

DEFINITIONS

- b. Leakage into the containment atmosphere from sources that are both specifically located and known either not to interfere with the operation of leakage detection systems or not to be PRESSURE BOUNDARY LEAKAGE, or
- c. Reactor coolant system leakage through a steam generator to the secondary system.

MEMBER(S) OF THE PUBLIC

1.16 MEMBER(S) OF THE PUBLIC shall be all those persons who are not occupationally associated with the plant. This category does not include employees of PSE&G, its contractors, or vendors. Also excluded from this category are persons who enter the site to service equipment or to make deliveries. This category does include persons who use portions of the site for recreational, occupational, or other purposes not associated with the plant.

OFFSITE DOSE CALCULATION MANUAL (ODCM)

1.17 The OFFSITE DOSE CALCULATION MANUAL (ODCM) shall contain the methodology and parameters used in the calculation of offsite doses resulting from radioactive gaseous and liquid effluents, in the calculation of gaseous and liquid effluent monitoring Alarm/Trip setpoints, and in the conduct of the Environmental Radiological Monitoring Program. The ODCM shall also contain (1) the Radioactive Effluent controls and Radiological Environmental Monitoring programs required by Section 6.8.4 and (2) descriptions of the information that should be included in the Annual Radiological Environmental Operating and Annual Radioactive Effluent Release Reports required by Specifications 6.9.1.7 and 6.9.1.8 respectively.

OPERABLE - OPERABILITY

1.18 A system, subsystem, train, component, or device shall be OPERABLE or have OPERABILITY when it is capable of performing its specified safety function(s) and when all necessary attendant instrumentation, controls, normal or emergency electrical power, cooling and seal water, lubrication, and other auxiliary equipment that are required for the system, subsystem, train, component, or device to perform its specified safety function(s) are also capable of performing their related support function(s).

OPERATIONAL MODE - MODE

1.19 An OPERATIONAL MODE (ie., MODE) shall correspond to any one inclusive combination of core reactivity condition, power level and average reactor coolant temperature specified in Table 1.1.

ELECTRICAL POWER SYSTEMS

SHUTDOWN

LIMITING CONDITION FOR OPERATION

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

- a. One circuit between the offsite transmission network and the onsite Class 1E distribution system (vital bus system), and
- b. Two separate and independent diesel generators with:
 1. Separate day tanks containing a minimum volume of 130 gallons of fuel, and
 2. A common fuel storage system containing a minimum volume of 23,000 gallons of fuel, and
 3. A fuel transfer pump.

APPLICABILITY: MODES 5 and 6.
During movement of irradiated fuel assemblies.

ACTION:

- a. With one of the above minimum required A.C. electrical power sources not OPERABLE, immediately declare the affected required features inoperable, or suspend all operations involving CORE ALTERATIONS, movement of irradiated fuel, and positive reactivity changes until the minimum required A.C. electrical power sources are restored to OPERABLE status.
- b. With two of the required diesel generators not OPERABLE, suspend all operations involving CORE ALTERATIONS, movement of irradiated fuel, and all operations involving positive reactivity additions, and immediately initiate action to restore one required DG to OPERABLE status.

SURVEILLANCE REQUIREMENTS

-----NOTE-----

The following surveillances are not required to be performed to maintain operability during Modes 5 and 6. These surveillances are: 4.8.1.1.1.b, 4.8.1.1.2.d.2, 4.8.1.1.2.d.3, 4.8.1.1.2.d.4, 4.8.1.1.2.d.6, 4.8.1.1.2.d.9, 4.8.1.1.2.e, 4.8.1.1.2.f, and 4.8.1.1.2.g.

4.8.1.2 The above required A.C. electrical power sources shall be demonstrated OPERABLE by the performance of each of the Surveillance Requirements of 4.8.1.1.1, 4.8.1.1.2, 4.8.1.1.3 (except for requirement 4.8.1.1.3.a.2) and 4.8.1.1.4.

ELECTRICAL POWER SYSTEMS

A.C. DISTRIBUTION - SHUTDOWN

LIMITING CONDITION FOR OPERATION
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3.8.2.2 As a minimum, two A.C. electrical bus trains shall be OPERABLE and energized from sources of power other than a diesel generator but aligned to an OPERABLE diesel generator with each train consisting of:

- 1 - 4 kvolt Vital Bus
- 1 - 460 volt Vital Bus and associated control centers
- 1 - 230 volt Vital Bus and associated control centers
- 1 - 115 volt Instrument Bus energized from its respective inverter connected to its respective D. C. bus train.

APPLICABILITY: MODES 5 and 6.

During movement of irradiated fuel assemblies.

ACTION:

With less than the above complement of A.C. busses and inverters OPERABLE and energized, immediately declare the affected required features inoperable, or suspend all operations involving CORE ALTERATIONS, positive reactivity changes, and movement of irradiated fuel assemblies until the minimum required A.C. electrical power sources are restored to OPERABLE status.

SURVEILLANCE REQUIREMENTS
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4.8.2.2 The specified A.C. busses and inverters shall be determined OPERABLE and energized from A.C. sources other than the diesel generators at least once per 7 days by verifying correct breaker alignment and indicated voltage on the busses.

ELECTRICAL POWER SYSTEMS

125-VOLT D.C. DISTRIBUTION - SHUTDOWN

LIMITING CONDITION FOR OPERATION
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3.8.2.4 As a minimum, the following D.C. electrical equipment and bus shall be energized and OPERABLE:

- 2 - 125-volt D.C. busses, and
- 2 - 125-volt batteries, each with at least one full capacity charger, associated with each of the above D.C. busses.

APPLICABILITY: MODES 5 and 6.
During movement of irradiated fuel assemblies.

ACTION:

With less than the above complement of D.C. equipment and busses OPERABLE, immediately declare the affected required features inoperable, or suspend all operations involving CORE ALTERATIONS, positive reactivity changes, and movement of irradiated fuel assemblies until the minimum required 125Volt D.C. electrical power sources are restored to OPERABLE status.

SURVEILLANCE REQUIREMENTS
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4.8.2.4.1 The above required 125-volt D.C. busses shall be determined OPERABLE and energized at least once per 7 days by verifying correct breaker alignment and indicated power availability.

4.8.2.4.2 The above required 125-volt batteries and chargers shall be demonstrated OPERABLE per Surveillance Requirement 4.8.2.3.2.

ELECTRICAL POWER SYSTEMS

28-VOLT D.C. DISTRIBUTION - SHUTDOWN

LIMITING CONDITION FOR OPERATION
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3.8.2.6 As a minimum, the following D. C. electrical equipment and bus shall be energized and OPERABLE:

- 1 - 28-volt D.C. bus, and
- 1 - 28-volt battery and at least one full capacity charger associated with the above D.C. bus.

APPLICABILITY: MODES 5 and 6.
During movement of irradiated fuel assemblies.

ACTION:

With less than the above complement of D.C. equipment and busses OPERABLE, immediately declare the affected required features inoperable, or suspend all operations involving CORE ALTERATIONS, positive reactivity changes, and movement or irradiated fuel assemblies until the minimum required 28Volt D.C. electrical power sources are restored to OPERABLE status.

SURVEILLANCE REQUIREMENTS
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4.8.2.6.1 The above required 28-volt D.C. bus shall be determined OPERABLE and energized at least once per 7 days by verifying correct breaker alignment and voltage on the bus.

4.8.2.6.2 The above required 28-volt batteries and charger shall be demonstrated OPERABLE per Surveillance Requirement 4.8.2.5.2.

3/4.8 ELECTRICAL POWER SYSTEMS
BASES (Continued)

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If at any time during these conditions a redundant required system or component subsequently becomes inoperable, this completion time begins to be tracked. Discovering no offsite power to one train of the onsite Class 1E Electrical Power Distribution System, or one required DG inoperable, coincident with one or more inoperable required support or supported systems or components that are associated with the other train that has power, results in starting the completion times for the Action. The specified time is acceptable because it minimizes risk while allowing time for restoration before subjecting the unit to transients associated with shutdown.

The remaining OPERABLE AC supplies (one offsite circuit and three DGs for Condition (a), two offsite circuits and two DGs for Condition (b), or three DGs for Condition (d)) are adequate to supply electrical power to the onsite Class 1E Distribution System. Thus, on a component basis, single failure protection for the required system or component's function may have been lost; however, function has not been lost. The completion time takes into account the component OPERABILITY of the redundant counterpart to the inoperable required system or component. Additionally, the completion time takes into account the capacity and capability of the remaining AC sources, a reasonable time for repairs, and the low probability of a DBA occurring during this period. The completion time for Condition d (loss of both offsite circuits) is reduced to 12 hours from that allowed for one train without offsite power (Action 3.8.1.1.a.2). The rationale is that Regulatory Guide 1.93 allows a completion time of 24 hours for two required offsite circuits inoperable, based upon the assumption that two complete safety trains are OPERABLE. When a concurrent redundant required system or component failure exists, this assumption is not the case, and a shorter completion time of 12 hours is appropriate.

The OPERABILITY of the minimum specified A.C. and D.C. power sources and associated distribution systems during shutdown and refueling ensures that 1) the facility can be maintained in the shutdown or refueling condition for extended time periods and 2) sufficient instrumentation and control capability is available for monitoring and maintaining the unit status.

The Applicability of specifications 3.8.2.2, 3.8.2.4, and 3.8.2.6 includes the movement of irradiated fuel assemblies. This will insure adequate electrical power is available for proper operation of the fuel handling building ventilation system during movement of irradiated fuel in the spent fuel pool.

An offsite circuit would be considered inoperable if it were not available to one required train. Although two trains are required by LCOs 3.8.2.2 and 3.8.2.4, the one train with offsite power available may be capable of supporting sufficient required features to allow continuation of CORE ALTERATIONS and irradiated fuel movement. By the allowance of the option to declare required features inoperable, with no offsite power available, appropriate restrictions will be implemented in accordance with the affected required features LCO's actions.

With the offsite circuit or diesel generator not available to all required trains, the option exists to declare all required features inoperable. Since this option may involve undesired administrative efforts, the allowance for sufficiently conservative actions is made. With both required diesel generators inoperable, the minimum required diversity of AC power sources is

3/4.8 ELECTRICAL POWER SYSTEMS
BASES (Continued)

not available. Therefore, it is required to suspend CORE ALTERATIONS, movement of irradiated fuel assemblies, and operations involving positive reactivity additions that could result in loss of required shutdown margin or boron concentration. Suspending positive reactivity additions that could result in failure to meet the minimum shutdown margin or boron concentration limit is required to assure continued safe operation.

The Surveillance Requirements for demonstrating the OPERABILITY of the diesel generators are based upon the recommendations of Regulatory Guide 1.9, "Selection of Diesel Generator Set Capacity for Standby Power Supplies," March 10, 1971, and Regulatory Guide 1.108, "Periodic Testing of Diesel Generator Units Used as Onsite Electric Power Systems at Nuclear Power Plants," Revision 1, August 1977. Regulatory Guide 1.108 criteria for determining and reporting valid tests and failures, and accelerated diesel generator testing, have been superseded by implementation of the Maintenance Rule for the diesel generators per 10CFR50.65. In addition to the Surveillance Requirements of 4.8.1.1.2, diesel preventative maintenance is performed in accordance with procedures based on manufacturer's recommendations with consideration given to operating experience.

The minimum voltage and frequency stated in the Surveillance Requirements (SR) are those necessary to ensure the Emergency Diesel Generator (EDG) can accept Design Basis Accident (DBA) loading while maintaining acceptable voltage and frequency levels. Stable operation at the nominal voltage and frequency values is also essential in establishing EDG OPERABILITY, but a time constraint is not imposed. The lack of a time constraint is based on the fact that a typical EDG will experience a period of voltage and frequency oscillations prior to reaching steady state operation if these oscillations are not dampened out by load application. In lieu of a time constraint in the SR, controls will be provided to monitor and trend the actual time to reach stable operation within the band as a means of ensuring there is no voltage regulator or governor degradation that could cause an EDG to become inoperable.

"Standby condition" for the purpose of defining the condition of the engine immediately prior to starting for surveillance requirements requires that the lube oil temperature be between 100 °F and 170 °F. The minimum lube oil temperature for an OPERABLE diesel is 100 °F.

The thirteen second time requirement for the Emergency Diesel Generator to reach rated voltage and frequency was originally based on a Westinghouse assumption of fifteen seconds that included the delay time between the occurrence of the incident and the application of electrical power to the first sequenced safeguards pump (BURL-3011, dated November 13, 1974) and included an instrument response time of two seconds (BURL-1531, dated July 27, 1970). The times specified in UFSAR Section 15.4 bound the thirteen seconds specified in the TS.

The narrower band for frequency specified for testing performed in steady state isochronous operation will ensure the EDG will not be run in an overloaded condition (steady state) during accident conditions. Steady state is assumed to be achieved after one minute of operation in the isochronous mode with all required loads sequenced on the bus.

The narrower band for steady state voltage is specified for operation when

3/4.8 ELECTRICAL POWER SYSTEMS
BASES (Continued)

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the EDG is not synchronized to the grid to ensure the voltage regulator will protect driven equipment from over-voltages during accident conditions. Procedural controls will ensure that equipment voltages are maintained within acceptable limits during testing when paralleled to the grid.

The wider band for frequency is appropriate for testing done with the governor in the droop mode. Likewise the wider band for voltage is appropriate when paralleled to the grid.

All voltages and frequencies specified in SR 4.8.1.1.2 are representative of the analytical values and do not account for postulated instrument inaccuracy. Instrument inaccuracies for EDG voltage and frequency are administratively controlled.

Preventive maintenance includes those activities (including pro-test inspections, measurements, adjustments and preparations) performed to maintain an otherwise OPERABLE EDG in an OPERABLE status. Corrective maintenance includes those activities required to correct a condition that would cause the EDG to be inoperable.

Surveillance requirement 4.8.1.2 is modified by a Note. The reason for the Note is to preclude requiring the OPERABLE DG(s) from being paralleled with the offsite power network or otherwise rendered inoperable during performance of the surveillance requirement, and to preclude de-energizing a required ESF bus or disconnecting a required offsite circuit during performance of surveillance requirements. With limited AC sources available, a single event could compromise both the required circuit and the DG. It is the intent that these surveillance requirements must still be capable of being met, but actual performance is not required during periods when the DG and offsite circuit are required to be OPERABLE. During Startup, prior to entering Mode 4, the surveillance requirements are required to be completed if the surveillance frequency has been exceeded or will be exceeded prior to the next scheduled shutdown.

3/4.8.3 ELECTRICAL EQUIPMENT PROTECTIVE DEVICES

Containment electrical penetrations and penetration conductors are protected by either deenergizing circuits not required during reactor operation or by demonstrating the OPERABILITY of primary and backup overcurrent protection circuit breakers during periodic surveillance.

The surveillance frequency applicable to molded case circuit breakers and lower voltage circuit breakers provides assurance of breaker reliability by testing at least one representative sample of each manufacturer's brand of molded case and lower voltage circuit breakers. Each manufacturer's molded case circuit breakers and lower voltage circuit breakers are grouped into representative samples which are then tested on a rotating basis to ensure that all breakers are tested. If a wide variety exists within any manufacturer's brand of molded case or lower voltage circuit breakers, it is necessary to further divide that manufacturer's breakers into groups and treat each group as a separate type of breaker for surveillance purposes.

Containment penetration conductor overcurrent protective device information is provided in the UFSAR.

DEFINITIONS

- b. Leakage into the containment atmosphere from sources that are both specifically located and known either not to interfere with the operation of leakage detection systems or not to be PRESSURE BOUNDARY LEAKAGE, or
- c. Reactor coolant system leakage through a steam generator to the secondary system.

MEMBER(S) OF THE PUBLIC

1.16 MEMBER(S) OF THE PUBLIC shall be all those persons who are not occupationally associated with the plant. This category does not include employees of PSE&G, its contractors, or vendors. Also excluded from this category are persons who enter the site to service equipment or to make deliveries. This category does include persons who use portions of the site for recreational, occupational, or other purposes not associated with the plant.

OFFSITE DOSE CALCULATION MANUAL (ODCM)

1.17 The OFFSITE DOSE CALCULATION MANUAL (ODCM) shall contain the methodology and parameters used in the calculation of offsite doses resulting from radioactive gaseous and liquid effluents, in the calculation of gaseous and liquid effluent monitoring Alarm/Trip setpoints, and in the conduct of the Environmental Radiological Monitoring Program. The ODCM shall also contain (1) the Radioactive Effluent controls and Radiological Environmental Monitoring programs required by Section 6.8.4 and (2) descriptions of the information that should be included in the Annual Radiological Environmental Operating and Annual Radioactive Effluent Release Reports required by Specifications 6.9.1.7 and 6.9.1.8 respectively.

OPERABLE - OPERABILITY

1.18 A system, subsystem, train, component, or device shall be OPERABLE or have OPERABILITY when it is capable of performing its specified safety function(s) and when all necessary attendant instrumentation, controls, normal or emergency electrical power, cooling and seal water, lubrication, and other auxiliary equipment that are required for the system, subsystem, train, component, or device to perform its specified safety function(s) are also capable of performing their related support function(s).

OPERATIONAL MODE - MODE

1.19 An OPERATIONAL MODE (ie., MODE) shall correspond to any one inclusive combination of core reactivity condition, power level and average reactor coolant temperature specified in Table 1.1.

ELECTRICAL POWER SYSTEMS

SHUTDOWN

LIMITING CONDITION FOR OPERATION

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

- a. One circuit between the offsite transmission network and the onsite Class 1E distribution system (vital bus system), and
- b. Two separate and independent diesel generators with:
 - 1. Separate day tanks containing a minimum volume of 130 gallons of fuel, and
 - 2. A common fuel storage system containing a minimum volume of 23,000 gallons of fuel, and
 - 3. A fuel transfer pump.

APPLICABILITY: MODES 5 and 6.
During movement of irradiated fuel assemblies.

ACTION:

- a. With one of the above minimum required A.C. electrical power sources not OPERABLE, immediately declare the affected required features inoperable, or suspend all operations involving CORE ALTERATIONS, movement of irradiated fuel, and positive reactivity changes until the minimum required A.C. electrical power sources are restored to OPERABLE status.
- b. With two of the required diesel generators not OPERABLE, suspend all operations involving CORE ALTERATIONS, movement of irradiated fuel, and all operations involving positive reactivity additions, and immediately initiate action to restore one required DG to OPERABLE status.

SURVEILLANCE REQUIREMENTS

-----NOTE-----
The following surveillances are not required to be performed to maintain operability during Modes 5 and 6. These surveillances are: 4.8.1.1.1.b, 4.8.1.1.2.d.2, 4.8.1.1.2.d.3, 4.8.1.1.2.d.4, 4.8.1.1.2.d.6, 4.8.1.1.2.d.9, 4.8.1.1.2.e, 4.8.1.1.2.f, and 4.8.1.1.2.g.

4.8.1.2 The above required A.C. electrical power sources shall be demonstrated OPERABLE by the performance of each of the Surveillance Requirements of 4.8.1.1.1, 4.8.1.1.2, 4.8.1.1.3 (except for requirement 4.8.1.1.3.a.2) and 4.8.1.1.4.

ELECTRICAL POWER SYSTEMS

A.C. DISTRIBUTION - SHUTDOWN

LIMITING CONDITION FOR OPERATION
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3.8.2.2 As a minimum, two A.C. electrical bus trains shall be OPERABLE and energized from sources of power other than a diesel generator but aligned to an OPERABLE diesel generator with each train consisting of:

- 1 - 4 kvolt Vital Bus
- 1 - 460 volt Vital Bus and associated control centers
- 1 - 230 volt Vital Bus and associated control centers
- 1 - 115 volt Instrument Bus energized from its respective inverter connected to its respective D. C. bus train.

APPLICABILITY: MODES 5 and 6.
During movement of irradiated fuel assemblies.

ACTION:

With less than the above complement of A.C. busses and inverters OPERABLE and energized, immediately declare the affected required features inoperable, or suspend all operations involving CORE ALTERATIONS, positive reactivity changes, and movement of irradiated fuel assemblies until the minimum required A.C. electrical power sources are restored to OPERABLE status.

SURVEILLANCE REQUIREMENTS
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4.8.2.2 The specified A.C. busses and inverters shall be determined OPERABLE and energized from A.C. sources other than the diesel generators at least once per 7 days by verifying correct breaker alignment and indicated voltage on the busses.

ELECTRICAL POWER SYSTEMS

125-VOLT D.C. DISTRIBUTION - SHUTDOWN

LIMITING CONDITION FOR OPERATION

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3.8.2.4 As a minimum, the following D.C. electrical equipment and bus shall be energized and OPERABLE:

- 2 - 125-volt D.C. busses, and
- 2 - 125-volt batteries, each with at least one full capacity charger, associated with each of the above D.C. busses.

APPLICABILITY: MODES 5 and 6.
During movement of irradiated fuel assemblies.

ACTION:

With less than the above complement of D.C. equipment and busses OPERABLE, immediately declare the affected required features inoperable, or suspend all operations involving CORE ALTERATIONS, positive reactivity changes, and movement of irradiated fuel assemblies until the minimum required 125Volt D.C. electrical power sources are restored to OPERABLE status.

SURVEILLANCE REQUIREMENTS

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4.8.2.4.1 The above required 125-volt D.C. busses shall be determined OPERABLE and energized at least once per 7 days by verifying correct breaker alignment and indicated power availability.

4.8.2.4.2 The above required 125-volt batteries and chargers shall be demonstrated OPERABLE per Surveillance Requirement 4.8.2.3.2.

ELECTRICAL POWER SYSTEMS

28-VOLT D.C. DISTRIBUTION - SHUTDOWN

LIMITING CONDITION FOR OPERATION
=====

3.8.2.6 As a minimum, the following D. C. electrical equipment and bus shall be energized and OPERABLE:

- 1 - 28-volt D.C. bus, and
- 1 - 28-volt battery and at least one full capacity charger associated with the above D.C. bus.

APPLICABILITY: MODES 5 and 6.
During movement of irradiated fuel assemblies.

ACTION:

With less than the above complement of D.C. equipment and busses OPERABLE, immediately declare the affected required features inoperable, or suspend all operations involving CORE ALTERATIONS, positive reactivity changes, and movement or irradiated fuel assemblies until the minimum required 28Volt D.C. electrical power sources are restored to OPERABLE status.

SURVEILLANCE REQUIREMENTS
=====

4.8.2.6.1 The above required 28-volt D.C. bus shall be determined OPERABLE and energized at least once per 7 days by verifying correct breaker alignment and voltage on the bus.

4.8.2.6.2 The above required 28-volt batteries and charger shall be demonstrated OPERABLE per Surveillance Requirement 4.8.2.5.2.

3/4.8 ELECTRICAL POWER SYSTEMS
BASES (Continued)

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or components that are associated with the other train that has power, results in starting the completion times for the Action. The specified time is acceptable because it minimizes risk while allowing time for restoration before subjecting the unit to transients associated with shutdown.

The remaining OPERABLE AC supplies (one offsite circuit and three DGs for Condition (a), two offsite circuits and two DGs for Condition (b), or three DGs for Condition (d)) are adequate to supply electrical power to the onsite Class 1E Distribution System. Thus, on a component basis, single failure protection for the required system or component's function may have been lost; however, function has not been lost. The completion time takes into account the component OPERABILITY of the redundant counterpart to the inoperable required system or component. Additionally, the completion time takes into account the capacity and capability of the remaining AC sources, a reasonable time for repairs, and the low probability of a DBA occurring during this period. The completion time for Condition d (loss of both offsite circuits) is reduced to 12 hours from that allowed for one train without offsite power (Action 3.8.1.1.a.2). The rationale is that Regulatory Guide 1.93 allows a completion time of 24 hours for two required offsite circuits inoperable, based upon the assumption that two complete safety trains are OPERABLE. When a concurrent redundant required system or component failure exists, this assumption is not the case, and a shorter completion time of 12 hours is appropriate.

The OPERABILITY of the minimum specified A.C. and D.C. power sources and associated distribution systems during shutdown and refueling ensures that 1) the facility can be maintained in the shutdown or refueling condition for extended time periods and 2) sufficient instrumentation and control capability is available for monitoring and maintaining the unit status.

The Applicability of specifications 3.8.2.2, 3.8.2.4, and 3.8.2.6 includes the movement of irradiated fuel assemblies. This will insure adequate electrical power is available for proper operation of the fuel handling building ventilation system during movement of irradiated fuel in the spent fuel pool.

An offsite circuit would be considered inoperable if it were not available to one required train. Although two trains are required by LCOs 3.8.2.2 and 3.8.2.4, the one train with offsite power available may be capable of supporting sufficient required features to allow continuation of CORE ALTERATIONS and irradiated fuel movement. By the allowance of the option to declare required features inoperable, with no offsite power available, appropriate restrictions will be implemented in accordance with the affected required features LCO's actions.

With the offsite circuit or diesel generator not available to all required trains, the option exists to declare all required features inoperable. Since this option may involve undesired administrative efforts, the allowance for sufficiently conservative actions is made. With both required diesel generators inoperable, the minimum required diversity of AC power sources is not available. Therefore, it is required to suspend CORE ALTERATIONS, movement of irradiated fuel assemblies, and operations involving positive reactivity additions that could result in loss of required shutdown margin or boron concentration. Suspending positive reactivity additions that could result in failure to meet the minimum shutdown margin or boron concentration limit is required to assure continued safe operation.

3/4.8 ELECTRICAL POWER SYSTEMS
BASES (Continued)

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The Surveillance Requirements for demonstrating the OPERABILITY of the diesel generators are based upon the recommendations of Regulatory Guide 1.9, "Selection of Diesel Generator Set Capacity for Standby Power Supplies," March 10, 1971, and Regulatory Guide 1.108, "Periodic Testing of Diesel Generator Units Used as Onsite Electric Power Systems at Nuclear Power Plants," Revision 1, August 1977. Regulatory Guide 1.108 criteria for determining and reporting valid tests and failures, and accelerated diesel generator testing, have been superseded by implementation of the Maintenance Rule for the diesel generators per 10CFR50.65. In addition to the Surveillance Requirements of 4.8.1.1.2, diesel preventative maintenance is performed in accordance with procedures based on manufacturer's recommendations with consideration given to operating experience.

The minimum voltage and frequency stated in the Surveillance Requirements (SR) are those necessary to ensure the Emergency Diesel Generator (EDG) can accept Design Basis Accident (DBA) loading while maintaining acceptable voltage and frequency levels. Stable operation at the nominal voltage and frequency values is also essential in establishing EDG OPERABILITY, but a time constraint is not imposed. The lack of a time constraint is based on the fact that a typical EDG will experience a period of voltage and frequency oscillations prior to reaching steady state operation if these oscillations are not dampened out by load application. In lieu of a time constraint in the SR, controls will be provided to monitor and trend the actual time to reach stable operation within the band as a means of ensuring there is no voltage regulator or governor degradation that could cause an EDG to become inoperable.

"Standby condition" for the purpose of defining the condition of the engine immediately prior to starting for surveillance requirements requires that the lube oil temperature be between 100 °F and 170 °F. The minimum lube oil temperature for an OPERABLE diesel is 100 °F.

The thirteen second time requirement for the Emergency Diesel Generator to reach rated voltage and frequency was originally based on a Westinghouse assumption of fifteen seconds that included the delay time between the occurrence of the incident and the application of electrical power to the first sequenced safeguards pump (BURL-3011, dated November 13, 1974) and included an instrument response time of two seconds (BURL-1531, dated July 27, 1970). The times specified in UFSAR Section 15.4 bound the thirteen seconds specified in the TS.

The narrower band for frequency specified for testing performed in steady state isochronous operation will ensure the EDG will not be run in an overloaded condition (steady state) during accident conditions. Steady state is assumed to be achieved after one minute of operation in the isochronous mode with all required loads sequenced on the bus.

The narrower band for steady state voltage is specified for operation when the EDG is not synchronized to the grid to ensure the voltage regulator will protect driven equipment from over-voltages during accident conditions. Procedural controls will ensure that equipment voltages are maintained within acceptable limits during testing when paralleled to the grid.

The wider band for frequency is appropriate for testing done with the governor in the droop mode. Likewise the wider band for voltage is appropriate when paralleled to the grid.

3/4.8 ELECTRICAL POWER SYSTEMS
BASES (Continued)

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All voltages and frequencies specified in SR 4.8.1.1.2 are representative of the analytical values and do not account for postulated instrument inaccuracy. Instrument inaccuracies for EDG voltage and frequency are administratively controlled.

Preventive maintenance includes those activities (including pro-test inspections, measurements, adjustments and preparations) performed to maintain an otherwise OPERABLE EDG in an OPERABLE status. Corrective maintenance includes those activities required to correct a condition that would cause the EDG to be inoperable.

Surveillance requirement 4.8.1.2 is modified by a Note. The reason for the Note is to preclude requiring the OPERABLE DG(s) from being paralleled with the offsite power network or otherwise rendered inoperable during performance of the surveillance requirement, and to preclude de-energizing a required ESF bus or disconnecting a required offsite circuit during performance of surveillance requirements. With limited AC sources available, a single event could compromise both the required circuit and the DG. It is the intent that these surveillance requirements must still be capable of being met, but actual performance is not required during periods when the DG and offsite circuit are required to be OPERABLE. During Startup, prior to entering Mode 4, the surveillance requirements are required to be completed if the surveillance frequency has been exceeded or will be exceeded prior to the next scheduled shutdown.

3/4.8.3 ELECTRICAL EQUIPMENT PROTECTIVE DEVICES

Containment electrical penetrations and penetration conductors are protected by either deenergizing circuits not required during reactor operation or by demonstrating the OPERABILITY of primary and backup overcurrent protection circuit breakers during periodic surveillance.

The surveillance frequency applicable to molded case circuit breakers and lower voltage circuit breakers provides assurance of breaker reliability by testing at least one representative sample of each manufacturer's brand of molded case and lower voltage circuit breakers. Each manufacturer's molded case circuit breakers and lower voltage circuit breakers are grouped into representative samples which are then tested on a rotating basis to ensure that all breakers are tested. If a wide variety exists within any manufacturer's brand of molded case or lower voltage circuit breakers, it is necessary to further divide that manufacturer's breakers into groups and treat each group as a separate type of breaker for surveillance purposes.

Containment penetration conductor overcurrent protective device information is provided in the UFSAR.