least 10 percent of each type of breaker be tested. During the last four cycles, Millstone Unit No. 3 has tested significantly more than the required 10 percent. During the first refueling 265 out of the 285 low voltage containment penetration breakers were tested with no documented failures.

During the second refueling outage 102 out of 309 low voltage containment penetration breakers were tested with four failures. Two of the failures were with breaker type THJK4. In both instances, the as-found setpoint breaker failed to trip within the required current range (844-2012 Amps). The other two failures occurred on the HE43 breakers. One of the failures involved the as-found setpoint breaker failed to trip within the required number of cycles (≤ 7 cycles). In the second instance, Millstone Unit No. 3 did not test the "C" phase in an as-found condition.

In the third refueling outage, 116 out of 303 low voltage containment penetrations were tested with only one recordable failure. This failure was noted on the THJK4 breaker type and involved the failure of the breaker to trip on a long time delay (35-110 seconds).

In the fourth refueling 214 out of 305 low voltage containment penetration breakers were tested with only three recordable failures. One of the failures involved breaker type THJ4K and was caused by the early tripping of a breaker during a long time delay test of the "C" phase of thermal overload. The other two failures involved breaker type AMPCAP which, in one instance, the "A" phase thermal overload did not trip within the required time, and in the other instance, the "A" phase thermal overload tripped prior to the required time interval.

When a breaker failed during the performance of the surveillance, it was replaced and the new breaker was tested. For each breaker that failed the required extra 10 percent of that breaker type was tested. It was determined that from a review of previous failures that these failures do not have a common root cause.

Meeting the requirements of Surveillance Requirement 4.8.4.1.a.2 ensures that the containment penetration low voltage circuit breaker are operable and provides data to trend the operation of each breaker type.

Surveillance Requirement 4.8.4.1.b requires that each circuit breaker be subject to inspection and preventive maintenance at least once per 60 months. A review of the preventive maintenance records revealed that preventive maintenance activities currently are performed on a 36-month basis and a few are performed on an 18-month basis. These intervals will be revised for the nominal 24-month fuel cycle to 24 months and 48 months basis for preventive maintenance but are still more frequent than the

required 60-month preventive maintenance interval specified in Surveillance Requirement 4.8.4.1.b.

Corrective maintenance work performed on the containment penetration low voltage circuit breakers during the last four cycles involved resetting tripped breakers, replacing broken breakers and handles, testing new breakers, and replacing charging motors, as well as other minor corrective maintenance actions. In all cases, the repairs were able to be made with no adverse impact to plant operation.

Extension of the 18-month containment penetration low voltage circuit breaker surveillance can be justified by considering the surveillance history, the preventive maintenance, and the fact that many of these surveillances and preventive maintenance activities may be conducted on-line.

The above reviews have shown no significant equipment failures for the past four operating cycles (since commercial operation June 1986 to March 1994). Since the proposed change does not affect the operation or design of the containment penetration low voltage circuit breakers, a decrease in the frequency of testing (consistent with 24-month operating cycles) is considered to have a minimal impact on safety.

On the basis of the above evaluation, there is reasonable assurance that the frequency of testing for Surveillance Requirement 4.8.4.1.a.2 can be extended from at least once per 18 months to at least once each refueling interval.

Based on a review of the function of the containment protection overcurrent devices and their operating history, the PRA review concluded that the impact of the proposed changes on the public safety is negligible.

Significant Hazards Consideration

NNECO has reviewed the proposed changes in accordance with 10CFR50.92 and concluded that the changes do not involve an SHC. The basis for this conclusion is that the three criteria of 10CFR50.92(c) are not compromised. The proposed changes do not involve an SHC because the changes would not:

1. Involve a significant increase in the probability or consequences of an accident previously evaluated.

   NNECO is proposing to modify the frequency of Surveillance Requirements 4.8.4.1.a.1 and 4.8.4.1.a.2 of the Millstone Unit No. 3 Technical Specifications from at least once per 18 months to at least once each refueling interval. These surveillance requirements verify the operability of the containment penetration conductor overcurrent protective devices.

The proposed changes do not alter the intent or method by which the surveillances are conducted, do not involve any physical changes to the plant, do not alter the way any structure, system, or component functions, and do not modify the manner in which the plant is operated. As such, the proposed changes in the frequency of Surveillance Requirements 4.8.4.1.a.1 and 4.8.4.1.a.2 will not degrade the ability of the containment penetration conductor overcurrent protection devices to perform their intended safety function. Also, the containment penetration conductor overcurrent protection devices are designed to perform their intended safety function even in the event of a single failure through the use of two-fault current interrupting devices in series.

Equipment performance over the last four operating cycles was evaluated to determine the impact of extending the frequency of Surveillance Requirements 4.8.4.1.a.1 and 4.8.4.1.a.2. This evaluation included a review of surveillance results, preventive maintenance records, and the frequency and type of corrective maintenance. It concludes that the containment penetration conductor overcurrent protection devices system is reliable, and that there is no indication that the proposed extension could cause deterioration in the condition or performance of any of the subject containment penetration conductor overcurrent protection devices.

Based on the above, the proposed changes to Surveillance Requirements 4.8.4.1.a.1 and 4.8.4.1.a.2 of the Millstone Unit No. 3 Technical Specifications does not involve a significant increase in the probability or consequences of an accident previously analyzed.

2. Create the possibility of a new or different kind of accident from any accident previously evaluated.

NNECO is proposing to modify the frequency of Surveillance Requirements 4.8.4.1.a.1 and 4.8.4.1.a.2 of the Millstone Unit No. 3 Technical Specifications from at least once per 18 months to at least once each refueling interval. These surveillance requirements verify the operability of components of the containment penetration conductor overcurrent protection devices.

The proposed changes do not alter the intent or method by which the surveillances are conducted, do not involve any physical changes to the plant, do not alter the way any structure, system, or component functions, and do not modify the manner in which the plant is operated. As such, the proposed changes in the frequency of Surveillance Requirements 4.8.4.1.a.1 and 4.8.4.1.a.2 will not introduce a new failure mode. Also, the containment penetration conductor overcurrent protection devices are designed to perform their intended safety function even in the event of a

single failure through the use of two fault current limiting devices in series.

Based on the above, the proposed changes to Surveillance Requirements 4.8.4.1.a.1 and 4.8.4.1.a.2 of the Millstone Unit No. 3 Technical Specifications will not create the possibility of a new or different kind of accident from any previously evaluated.

3. Involve a significant reduction in a margin of safety.

NNECO is proposing to modify the frequency of Surveillance Requirements 4.8.4.1.a.1 and 4.8.4.1.a.2 of the Millstone Unit No. 3 Technical Specifications from at least once per 18 months to at least once each refueling interval. These surveillance requirements verify the operability of containment penetration conductor overcurrent protection devices.

Equipment performance over the last four operating cycles was evaluated to determine the impact of extending the frequency of Surveillance Requirement 4.8.4.1.a.1 and 4.8.4.1.a.2. This evaluation included a review of surveillance results, preventive maintenance records, and the frequency and type of corrective maintenance. It is concluded that the containment penetration conductor overcurrent protection devices are reliable, and that there is no indication that the proposed extension could cause deterioration in the condition or performance of any of the containment penetration conductor overcurrent protection devices.

Since decreasing the surveillance frequency does not involve a significant increase in the consequences of a design basis accident previously analyzed, the proposed changes to Surveillance Requirements 4.8.4.1.a.1 and 4.8.4.1.a.2 of the Millstone Unit No. 3 Technical Specifications do not involve a significant reduction in the margin of safety.

C. <u>Motor-Operated Valves Thermal Overload Protection (Bypassed/ Not Bypassed)</u>

<u>Safety Assessment</u>

The motor-operated valve protection consists of a thermal overload device and a magnetic device. Regulatory Guide 1.106, "Thermal Overload Protection for Electric Motors on Motor-Operated Valves," requires that, in order to ensure completion of the valve safety function, thermal overloads on safety-related valves must be either bypassed under accident conditions, or the trip setpoint of the thermal overloads should be established with all uncertainties resolved in favor of completing the safety-related function. In that latter case, the thermal overloads

should be periodically tested to interrupt electrical faults that might cause the failure of a containment penetration seal.

The proposed change to the Millstone Unit No. 3 Technical Specifications 4.8.4.2.1 and 4.8.4.2.2 will increase the interval between surveillance from 18 months (± 25 percent) to 24 months (± 25 percent). The plant technical specification requirement that will be changed by this application is:

- Surveillance Requirement 4.8.4.2.1 requires that the thermal overload protection for those protection devices bypassed under accident conditions shall be verified to be bypassed by the appropriate accident signal(s) by performance of a trip actuation device operational test of the bypass circuitry during cold shutdown or refueling at least once per 18 months.

- Surveillance Requirement 4.8.4.2.2 requires that the thermal overload protection for those protection devices not bypassed under accident conditions shall be demonstrated operable at least once per 18 months and following maintenance on the motor starter by the performance of a channel calibration of a representative sample of at least 25 percent of the above devices.

The components covered by these surveillance requirements are listed in the Millstone Unit No. 3 Technical Requirements Manual.

The proposed changes to Surveillance Requirements 4.8.2.1.d, 4.8.2.1.e, and 4.8.2.1.f do not alter the intent or method by which the surveillances are conducted, do not involve any physical changes to the plant, do not alter the way any structure, system, or component functions, and do not modify the manner in which the plant is operated. As such, the proposed changes to Surveillance Requirement 4.8.2.1.d, 4.8.2.1.e, and 4.8.2.1.f will not degrade the ability of the Class 1E DC power system to perform its safety function.

The motor-operated valves thermal overload protection (bypassed and not bypassed) devices performance over the last four operating cycles were considered in evaluating the extension of the operating cycle from its current 18 months (± 25 percent) to its proposed value of 24 months (± 25 percent). The following factors relating to equipment performance over the last four operating cycles were considered in evaluating the extension of the operating cycle to 24 months (± 25 percent). To support this proposed request, the following parameters were evaluated including: operating surveillance results; protective maintenance records; and corrective maintenance frequency and type.

Surveillance Requirement 4.8.4.2.1 is accomplished through the use of procedures. During the testing, the procedures require

the thermal overloads to be physically removed and the acceptance criteria is proper operation of the valves during simulation of the accident signal(s).

Since plant startup, there have been six periods when the valves had been tested. During these six test periods, there have been 306 tests with only three test failures. Two (2 out of 54) of these test failures occurred during the first refueling outage.

The failure of 3SWP*MOV130AW during the first refueling outage was investigated, and it was concluded that the inability of the valve to open during the LOP/ESF testing appears to have been caused by external interlock not related to the bypass circuitry. A retest of 3SWP*MOV50B was done based on its failure, and it required the addition of test jumpers to simulate a CDA signal.

The last failure occurred during the fourth refueling outage (58 tested) when valve 3RSS*MOV23A failed to stroke from close to open in response to CDA signal. The failure was due to a blown fuse on the secondary side of the control power transformer, because of a short in the wire on the close limit switch to ground. The wiring was repaired, and the valve was retested and performed satisfactorily.

Motor-operated valves that are skipped on the normal surveillance are tested on a retest form. During the research and review for the nominal 24 month fuel cycle, the following valves were missing documentation of a retest surveillance form. Valves 3CHS*LCV112E and 3SWP*MOV54A (during the first refueling outage) and Valve 3CHS*MV8111B during the second refueling outage.

In each case, the valves were documented as tested during the next refueling outage surveillance. The absence of this data has no bearing on the technical evaluation to increase the time interval for conducting this surveillance.

The extension of the 18 month safety-related valve thermal overload bypass technical specification can be justified considering the surveillance history.

The above reviews have shown minimal failures since initial plant startup. Since the proposed technical specification change does not affect the operation or design of the thermal overload bypass of the safety-related valves, a decrease in the frequency of testing (consistent with a nominal 24-month operating cycles) is considered to have no impact on safety.

On the basis of the above evaluation, there is reasonable assurance that the frequency of testing for Technical Specification Surveillance Requirement 4.8.4.2.1 can be extended from 18 months (± 25 percent) to 24 months (± 25 percent).

Surveillance Requirement 4.8.4.2.2 requires that the thermal overload protection for the valves in Attachment 1 shall be demonstrated operable at least once per 18 months or following maintenance on the motor starter. This should be accomplished by the performance of a channel calibration of a representative sample of at least 25 percent of all thermal overloads.

The technical specification requires that a representative sample of at least 25 percent of the valves listed in Attachment 1 be tested. During the last four cycles, Millstone Unit No. 3 has tested substantially more than the required minimum. Additionally, in almost all cases, maintenance is performed on the motor starter in accordance with procedures prior to the surveillance test.

Since initial startup there have been 170 tests performed over six outages (four refueling, 1 operations outage [1987]; 1 forced shutdown [1992]). These 170 tests have produced 10 failures.

The first three failures occurred in the 1991 time frame. The first failure occurred in March 1991 during the performance of preventative maintenance. Valve SIH*MV8802B was found with a bad overload heater. The bad heater was replaced and the valve was successfully tested. Also in March 1991 valve 3SIH*MV8802A was identified during corrective maintenance to have a bad thermal overload. The bad thermal overload was replaced and successfully retested. In August 1991, during the performance of preventative maintenance on valve 3SWP*MOV102B the phase C heater was found to be bad and was replaced and retested, and determined to be acceptable. In January 1992, valve 3CHS*MV8507B had a broken thermal overload heater which required replacement. The valve was repaired, retested, and returned to service.

During the 1993 outage, five valves failed their operational surveillance. The first valve, 3RSS*MOV38B, had the "C" phase fail to trip after 68 seconds. The heater was replaced and the valve was retested and returned to service. Valve 3SIL*MV8804A had a bad weld on the "A" phase heater. This heater was replaced and the valve was returned to service. Valve 3SWP*MOV24D had minor repairs made to the valve housing and was returned to service. Valve 3SWP*MOV57A had two defective heaters replaced. The valve was retested and was returned to service. Valve 3SWP*MOV102A was found to have a broken heater block. The heater was replaced, the valve was retested and was returned to service. In September 1993 during the performance of corrective maintenance, an overload heater in a starter was replaced and retested and returned to service.

As is shown above, the types and nature of the failures have not been significant.

The extension of the 18 month safety-related thermal overload surveillance requirement can be justified considering the

surveillance history, and the preventive and corrective maintenance history and the acceptable performance of the component.

The above reviews have shown minimal failures since 1987. Since the proposed technical specification change does not affect the operation or design of the thermal overload protection of the safety-related valves, a decrease in the frequency of testing (consistent with nominal 24 month operating cycles) is considered to have no impact on safety.

On the basis of the above evaluation, there is reasonable assurance that the frequency of testing for Technical Specification Surveillance Requirement 4.8.2.2 can be extended from 18 months to a maximum of 30 months without adversely affecting safety.

A PRA review of the proposed surveillance frequency extension concluded that the impact on the public safety is negligible.

Significant Hazards Consideration

NNECO has reviewed the proposed changes in accordance with 10CFR50.92 and concluded that the changes do not involve an SHC. The basis for this conclusion is that the three criteria of 10CFR50.92(c) are not compromised. The proposed changes do not involve an SHC because the changes would not:

1. Involve a significant increase in the probability or consequences of an accident previously evaluated.

   NNECO is proposing to modify the frequency of Surveillance Requirements 4.8.4.2.1 and 4.8.4.2.2 of the Millstone Unit No. 3 Technical Specifications from at least once per 18 months to at least once each refueling interval. These surveillance requirements verify the operability of motor-operated valves thermal overload protection (bypassed and not bypassed).

   The proposed changes do not alter the intent or method by which the surveillances are conducted, do not involve any physical changes to the plant, do not alter the way any structure, system, or component functions, and do not modify the manner in which the plant is operated. As such, the proposed changes in the frequency of Surveillance Requirements 4.8.4.2.1 and 4.8.4.2.2 will not degrade the ability of the motor-operated valves thermal overload protection (bypassed and not bypassed) to perform its intended safety function.

   Equipment performance over the last four operating cycles was evaluated to determine the impact of extending the frequency of Surveillance Requirements 4.8.4.2.1 and 4.8.4.2.2. This

evaluation included a review of surveillance results, preventive maintenance records, and the frequency and type of corrective maintenance. It concluded that the motor-operated valve thermal overload protection (bypassed and not bypassed) system is highly reliable, and that there is not indication that the proposed extension could cause deterioration in the condition or performance of any of the subject motor-operated valves.

Based on the above, the proposed changes to Surveillance Requirements 4.8.4.2.1 and 4.8.4.2.2 of the Millstone Unit No. 3 Technical Specifications does not involve a significant increase in the probability or consequence of an accident previously analyzed.

2. Create the possibility of a new or different kind of accident from any accident previously evaluated.

NNECO is proposing to modify the frequency of Surveillance Requirements 4.8.4.2.1 and 4.8.4.2.2 of the Millstone Unit No. 3 Technical Specifications from at least once per 18 months to at least once each refueling interval. These surveillance requirements verify the operability of components of the motor-operated valve thermal overload protection (bypassed and not bypassed).

The proposed changes do not alter the intent or method by which the surveillances are conducted, do not involve any physical changes to the plant, do not alter the way any structure, system, or component functions, and do not modify the manner in which the plant is operated. As such, the proposed changes in the frequency of Surveillance Requirements 4.8.4.2.1 and 4.8.4.2.2 will not introduce a new failure mode.

Based on the above, the proposed changes to Surveillance Requirements 4.8.4.2.1 and 4.8.4.2.2 of the Millstone Unit No. 3 Technical Specifications will not create the possibility of a new or different kind of accident from any previously evaluated.

3. Involve a significant reduction in a margin of safety.

NNECO is proposing to modify the frequency of Surveillance Requirements 4.8.4.2.1 and 4.8.4.2.2 of the Millstone Unit No. 3 Technical Specifications from at least once per 18 months to at least once each refueling interval. These surveillance requirements verify the operability of components of the motor-operated valves thermal overload protection (bypassed and not bypassed).

Equipment performance over the last four operating cycles was evaluated to determine the impact of extending the frequency

of Surveillance Requirements 4.8.4.2.1 and 4.8.4.2.2. The evaluation included a review of surveillance results, preventive maintenance records, and the frequency and type of corrective maintenance. It concluded that the motor-operated valves thermal overload protection (bypass and not bypassed) system is reliable, and that there is no indication that the proposed extension could cause deterioration in the condition or performance of any of the subject motor-operated valves thermal overload protection (bypassed and not bypassed) components.

Since decreasing the surveillance frequency does not involve a significant increase in the consequences of a design basis accident previously analyzed, the proposed changes to Surveillance Requirements 4.8.4.2.1 and 4.8.4.2.2 of the Millstone Unit No. 3 Technical Specifications do not involve a significant reduction in the margin of safety.

Table 1

Equipment Covered by Surveillance Requirement 4.8.1.1.2.g.11

EQUIPMENT	DESCRIPTION	COMMENTS
3EGF*P1A	Fuel transfer pump Train 'A'	None
3EGF*P1C	Fuel transfer pump Train 'A'	None
3EGF*P1B	Fuel transfer pump Train 'B'	None
3EGF*P1D	Fuel transfer pump Train 'B'	None
3EGF*V13	Cross connect valve	Manual valve
3EGF*V14	Cross connect valve	Manual valve
3EGF*V11	Common pump discharge isol. valve Train 'B'	Manual valve
3EGF*V6	Common pump discharge isol. valve Train 'A'	Manual valve
3EGF*V983	Return to sump isol. Train 'B'	Manual valve
3EGF*V5	Common pump discharge isol. valve Train 'A'	Manual valve
3EGF*V12	Common pump discharge isol. valve Train 'B'	Manual valve
3EGF*V982	Return to sump isol. Train 'A'	Manual valve

Table 2
Equipment Tested per
Surveillance Requirements 4.8.2.1.c, d, and f

Equipment	Description
301A-1	125 VDC Battery Red
301A-2	125 VDC Battery Blue
301B-1	125 VDC Battery White
301B-2	125 VDC Battery Yellow
3BYS*CHGR1	Battery Charger for Battery 301A-1
3BYS*CHGR3	Battery Charger for Battery 301A-2
3BYS*CHGR7	Swing Battery Charger for Batteries 301A-1 and 301A-2
3BYS*CHGR2	Battery Charger for Battery 301B-1
3BYS*CHGR4	Battery Charger for Battery 301B-2
3BYS*CHGR8	Swing Battery Charger for Batteries 301B-1 and 301B-2

Equipment Tested Per
Surveillance Requirements 4.8.4.1.a.1
Reactor Coolant Pump A

- 50/51-PC Phase B
- 50/51-BC Phase A
- 50/51-PH Phase B
- 50/51-BH Phase A
- 50/51-PC Phase C
- 50/51-PH Phase C
- 51-PCH Phase C
- 51-BCH Phase A

P = Primary B = Backup C = Cold > 500A H = Hot < 530A

Table 2 (cont'd.)

Reactor Coolant Pump B

- 50/51-PC Phase B
- 50/51-BC Phase A
- 50/51-PH Phase B
- 50/51-BH Phase A
- 50/51-PC Phase C
- 50/51-PH Phase C
- 51-PCH Phase C
- 51-BCH Phase A

P = Primary B = Backup C = Cold > 500A H = Hot < 530A

Reactor Coolant Pump C

- 50/51-PC Phase B
- 50/51-BC Phase A
- 50/51-PH Phase B
- 50/51-BH Phase A
- 50/51-PC Phase C
- 50/51-PH Phase C
- 51-PCH Phase C
- 51-BCH Phase A

P = Primary B = Backup C = Cold > 500A H = Hot < 530A

Reactor Coolant Pump D

- 50/51-PC Phase B
- 50/51-BC Phase A
- 50/51-PH Phase B
- 50/51-BH Phase A
- 50/51-PC Phase C
- 50/51-PH Phase C
- 51-PCH Phase C
- 51-BCH Phase A

P = Primary B = Backup C = Cold > 500A H = Hot < 530A