3/4.5 EMERGENCY CORE COOLING SYSTEMS (ECCS)

3/4.5.1 SAFETY INJECTION TANKS

LIMITING CONDITION FOR OPERATION

3.5.1 Each Reactor Coolant System safety injection tank (SIT) shall be OPERABLE with:

a. The isolation valve key-locked open and power to the valve removed,

b. A contained borated water level of between 1802 cubic feet (28% narrow range indication) and 1914 cubic feet (72 % narrow range indication),

c. A boron concentration between 2300 and 4400 ppm of boron, and

d. A nitrogen cover-pressure of between 600 and 625 psig.

e. Nitrogen vent valves closed and power removed**.

f. Nitrogen vent valves capable of being operated upon restoration of power.

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

ACTION:

Replace with Insert A

a. With one safety injection tank inoperable, except as a result of a closed isolation valve, restore the inoperable tank to OPERABLE status within 1 hour or be in at least HOT STANDBY within the next 6 hours and in HOT SHUTDOWN within the following 6 hours.

b. With one safety injection tank inoperable due to the isolation valve being closed, either immediately open the isolation valve or be in at least HOT STANDBY within 1 hour and be in HOT SHUTDOWN within the next 12 hours.

SURVEILLANCE REQUIREMENTS

4.5.1 Each safety injection tank shall be demonstrated OPERABLE:

a. At least once per 12 hours by:

1. Verifying the contained borated water volume and nitrogen cover-pressure in the tanks is within the above limits, and

†With pressurizer pressure greater than or equal to 1837 psia. When pressurizer pressure is less than 1837 psia, at least three safety injection tanks must be OPERABLE, each with a minimum pressure of 254 psig and a maximum pressure of 625 psig, and a contained borated water volume of between 1415 cubic feet (60% wide range indication) and 1914 cubic feet (83% wide range indication). With all four safety injection tanks OPERABLE, each tank shall have a minimum pressure of 254 psig and a maximum pressure of 625 psig, and a contained borated water volume of between 962 cubic feet (39% wide range indication) and 1914 cubic feet (83% wide range indication). In MODE 4 with pressurizer pressure less than 430 psia, the safety injection tanks may be isolated.

*See Special Test Exceptions 3.10.6 and 3.10.8.

**Nitrogen vent valves may be cycled as necessary to maintain the required nitrogen cover pressure per Specification 3.5.1d.

INSERT A (LCO 3.5.1 ACTION)

a. With one SIT inoperable due to boron concentration not within limits, restore the boron concentration to within limits within 72 hours or be in at least HOT STANDBY within the next 6 hours and in HOT SHUTDOWN within the following 6 hours.

b. With one SIT inoperable due to inability to verify the required water volume or nitrogen cover pressure because of inoperable level or pressure instrumentation, restore the SIT to operable status within 72 hours or be in at least HOT STANDBY within the next 6 hours and in HOT SHUTDOWN within the following 6 hours.

c. With one SIT inoperable for reasons other than those stated in ACTION a or ACTION b, restore the SIT to operable status within 24 hours or be in at least HOT STANDBY within the next 6 hours and in HOT SHUTDOWN within the following 6 hours.

3/4.5.1 SAFETY INJECTION TANKS

The OPERABILITY of each of the Safety Injection System (SIS) safety injection tanks ensures that a sufficient volume of borated water will be immediately forced into the reactor core through each of the cold legs in the event the RCS pressure falls below the pressure of the safety injection tanks. This initial surge of water into the RCS provides the initial cooling mechanism during large RCS pipe ruptures.

The limits on safety injection tank volume, boron concentration, and pressure ensure that the safety injection tanks will adequately perform their function in the event of a LOCA in MODE 1, 2, 3, or 4.

A minimum of 25% narrow range corresponding to 1790 cubic feet and a maximum of 75% narrow range corresponding to 1927 cubic feet of borated water are used in the safety analysis as the volume in the SITs. To allow for instrument accuracy, 28% narrow range corresponding to 1802 cubic feet and 72% narrow range corresponding to 1914 cubic feet, are specified in the Technical Specification.

A minimum of 593 psig and a maximum pressure of 632 psig are used in the safety analysis. To allow for instrument accuracy 600 psig minimum and 625 psig maximum are specified in the Technical Specification.

A boron concentration of 2000 ppm minimum and 4400 ppm maximum are used in the safety analysis. The Technical Specification lower limit of 2300 ppm in the SIT assures that the backleakage from RCS will not dilute the SITs below the 2000 ppm limit assumed in the safety analysis prior to the time when draining of the SIT is necessary.

The SIT isolation valves are not single failure proof; therefore, whenever the valves are open power shall be removed from these valves and the switch keylocked open. These precautions ensure that the SITs are available during a Limiting Fault.

The SIT nitrogen vent valves are not single failure proof against depressurizing the SITs by spurious opening. Therefore, power to the valves is removed while they are closed to ensure the safety analysis assumption of four pressurized SITs.

All of the SIT nitrogen vent valves are required to be operable so that, given a single failure, all four SITs may still be vented during post-LOCA long-term cooling. Venting the SITs provides for SIT depressurization capability which ensures the timely establishment of shutdown cooling entry conditions as assumed by the safety analysis for small break LOCAs.

Replace with Insert B

The limits for operation with a safety injection tank ~~inoperable~~ for any reason except an isolation valve closed ~~minimizes the~~ time exposure of the plant to a LOCA event occurring ~~concurrent~~ with failure of an additional safety injection tank ~~which~~ may result in unacceptable peak cladding temperatures. If a ~~closed~~ isolation valve cannot be immediately opened, the full ~~capability~~ of one safety injection tank is not available and prompt action is ~~required~~ to place the reactor in a MODE where this capability is not required.

For MODES 3 and 4 operation with pressurizer pressure less than 1837 psia the Technical Specifications require a minimum of 57% wide range corresponding

INSERT B (BASES 3/4.5.1)

If the boron concentration of one SIT is not within limits, it must be returned to within the limits within 72 hours. In this condition, ability to maintain subcriticality or minimum boron precipitation time may be reduced, but the reduced concentration effects on core subcriticality during reflood are minor. Boiling of the ECCS water in the core during reflood concentrates the boron in the saturated liquid that remains in the core. In addition, the volume of the SIT is still available for injection. Since the boron requirements are based on the average boron concentration of the total volume of three SITs, the consequences are less severe than they would be if a SIT were not available for injection. Thus, 72 hours is allowed to return the boron concentration to within limits.

Section 7.4 of NUREG-1366 (December 1992), discusses surveillance requirements in technical specifications for the instrument channels used in the measurement of water level and pressure in SITs. The following statement is made in Section 7.4 of NUREG-1366:

> "The combination of redundant level and pressure instrumentation [for any single SIT] may provide sufficient information so that it may not be worthwhile to always attempt to correct drift associated with one instrument [with resulting radiation exposures during entry into containment] if there were sufficient time to repair one in the event that a second one became inoperable. Because these instruments do not initiate a safety action, it is reasonable to extend the allowable outage for them. The [NRC] staff, therefore, recommends that an additional condition be established for the specific case, where 'One accumulator [SIT] is inoperable due to the inoperability of water level and pressure channels,' in which the completion time to restore the accumulator to operable status will be 72 hours. While technically inoperable, the accumulator would be available to fulfill its safety function during this time and, thus, this change would have a negligible increase in risk."

If one SIT is inoperable, for a reason other than boron concentration or the inability to verify level or pressure, the SIT must be returned to OPERABLE status within 24 hours. In this Condition, the required contents of three SITs cannot be assumed to reach the core during a LOCA as is assumed in Appendix K to 10 CFR 50.

CE NPSD-994, "CEOG Joint Applications Report for Safety Injection Tank AOT/STI Extension," May 1995, provides a series of deterministic and probabilistic findings that support 24 hours as being either "risk beneficial" or "risk neutral" in comparison to shorter periods for restoring the SIT to OPERABLE status. CE NPSD-994 discusses best-estimate analysis for a typical PWR that confirmed that, during large-break LOCA scenarios, core melt can be prevented by either operation of one low pressure safety injection (LPSI) pump or the operation of one high pressure safety injection (HPSI) pump and a single SIT. CE NPSD-994 also discusses plant-specific probabilistic analysis that evaluated the risk-impact of the 24 hour recovery period in comparison to shorter recovery periods.

3/4.5 EMERGENCY CORE COOLING SYSTEMS (ECCS)

3/4.5.1 SAFETY INJECTION TANKS

LIMITING CONDITION FOR OPERATION

3.5.1 Each Reactor Coolant System safety injection tank (SIT) shall be OPERABLE with:

a. The isolation valve key-locked open and power to the valve removed,

b. A contained borated water level of between 1802 cubic feet (28% narrow range indication) and 1914 cubic feet (72 % narrow range indication),

c. A boron concentration between 2300 and 4400 ppm of boron, and

d. A nitrogen cover-pressure of between 600 and 625 psig.

e. Nitrogen vent valves closed and power removed**.

f. Nitrogen vent valves capable of being operated upon restoration of power.

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

ACTION:

a. With one safety injection tank inoperable, except as a result of a closed isolation valve, restore the inoperable tank to OPERABLE status within 1 hour or be in at least HOT STANDBY within the next 6 hours and in HOT SHUTDOWN within the following 6 hours.

b. With one safety injection tank inoperable due to the isolation valve being closed, either immediately open the isolation valve or be in at least HOT STANDBY within 1 hour and be in HOT SHUTDOWN within the next 12 hours.

Replace with Insert A

†With pressurizer pressure greater than or equal to 1837 psia. When pressurizer pressure is less than 1837 psia, at least three safety injection tanks must be OPERABLE, each with a minimum pressure of 254 psig and a maximum pressure of 625 psig, and a contained borated water volume of between 1415 cubic feet (60% wide range indication) and 1914 cubic feet (83% wide range indication). With all four safety injection tanks OPERABLE, each tank shall have a minimum pressure of 254 psig and a maximum pressure of 625 psig, and a contained borated water volume of between 962 cubic feet (39% wide range indication) and 1914 cubic feet (83% wide range indication). In MODE 4 with pressurizer pressure less than 430 psia, the safety injection tanks may be isolated.

*See Special Test Exceptions 3.10.6 and 3.10.8.

**Nitrogen vent valves may be cycled as necessary to maintain the required nitrogen cover pressure per Specification 3.5.1d.

INSERT A (LCO 3.5.1 ACTION)

a. With one SIT inoperable due to boron concentration not within limits, restore the boron concentration to within limits within 72 hours or be in at least HOT STANDBY within the next 6 hours and in HOT SHUTDOWN within the following 6 hours.

b. With one SIT inoperable due to inability to verify the required water volume or nitrogen cover pressure because of inoperable level or pressure instrumentation, restore the SIT to operable status within 72 hours or be in at least HOT STANDBY within the next 6 hours and in HOT SHUTDOWN within the following 6 hours.

c. With one SIT inoperable for reasons other than those stated in ACTION a or ACTION b, restore the SIT to operable status within 24 hours or be in at least HOT STANDBY within the next 6 hours and in HOT SHUTDOWN within the following 6 hours.

3/4.5 EMERGENCY CORE COOLING SYSTEMS (ECCS)

BASES

3/4.5.1 SAFETY INJECTION TANKS

The OPERABILITY of each of the Safety Injection System (SIS) safety injection tanks ensures that a sufficient volume of borated water will be immediately forced into the reactor core through each of the cold legs in the event the RCS pressure falls below the pressure of the safety injection tanks. This initial surge of water into the RCS provides the initial cooling mechanism during large RCS pipe ruptures.

The limits on safety injection tank volume, boron concentration, and pressure ensure that the safety injection tanks will adequately perform their function in the event of a LOCA in MODE 1, 2, 3, or 4.

A minimum of 25% narrow range corresponding to 1790 cubic feet and a maximum of 75% narrow range corresponding to 1927 cubic feet of borated water are used in the safety analysis as the volume in the SITs. To allow for instrument accuracy, 28% narrow range corresponding to 1802 cubic feet and 72% narrow range corresponding to 1914 cubic feet, are specified in the Technical Specification.

A minimum of 593 psig and a maximum pressure of 632 psig are used in the safety analysis. To allow for instrument accuracy 600 psig minimum and 625 psig maximum are specified in the Technical Specification.

A boron concentration of 2000 ppm minimum and 4400 ppm maximum are used in the safety analysis. The Technical Specification lower limit of 2300 ppm in the SIT assures that the backleakage from RCS will not dilute the SITs below the 2000 ppm limit assumed in the safety analysis prior to the time when draining of the SIT is necessary

The SIT isolation valves are not single failure proof; therefore, whenever the valves are open power shall be removed from these valves and the switch keylocked open. These precautions ensure that the SITs are available during a Limiting Fault.

The SIT nitrogen vent valves are not single failure proof against depressurizing the SITs by spurious opening. Therefore, power to the valves is removed while they are closed to ensure the safety analysis assumption of four pressurized SITs.

All of the SIT nitrogen vent valves are required to be operable so that, given a single failure, all four SITs may still be vented during post-LOCA long-term cooling. Venting the SITs provides for SIT depressurization capability which ensures the timely establishment of shutdown cooling entry conditions as assumed by the safety analysis for small break LOCAs.

Replace with insert B

The limits for operation with a safety injection tank ~~inoperable for~~ any reason except an isolation valve closed ~~minimizes the~~ time exposure of the plant to a LOCA event occurring concurrent with failure of an additional safety injection tank ~~which may~~ result in unacceptable peak cladding temperatures. If a ~~closed~~ isolation valve cannot be immediately opened, the full ~~capability of~~ one safety injection tank is not available and prompt action is required to place the reactor in a MODE where this capability is not required.

For MODES 3 and 4 operation with pressurizer pressure less than 1837 psia

INSERT B (BASES 3/4.5.1)

If the boron concentration of one SIT is not within limits, it must be returned to within the limits within 72 hours. In this condition, ability to maintain subcriticality or minimum boron precipitation time may be reduced, but the reduced concentration effects on core subcriticality during reflood are minor. Boiling of the ECCS water in the core during reflood concentrates the boron in the saturated liquid that remains in the core. In addition, the volume of the SIT is still available for injection. Since the boron requirements are based on the average boron concentration of the total volume of three SITs, the consequences are less severe than they would be if a SIT were not available for injection. Thus, 72 hours is allowed to return the boron concentration to within limits.

Section 7.4 of NUREG-1366 (December 1992), discusses surveillance requirements in technical specifications for the instrument channels used in the measurement of water level and pressure in SITs. The following statement is made in Section 7.4 of NUREG-1366:

> "The combination of redundant level and pressure instrumentation [for any single SIT] may provide sufficient information so that it may not be worthwhile to always attempt to correct drift associated with one instrument [with resulting radiation exposures during entry into containment] if there were sufficient time to repair one in the event that a second one became inoperable. Because these instruments do not initiate a safety action, it is reasonable to extend the allowable outage for them. The [NRC] staff, therefore, recommends that an additional condition be established for the specific case, where 'One accumulator [SIT] is inoperable due to the inoperability of water level and pressure channels,' in which the completion time to restore the accumulator to operable status will be 72 hours. While technically inoperable, the accumulator would be available to fulfill its safety function during this time and, thus, this change would have a negligible increase in risk."

If one SIT is inoperable, for a reason other than boron concentration or the inability to verify level or pressure, the SIT must be returned to OPERABLE status within 24 hours. In this Condition, the required contents of three SITs cannot be assumed to reach the core during a LOCA as is assumed in Appendix K to 10 CFR 50.

CE NPSD-994, "CEOG Joint Applications Report for Safety Injection Tank AOT/STI Extension," May 1995, provides a series of deterministic and probabilistic findings that support 24 hours as being either "risk beneficial" or "risk neutral" in comparison to shorter periods for restoring the SIT to OPERABLE status. CE NPSD-994 discusses best-estimate analysis for a typical PWR that confirmed that, during large-break LOCA scenarios, core melt can be prevented by either operation of one low pressure safety injection (LPSI) pump or the operation of one high pressure safety injection (HPSI) pump and a single SIT. CE NPSD-994 also discusses plant-specific probabilistic analysis that evaluated the risk-impact of the 24 hour recovery period in comparison to shorter recovery periods.

3/4.5 EMERGENCY CORE COOLING SYSTEMS (ECCS)

3/4.5.1 SAFETY INJECTION TANKS

LIMITING CONDITION FOR OPERATION

3.5.1 Each Reactor Coolant System safety injection tank (SIT) shall be OPERABLE with:

a. The isolation valve key-locked open and power to the valve removed,

b. A contained borated water level of between 1802 cubic feet (28% narrow range indication) and 1914 cubic feet (72 % narrow range indication),

c. A boron concentration between 2300 and 4400 ppm of boron, and

d. A nitrogen cover-pressure of between 600 and 625 psig.

e. Nitrogen vent valves closed and power removed**.

f. Nitrogen vent valves capable of being operated upon restoration of power.

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

ACTION:

a. With one safety injection tank inoperable, except as a result of a closed isolation valve, restore the inoperable tank to OPERABLE status within 1 hour or be in at least HOT STANDBY within the next 6 hours and in HOT SHUTDOWN within the following 6 hours.

b. With one safety injection tank inoperable due to the isolation valve being closed, either immediately open the isolation valve or be in at least HOT STANDBY within 1 hour and be in HOT SHUTDOWN within the next 12 hours.

Replace with Insert A

†With pressurizer pressure greater than or equal to 1837 psia. When pressurizer pressure is less than 1837 psia, at least three safety injection tanks must be OPERABLE, each with a minimum pressure of 254 psig and a maximum pressure of 625 psig, and a contained borated water volume of between 1415 cubic feet (60% wide range indication) and 1914 cubic feet (83% wide range indication). With all four safety injection tanks OPERABLE, each tank shall have a minimum pressure of 254 psig and a maximum pressure of 625 psig, and a contained borated water volume of between 962 cubic feet (39% wide range indication) and 1914 cubic feet (83% wide range indication). In MODE 4 with pressurizer pressure less than 430 psia, the safety injection tanks may be isolated.

*See Special Test Exceptions 3.10.6 and 3.10.8.

**Nitrogen vent valves may be cycled as necessary to maintain the required nitrogen cover pressure per Specification 3.5.1d.

INSERT A (LCO 3.5.1 ACTION)

a. With one SIT inoperable due to boron concentration not within limits, restore the boron concentration to within limits within 72 hours or be in at least HOT STANDBY within the next 6 hours and in HOT SHUTDOWN within the following 6 hours.

b. With one SIT inoperable due to inability to verify the required water volume or nitrogen cover pressure because of inoperable level or pressure instrumentation, restore the SIT to operable status within 72 hours or be in at least HOT STANDBY within the next 6 hours and in HOT SHUTDOWN within the following 6 hours.

c. With one SIT inoperable for reasons other than those stated in ACTION a or ACTION b, restore the SIT to operable status within 24 hours or be in at least HOT STANDBY within the next 6 hours and in HOT SHUTDOWN within the following 6 hours.

3/4.5 EMERGENCY CORE COOLING SYSTEMS (ECCS)

BASES

3/4.5.1 SAFETY INJECTION TANKS

The OPERABILITY of each of the Safety Injection System (SIS) safety injection tanks ensures that a sufficient volume of borated water will be immediately forced into the reactor core through each of the cold legs in the event the RCS pressure falls below the pressure of the safety injection tanks. This initial surge of water into the RCS provides the initial cooling mechanism during large RCS pipe ruptures.

The limits on safety injection tank volume, boron concentration, and pressure ensure that the safety injection tanks will adequately perform their function in the event of a LOCA in MODE 1, 2, 3, or 4.

A minimum of 25% narrow range corresponding to 1790 cubic feet and a maximum of 75% narrow range corresponding to 1927 cubic feet of borated water are used in the safety analysis as the volume in the SITs. To allow for instrument accuracy, 28% narrow range corresponding to 1802 cubic feet and 72% narrow range corresponding to 1914 cubic feet, are specified in the Technical Specification.

A minimum of 593 psig and a maximum pressure of 632 psig are used in the safety analysis. To allow for instrument accuracy, 600 psig minimum and 625 psig maximum are specified in the Technical Specification.

A boron concentration of 2000 ppm minimum and 4400 ppm maximum are used in the safety analysis. The Technical Specification lower limit of 2300 ppm in the SIT assures that the backleakage from RCS will not dilute the SITs below the 2000 ppm limit assumed in the safety analysis prior to the time when draining of the SIT is necessary.

The SIT isolation valves are not single failure proof; therefore, whenever the valves are open power shall be removed from these valves and the switch keylocked open. These precautions ensure that the SITs are available during a Limiting Fault.

The SIT nitrogen vent valves are not single failure proof against depressurizing the SITs by spurious opening. Therefore, power to the valves is removed while they are closed to ensure the safety analysis assumption of four pressurized SITs.

All of the SIT nitrogen vent valves are required to be operable so that, given a single failure, all four SITs may still be vented during post-LOCA long-term cooling. Venting the SITs provides for SIT depressurization capability which ensures the timely establishment of shutdown cooling entry conditions as assumed by the safety analysis for small break LOCAs.

Replace with Insert B

The limits for operation with a safety injection tank inoperable for any reason except an isolation valve closed minimizes the time exposure of the plant to a LOCA event occurring concurrent with failure of an additional safety injection tank which may result in unacceptable peak cladding temperatures. If a closed isolation valve cannot be immediately opened, the full capability of one safety injection tank is not available and prompt action is required to place the reactor in a MODE where this capability is not required.

For MODES 3 and 4 operation with pressurizer pressure less than 1837 psia the Technical Specifications require a minimum of 57% wide range corresponding

INSERT B (BASES 3/4.5.1)

If the boron concentration of one SIT is not within limits, it must be returned to within the limits within 72 hours. In this condition, ability to maintain subcriticality or minimum boron precipitation time may be reduced, but the reduced concentration effects on core subcriticality during reflood are minor. Boiling of the ECCS water in the core during reflood concentrates the boron in the saturated liquid that remains in the core. In addition, the volume of the SIT is still available for injection. Since the boron requirements are based on the average boron concentration of the total volume of three SITs, the consequences are less severe than they would be if a SIT were not available for injection. Thus, 72 hours is allowed to return the boron concentration to within limits.

Section 7.4 of NUREG-1366 (December 1992), discusses surveillance requirements in technical specifications for the instrument channels used in the measurement of water level and pressure in SITs. The following statement is made in Section 7.4 of NUREG-1366:

> "The combination of redundant level and pressure instrumentation [for any single SIT] may provide sufficient information so that it may not be worthwhile to always attempt to correct drift associated with one instrument [with resulting radiation exposures during entry into containment] if there were sufficient time to repair one in the event that a second one became inoperable. Because these instruments do not initiate a safety action, it is reasonable to extend the allowable outage for them. The [NRC] staff, therefore, recommends that an additional condition be established for the specific case, where 'One accumulator [SIT] is inoperable due to the inoperability of water level and pressure channels,' in which the completion time to restore the accumulator to operable status will be 72 hours. While technically inoperable, the accumulator would be available to fulfill its safety function during this time and, thus, this change would have a negligible increase in risk."

If one SIT is inoperable, for a reason other than boron concentration or the inability to verify level or pressure, the SIT must be returned to OPERABLE status within 24 hours. In this Condition, the required contents of three SITs cannot be assumed to reach the core during a LOCA as is assumed in Appendix K to 10 CFR 50.

CE NPSD-994, "CEOG Joint Applications Report for Safety Injection Tank AOT/STI Extension," May 1995, provides a series of deterministic and probabilistic findings that support 24 hours as being either "risk beneficial" or "risk neutral" in comparison to shorter periods for restoring the SIT to OPERABLE status. CE NPSD-994 discusses best-estimate analysis for a typical PWR that confirmed that, during large-break LOCA scenarios, core melt can be prevented by either operation of one low pressure safety injection (LPSI) pump or the operation of one high pressure safety injection (HPSI) pump and a single SIT. CE NPSD-994 also discusses plant-specific probabilistic analysis that evaluated the risk-impact of the 24 hour recovery period in comparison to shorter recovery periods.

H. SUPPORTING CEOG REPORT: CE NPSD-994, "CEOG JOINT APPLICATIONS REPORT FOR SAFETY INJECTION TANK AOT/STI EXTENSION," MAY 1995

ATTACHMENT A

"Mark-up" of NUREG-1432 SECTIONS 3.5.1 & B 3.5.1

3.5 EMERGENCY CORE COOLING SYSTEMS (ECCS)

3.5.1 Safety Injection Tanks (SITs)

LCO 3.5.1 [Four] SITs shall be OPERABLE.

APPLICABILITY: MODES 1 and 2,
MODE 3 with pressurizer pressure ≥ [700] psia.

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. One SIT inoperable due to boron concentration not within limits.	A.1 Restore boron concentration to within limits.	72 hours
C ~~B~~. One SIT inoperable for reasons other than Condition A or B.	C ~~B~~.1 Restore SIT to OPERABLE status.	~~1 hour~~ 24 hours
D ~~C~~. Required Action and associated Completion Time of Condition A or B not met. or C	D ~~C~~.1 Be in MODE 3. AND D ~~C~~.2 Reduce pressurizer pressure to < [700] psia.	6 hours 12 hours
E ~~D~~. Two or more SITs inoperable.	E ~~D~~.1 Enter LCO 3.0.3.	Immediately

INSERT A

INSERT A

B. One SIT inoperable due to inability to verify level or pressure.	B.1 Restore SIT to OPERABLE status.	72 hours

BASES

ACTIONS

A.1 (continued)

injection. Thus, 72 hours is allowed to return the boron concentration to within limits.

INSERT AA →

B.1

If one SIT is inoperable, for a reason other than boron concentration, the SIT must be returned to OPERABLE status within 1 hour. In this Condition, the required contents of three SITs cannot be assumed to reach the core during a LOCA. Due to the severity of the consequences should a LOCA occur in these conditions, the 1 hour Completion Time to open the valve, remove power to the valve, or restore the proper water volume or nitrogen cover pressure ensures that prompt action will be taken to return the inoperable accumulator to OPERABLE status. The Completion Time minimizes the exposure of the plant to a LOCA in these conditions.

INSERT AB →

D D
C.1 and C.2

If the SIT cannot be restored to OPERABLE status within the associated Completion Time, the plant must be brought to a MODE in which the LCO does not apply. To achieve this status, the plant must be brought to at least MODE 3 within 6 hours and pressurizer pressure reduced to < 700 psia within 12 hours. The allowed Completion Times are reasonable, based on operating experience, to reach the required plant conditions from full power conditions in an orderly manner and without challenging plant systems.

E
B.1

If more than one SIT is inoperable, the unit is in a condition outside the accident analyses. Therefore, LCO 3.0.3 must be entered immediately.

(continued)

INSERT AA

B.1

Section 7.4 of Reference 5, NUREG-1366, discusses surveillance requirements in technical specifications for the instrument channels used in the measurement of water level and pressure in SITs.

The following statement is made in Section 7.4 of Reference 5:

> "The combination of redundant level and pressure instrumentation [for any single SIT] may provide sufficient information so that it may not be worthwhile to always attempt to correct drift associated with one instrument [with resulting radiation exposures during entry into containment] if there were sufficient time to repair one in the event that a second one became inoperable. Because these instruments do not initiate a safety action, it is reasonable to extend the allowable outage for them. The [NRC] staff, therefore, recommends that an additional condition be established for the specific case, where "One accumulator [SIT] is inoperable due to the inoperability of water level and pressure channels," in which the completion time to restore the accumulator to operable status will be 72 hours. While technically inoperable, the accumulator would be available to fulfill its safety function during this time and, thus, this change would have a negligible increase in risk."

INSERT AB

C.1

If one SIT is inoperable, for a reason other than boron concentration or the inability to verify level or pressure, the SIT must be returned to OPERABLE status within 24 hours. In this Condition, the required contents of three SITs cannot be assumed to reach the core during a LOCA as is assumed in Appendix K to 10 CFR 50.

Reference 6 provides a series of deterministic and probabilistic findings that support 24 hours as being either "risk beneficial" or "risk neutral" in comparison to shorter periods for restoring the SIT to OPERABLE status. Reference 6 discusses best-estimate analysis that confirmed that, during large-break LOCA scenarios, core melt can be prevented by either operation of one Low Pressure Safety Injection (LPSI) pump or the operation of one High Pressure Safety Injection (HPSI) pump and a single SIT. Reference 6 also discusses plant-specific probabilistic analysis that evaluated the risk-impact of the 24 hour recovery period in comparison to shorter recovery periods.

BASES (continued)

SURVEILLANCE REQUIREMENTS

SR 3.5.1.1

Verification every 12 hours that each SIT isolation valve is fully open, as indicated in the control room, ensures that SITs are available for injection and ensures timely discovery if a valve should be partially closed. If an isolation valve is not fully open, the rate of injection to the RCS would be reduced. Although a motor operated valve should not change position with power removed, a closed valve could result in not meeting accident analysis assumptions. A 12 hour Frequency is considered reasonable in view of other administrative controls that ensure the unlikelihood of a mispositioned isolation valve.

SR 3.5.1.2 and SR 3.5.1.3

SIT borated water volume and nitrogen cover pressure should be verified to be within specified limits every 12 hours in order to ensure adequate injection during a LOCA. Due to the static design of the SITs, a 12 hour Frequency usually allows the operator sufficient time to identify changes before the limits are reached. Operating experience has shown this Frequency to be appropriate for early detection and correction of off normal trends.

SR 3.5.1.4

Thirty-one days is reasonable for verification to determine that each SIT's boron concentration is within the required limits, because the static design of the SITs limits the ways in which the concentration can be changed. The 31 day Frequency is adequate to identify changes that could occur from mechanisms such as stratification or inleakage. Sampling the affected SIT within 6 hours after a 1% volume increase will identify whether inleakage has caused a reduction in boron concentration to below the required limit. It is not necessary to verify boron concentration if the added water is from the RWT, because the water contained in the RWT is within the SIT boron concentration requirements. This is consistent with the recommendations of NUREG-1366 (Ref. 5).

INSERT AC

(continued)

INSERT AC

, Reference 6, and Reference 7.

BASES

SURVEILLANCE REQUIREMENTS (continued)

SR 3.5.1.5

Verification every 31 days that power is removed from each SIT isolation valve operator when the pressurizer pressure is ≥ 2000 psia ensures that an active failure could not result in the undetected closure of an SIT motor operated isolation valve. If this were to occur, only two SITs would be available for injection, given a single failure coincident with a LOCA. Since installation and removal of power to the SIT isolation valve operators is conducted under administrative control, the 31 day Frequency was chosen to provide additional assurance that power is removed.

This SR allows power to be supplied to the motor operated isolation valves when RCS pressure is < 2000 psia, thus allowing operational flexibility by avoiding unnecessary delays to manipulate the breakers during unit startups or shutdowns. Even with power supplied to the valves, inadvertent closure is prevented by the RCS pressure interlock associated with the valves. Should closure of a valve occur in spite of the interlock, the SI signal provided to the valves would open a closed valve in the event of a LOCA.

REFERENCES

1. IEEE Standard 279-1971.
2. FSAR, Section [6.3].
3. 10 CFR 50.46.
4. FSAR, Chapter [15].
5. ~~Draft~~ NUREG-1366, ~~February 1990.~~ December 1992

INSERT AD →

INSERT AD

6. NRC Generic Letter 93-05, "Line-Item Technical Specifications Improvements To Reduce Surveillance Requirements For Testing During Power Operations," September 27, 1993

7. CE NPSD-994, "CEOG Joint Applications Report for Safety Injection Tank AOT/STI Extension," April 1995.

ENCLOSURE 2

PROPOSED AMENDMENT TO TECHNICAL SPECIFICATION

SECTIONS 3.5.2 and 3.7.11, and BASES

A. DESCRIPTION OF THE TECHNICAL SPECIFICATION AMENDMENT REQUEST

This change to Technical Specifications Sections 3.5.2 (ECCS Subsystems) and 3.7.11 (Shutdown Cooling System) would extend the allowed outage time (AOT) for a single low pressure safety injection (LPSI) subtrain or LPSI components from 72 hours to seven days. The Bases for those sections would also be revised to incorporate a description of the bases for the revised AOT. In addition, an editorial change would delete an outdated footnote in the PVNGS Unit 2 Technical Specifications.

B. PURPOSE OF THE TECHNICAL SPECIFICATIONS

The LPSI systems in combination with the high pressure safety injection (HPSI) systems form two redundant emergency core cooling system (ECCS) subsystems. The two LPSI pumps are high volume, low head centrifugal pumps designed to supplement the safety injection tank (SIT) inventory in reflooding the reactor vessel to insure core cooling during the early stages of a large loss of coolant accident (LOCA).

The LPSI system is also used in conjunction with a portion of the containment spray system for decay heat removal in the shutdown cooling alignment.

The operability of two separate and independent ECCS subsystems with the reactor coolant system (RCS) temperatures greater than or equal to 350°F ensures that sufficient emergency core cooling capability will be available in the event of a LOCA assuming the loss of one subsystem through any single failure consideration. Either subsystem operating in conjunction with the safety injection tanks is capable of supplying sufficient core cooling to limit the peak cladding temperatures within acceptable limits for all postulated break sizes ranging from the double-ended break of the largest RCS cold leg pipe downward. In addition, each ECCS subsystem provides long-term core cooling capability in the recirculation mode during the accident recovery period.

The operability of two separate and independent shutdown cooling subsystems ensures that the capability of initiating shutdown cooling in the event of an accident exists even assuming the most limiting single failure occurs. The safety analysis assumes that shutdown cooling can be initiated when shutdown cooling entry conditions have been satisfied. The limits of operation with one shutdown cooling subsystem inoperable for any reason minimizes the time of exposure of the plant to an accident event occurring concurrent with the failure of a component on the other shutdown cooling subsystem.

C. NEED FOR THE TECHNICAL SPECIFICATION AMENDMENT

The proposed change to extend the AOT for a single LPSI subtrain from 72 hours to seven days would provide needed flexibility in the performance of both corrective and preventive maintenance during power operation. Implementing the proposed change

may prevent unscheduled plant shutdowns and/or requests for temporary exemptions to allow continued operation.

D. SAFETY ANALYSIS FOR THE TECHNICAL SPECIFICATION AMENDMENT REQUEST

The current PVNGS Technical Specifications address the LPSI system as a portion of the ECCS subsystem and also a portion of the shutdown cooling system. Technical Specification 3.5.2 requires two independent ECCS subsystems be operable. With one ECCS subsystem inoperable, based upon any component inoperability, the subsystem must be returned operable within 72 hours or transition to hot shutdown within the following 12 hours. The proposed change would allow up to seven days to restore operability to a LPSI subtrain should that be the cause of ECCS inoperability.

The Combustion Engineering Owners Group (CEOG) report CE NPSD-995, "Joint Applications Report for Low Pressure Safety Injection System AOT Extension," May 1995, explores the proposed change utilizing current probabilistic safety analysis (PSA) methodologies to address the changes in risk when compared with current Technical Specification time limitations. This study of the risk factors that are impacted by extending the AOT for a single LPSI train from 72 hours to seven days demonstrates a negligible increase in risk (<1%). In order to perform a more complete assessment of the overall change in risk, an accounting for avoided risks associated with reducing power and going to hot or cold shutdown must be considered. This "transition risk" is important in understanding the trade-off between shutting down the plant compared with restoring the LPSI train to operability while at power. Also of interest in assessing overall plant risk is the risk avoided based on LPSI system maintenance while in cold shutdown. Every time the plant is placed in cold shutdown the LPSI system is required for decay heat removal when in the shutdown cooling mode of operation. Any maintenance performed on the LPSI system during shutdown cooling operations adds to the risk of a loss of shutdown cooling event. Therefore, performing LPSI system maintenance with the unit on-line, when the LPSI system is not normally in demand, represents a decrease in shutdown risk.

The results of this study concluded that the change in core damage frequency due to increasing the LPSI AOT from 72 hours to seven days is insignificant (<1%). Additionally, when the reduction in transition and shutdown risks are considered, it can be shown that there is an overall reduction in plant risk. Thus, it is the conclusion of the study that the overall plant impact for PVNGS will be risk neutral or risk beneficial.

Technical Specification 3.7.11 requires two independent shutdown cooling subsystems be operable. With one shutdown cooling subsystem inoperable, based upon any component inoperability, the subsystem must be returned operable within 72 hours or transition to hot shutdown within the following seven hours, and to cold shutdown within the next 30 hours. The proposed change would allow up to seven days to restore

operability to a LPSI subtrain should that be the cause of shutdown cooling subsystem inoperability.

The shutdown cooling system is used following design basis accidents. The shutdown cooling system is also credited in the analysis for main steam line break with induced multiple steam generator tube ruptures. (The analysis for main steam line break with induced multiple steam generator tube ruptures, which is not described in the PVNGS UFSAR, was submitted to the NRC on July 25, 1993. This analysis was prepared in response to an NRC staff request to justify continued operation of PVNGS Units 1 and 3 with potentially degraded steam generator tubes, and post-repair startup of Unit 2, following a steam generator tube rupture event in Unit 2. The NRC issued the applicable Safety Evaluation on August 19, 1993.) The proposed changes to extend a LPSI subtrain AOT to 7 days do not affect any of the assumptions used in the deterministic design basis accident analyses or in the deterministic accident analysis for the main steam line break with induced multiple steam generator tube ruptures. The slightly higher unavailability of one LPSI subtrain would have no significant impact on the capability of the shutdown cooling system to remove decay heat after shutdown cooling conditions are reached following an accident. Preventive maintenance that would be performed during the extended AOT in Modes 1, 2, and 3 would not prevent the quick recovery of the affected train shutdown cooling flowpath and would not prevent the ability of the containment spray pump to be used to provide shutdown cooling flow in lieu of the LPSI pump.

An editorial change would delete an outdated footnote in the PVNGS Unit 2 Technical Specifications. This footnote, which allowed a one-time-only AOT extension to repair the essential cooling water heat exchangers, expired on December 30, 1993.

E. NO SIGNIFICANT HAZARDS CONSIDERATION DETERMINATION

The Commission has provided standards for determining whether a significant hazards consideration exists as stated in 10 CFR 50.92. A proposed amendment to an operating license for a facility involves a no significant hazards consideration if operation of the facility in accordance with a proposed amendment would not:

(1) involve a significant increase in the probability or consequences of an accident previously evaluated; or
(2) create the possibility of a new or a different kind of accident from any accident previously evaluated; or
(3) involve a significant reduction in a margin of safety.

Standard 1 -- Does the proposed change involve a significant increase in the probability or consequences of an accident previously evaluated?

This proposed amendment does not involve a significant increase in the probability or consequences of an accident previously evaluated.

The low pressure safety injection system (LPSI) is part of the emergency core cooling system (ECCS) subsystem and part of the shutdown cooling subsystem. Inoperable LPSI components are not accident initiators in any accident previously evaluated. Therefore, this change does not involve a significant increase in the probability of an accident previously evaluated.

The LPSI system is primarily designed to mitigate the consequences of a large break loss of coolant accident (LOCA). These proposed changes do not affect any of the assumptions used in the deterministic LOCA analysis.

In order to evaluate the LPSI allowed outage time (AOT) extension with respect to emergency core cooling system, probabilistic safety analysis (PSA) methods were utilized. The results of these analyses show no significant increase in the core damage frequency. As a result, there would be no significant increase in the consequences of an accident previously evaluated. These analyses are detailed in CE NPSD-995, Combustion Engineering Owners Group "Joint Applications Report for Low Pressure Safety Injection System AOT Extension," May 1995.

The LPSI system also functions as part of the shutdown cooling system. The shutdown cooling system is used following design basis accidents, and is also credited in the analysis for main steam line break with induced multiple steam generator tube ruptures. These proposed changes to extend a LPSI subtrain AOT do not affect any of the assumptions used in the deterministic design basis accident analyses or in the deterministic accident analysis for the main steam line break with induced multiple steam generator tube ruptures. The slightly higher unavailability of one LPSI subtrain would have no significant impact on the capability of the shutdown cooling system to remove decay heat after shutdown cooling conditions are reached following an accident. Hence the consequences of accidents previously evaluated do not significantly increase.

Standard 2 -- Does the proposed change create the possibility of a new or different kind of accident from any accident previously evaluated?

This proposed change does not change the design, configuration, or method of operation of the plant. Therefore, this change does not create the possibility of a new or different kind of accident from any previously evaluated.

Standard 3 -- Does the proposed change involve a significant reduction in a margin of safety?

The proposed changes do not involve a significant reduction in a margin of safety.

The proposed changes do not affect the limiting conditions for operation or their bases used in the deterministic analyses to establish the margin of safety. PSA evaluations were used to evaluate these changes. These evaluations demonstrate that the changes will be risk neutral or risk beneficial for PVNGS. These evaluations are detailed in CE NPSD-995.

F. ENVIRONMENTAL CONSIDERATION

APS has determined that the proposed amendment involves no change in the amount or type of effluent that may be released offsite, and that there is no increase in individual or cumulative occupational radiation exposure. As such, operation of PVNGS Units 1, 2, and 3, in accordance with the proposed amendments, does not involve an unreviewed environmental safety question.

G. MARKED-UP TECHNICAL SPECIFICATION PAGES

PVNGS Units 1, 2, and 3 pages:

3/4 5-3
3/4 7-29
B 3/4 5-2
B 3/4 7-7

EMERGENCY CORE COOLING SYSTEMS

3/4.5.2 ECCS SUBSYSTEMS - T_{cold} GREATER THAN OR EQUAL TO 350°F

LIMITING CONDITION FOR OPERATION

3.5.2 Two independent Emergency Core Cooling System (ECCS) subsystems shall be OPERABLE with each subsystem comprised of:

a. One OPERABLE high-pressure safety injection pump, (LPSI)

b. One OPERABLE low-pressure safety injection pump, and

c. An independent OPERABLE flow path capable of taking suction from the refueling water tank on a safety injection actuation signal and automatically transferring suction to the containment sump on a recirculation actuation signal.

APPLICABILITY: MODES 1, 2, and 3*.

ACTION:

due to conditions other than one LPSI subtrain inoperable

a. With one ECCS subsystem inoperable, restore the inoperable subsystem to OPERABLE status within 72 hours or be in at least HOT STANDBY within the next 6 hours and in HOT SHUTDOWN within the following 6 hours.**

b. In the event the ECCS is actuated and injects water into the Reactor Coolant System, a Special Report shall be prepared and submitted to the Commission pursuant to Specification 6.9.2 within 90 days describing the circumstances of the actuation and the total accumulated actuation cycles to date. The current value of the usage factor for each affected injection nozzle shall be provided in this Special Report whenever its value exceeds 0.70.

Insert

a. With one LPSI subtrain inoperable, restore the LPSI subtrain to OPERABLE status within 7 days, or be in at least HOT STANDBY within the next 6 hours and in HOT SHUTDOWN within the following 6 hours.**

add

*With pressurizer pressure greater than or equal to 1837 psia.

** The conditions of ACTION a and ACTION b are allowed simultaneously only when they occur on the same ECCS subsystem.

PLANT SYSTEMS

3/4.7.11 SHUTDOWN COOLING SYSTEM

LIMITING CONDITION FOR OPERATION

3.7.11 Two independent shutdown cooling subsystems shall be OPERABLE, with each subsystem comprised of:

(LPSI)

a. One OPERABLE low pressure safety injection pump, and

b. An independent OPERABLE flow path capable of taking suction from the RCS hot leg and discharging coolant through the shutdown cooling heat exchanger and back to the RCS through the cold leg injection lines.

APPLICABILITY: MODES 1, 2, and 3.

due to conditions other than inoperable LPSI components

ACTION:

a. b. With one shutdown cooling subsystem inoperable, restore the inoperable subsystem to OPERABLE status within 72 hours or be in at least HOT STANDBY within 1 hour, be in at least HOT SHUTDOWN within the next 6 hours and be in COLD SHUTDOWN within the next 30 hours and continue action to restore the required subsystem to OPERABLE status.*

b. c. With both shutdown cooling subsystems inoperable, restore one subsystem to OPERABLE status within 1 hour or be in at least HOT STANDBY within 1 hour and be in HOT SHUTDOWN within the next 6 hours and continue action to restore the required subsystems to OPERABLE status.

c. d. With both shutdown cooling subsystems inoperable and both reactor coolant loops inoperable, initiate action to restore the required subsystems to OPERABLE status.

Insert

SURVEILLANCE REQUIREMENTS

4.7.11 Each shutdown cooling subsystem shall be demonstrated OPERABLE:

a. At least once per 18 months, during shutdown, by establishing shutdown cooling flow from the RCS hot legs, through the shutdown cooling heat exchangers, and returning to the RCS cold legs.

b. At least once per 18 months, during shutdown, by testing the open permissive interlock action of the shutdown cooling system connections from the RCS. The shutdown cooling system suction valves shall not open when RCS pressure is greater than 410 psia.

a. With one shutdown cooling subsystem inoperable due to inoperable LPSI components, restore the inoperable LPSI components to OPERABLE status within 7 days, or be in at least HOT STANDBY within 1 hour, be in at least HOT SHUTDOWN within the next 6 hours and be in COLD SHUTDOWN within the next 30 hours and continue action to restore the LPSI components to OPERABLE status.*

add

* The conditions of ACTION a and ACTION b are allowed simultaneously only when they occur on the same shutdown cooling subsystem.

SAFETY INJECTION TANKS (Continued)

to 1361 cubic feet and a maximum of 75% narrow range corresponding to 1927 cubic feet of borated water per tank, when three safety injection tanks are operable and a minimum of 36% wide range corresponding to 908 cubic feet and a maximum of 75% narrow range corresponding to 1927 cubic feet per tank, when four safety injection tanks are operable at a minimum pressure of 235 psig and a maximum pressure of 625 psig. To allow for instrument inaccuracy, 60% wide range instrument corresponding to 1415 cubic feet, and 72% narrow range instrument corresponding to 1914 cubic feet, when three safety injection tanks are operable, and 39% wide range instrument corresponding to 962 cubic feet, and 72% narrow range instrument corresponding to 1914 cubic feet, when four SITs are operable, are specified in the Technical Specifications. To allow for instrument inaccuracy 254 psig is specified in the Technical Specifications.

The instrumentation vs. volume correlation for the SITs is as follows:

Volume	Narrow Range	Wide Range
962 ft^3	<0%	39%
1415 ft^3	<0%	60%
1802 ft^3	28%	78%
1914 ft^3	72%	83%

3/4.5.2 and 3/4.5.3 ECCS SUBSYSTEMS

The OPERABILITY of two separate and independent ECCS subsystems with the RCS temperatures greater than or equal to 350°F ensures that sufficient emergency core cooling capability will be available in the event of a LOCA assuming the loss of one subsystem through any single failure consideration. Either subsystem operating in conjunction with the safety injection tanks is capable of supplying sufficient core cooling to limit the peak cladding temperatures within acceptable limits for all postulated break sizes ranging from the double-ended break of the largest RCS cold leg pipe downward. In addition, each ECCS subsystem provides long-term core cooling capability in the recirculation mode during the accident recovery period.

Add Insert C

With the RCS temperature below 350°F, one OPERABLE ECCS subsystem is acceptable without single failure consideration on the basis of the stable reactivity condition of the reactor and the limited core cooling requirements.

The trisodium phosphate dodecahydrate (TSP) stored in dissolving baskets located in the containment basement is provided to minimize the possibility of corrosion cracking of certain metal components during operation of the ECCS following a LOCA. The TSP provided this protection by dissolving in the sump water and causing its final pH to be raised to greater than or equal to 7.0.

The surveillance requirements provided to ensure OPERABILITY of each component ensure that at a minimum, the assumptions used in the safety analyses are met and that subsystem OPERABILITY is maintained. Surveillance requirements for throttle valve position stops and flow balance testing provide

INSERT C (BASES 3/4.5.2 and 3/4.5.3)

Action a addresses the specific condition where the only affected ECCS subsystem is a single LPSI subtrain. The availability of at least 100% of the ECCS flow equivalent to a single OPERABLE ECCS subsystem is implicit in the definition of Action a.

If LCO 3.5.2 requirements are not met due only to the existence of one LPSI subtrain inoperable (Action a), then the inoperable LPSI subtrain components must be returned to OPERABLE status within seven days of discovery. LPSI subtrain components include a LPSI pump and the valves and piping that ensure two injection LPSI flowpaths to the reactor coolant system, but do not include components that are used to ensure a HPSI flowpath. The seven day completion time is based on the findings of the deterministic and probabilistic analysis that are discussed in CE NPSD-995, "CEOG Joint Applications Report for Low Pressure Safety Injection System AOT Extension," May 1995. Seven days is a reasonable amount of time to perform many corrective and preventative maintenance items on the affected LPSI subtrain. CE NPSD-995 concluded that the overall risk impact of this completion time was either risk-beneficial or risk-neutral.

3/4.7.10 SEALED SOURCE CONTAMINATION

The limitations on removable contamination for sources requiring leak testing, including alpha emitters, is based on 10 CFR 70.39(c) limits for plutonium. This limitation will ensure that leakage from byproduct, source, and special nuclear material sources will not exceed allowable intake values.

Sealed sources are classified into three groups according to their use, with surveillance requirements commensurate with the probability of damage to a source in that group. Those sources which are frequently handled are required to be tested more often than those which are not. Sealed sources which are continuously enclosed within a shielded mechanism (i.e. sealed sources within radiation monitoring or boron measuring devices) are considered to be stored and need not be tested unless they are removed from the shield mechanism.

3/4.7.11 SHUTDOWN COOLING SYSTEM

The OPERABILITY of two separate and independent shutdown cooling subsystems ensures that the capability of initiating shutdown cooling in the event of an accident exists even assuming the most limiting single failure occurs. The safety analysis assumes that shutdown cooling can be initiated when conditions permit.

The limits of operation with one shutdown cooling inoperable for any reason minimize the time exposure of the plant to an accident event occurring concurrent with the failure of a component on the other shutdown cooling subsystem.

3/4.7.12 CONTROL ROOM AIR TEMPERATURE

Maintaining the control room air temperature less than or equal to 80°F ensures that (1) the ambient air temperature does not exceed the allowable air temperature for continuous duty rating for the equipment and instrumentation in the control room and (2) the control room will remain habitable for operations personnel during plant operation. The 30 days to return the control room air temperature to less than or equal to 80°F in the Action Statement is consistent with the equipment qualification program for the control room.

Insert

If LCO 3.7.11 requirements are not met due only to the existence of inoperable LPSI components in a shutdown cooling subsystem, then the inoperable LPSI components must be returned to OPERABLE status within seven days of discovery. The seven day completion time is based on the findings of the deterministic and probabilistic analysis that are discussed in CE NPSD-995, "CEOG Joint Applications Report for Low Pressure Safety Injection System AOT Extension," May 1995. Seven days is a reasonable amount of time to perform many corrective and preventative maintenance items on the affected LPSI components. CE NPSD-995 concluded that the overall risk impact of this completion time was either risk-beneficial or risk-neutral.

EMERGENCY CORE COOLING SYSTEMS

3/4.5.2 ECCS SUBSYSTEMS - T_{cold} GREATER THAN OR EQUAL TO 350°F

LIMITING CONDITION FOR OPERATION

3.5.2 Two independent Emergency Core Cooling System (ECCS) subsystems shall be OPERABLE with each subsystem comprised of:

a. One OPERABLE high-pressure safety injection pump,

b. One OPERABLE low-pressure safety injection pump, and

c. An independent OPERABLE flow path capable of taking suction from the refueling water tank on a safety injection actuation signal and automatically transferring suction to the containment sump on a recirculation actuation signal.

APPLICABILITY: MODES 1, 2, and 3*.

ACTION:

~~a.~~ b. With one ECCS subsystem inoperable, restore the inoperable subsystem to OPERABLE status within 72 hours or be in at least HOT STANDBY within the next 6 hours and in HOT SHUTDOWN within the following 6 hours.**

~~b.~~ c. In the event the ECCS is actuated and injects water into the Reactor Coolant System, a Special Report shall be prepared and submitted to the Commission pursuant to Specification 6.9.2 within 90 days describing the circumstances of the actuation and the total accumulated actuation cycles to date. The current value of the usage factor for each affected injection nozzle shall be provided in this Special Report whenever its value exceeds 0.70.

(LPSI)

delete

due to conditions other than one LPSI subtrain inoperable

Insert

a. With one LPSI subtrain inoperable, restore the LPSI subtrain to OPERABLE status within 7 days, or be in at least HOT STANDBY within the next 6 hours and in HOT SHUTDOWN within the following 6 hours.**

*With pressurizer pressure greater than or equal to 1837 psia.

delete

**~~The~~ 72 hour allowed outage time may be extended up to 144 hours ~~one time~~ per train ~~to allow the performance~~ of repair modifications to the Essential Cooling Water heat exchangers. This provision expires on December 30, 1993.

** The conditions of ACTION a and ACTION b are allowed simultaneously only when they occur on the same shutdown cooling subsystem.

FOR INFORMATION ONLY

3/4.7.11 SHUTDOWN COOLING SYSTEM

LIMITING CONDITIONS FOR OPERATION

3.7.11 Two independent shutdown cooling subsystems shall be OPERABLE, with each subsystem comprised of:

a. One OPERABLE low pressure safety injection (LPSI) pump, and

b. An independent OPERABLE flow path capable of taking suction from the RCS hot leg and discharging coolant through the shutdown cooling heat exchanger and back to the RCS through the cold leg injection lines.

APPLICABILITY: MODES 1, 2, and 3.

ACTION:

a. With one shutdown cooling subsystem inoperable due to conditions other than inoperable LPSI components, restore the inoperable subsystem to OPERABLE status within 72* hours or be in at least HOT STANDBY within 1 hour, be in at least HOT SHUTDOWN within the next 6 hours and be in COLD SHUTDOWN within the next 30 hours and continue action to restore the required subsystem to OPERABLE status. (*)

b. With both shutdown cooling subsystems inoperable, restore one subsystem to OPERABLE status within 1 hour or be in at least HOT STANDBY within 1 hour and be in HOT SHUTDOWN within the next 6 hours and continue action to restore the required subsystems to OPERABLE status.

c. With both shutdown cooling subsystems inoperable and both reactor coolant loops inoperable, initiate action to restore the required subsystems to OPERABLE status.

Insert 4

a. With one shutdown cooling subsystem inoperable due to inoperable LPSI components, restore the inoperable LPSI components to OPERABLE status within 7 days, or be in at least HOT STANDBY within 1 hour, be in at least HOT SHUTDOWN within the next 6 hours and be in COLD SHUTDOWN within the next 30 hours and continue action to restore the LPSI components to OPERABLE status.*

delete

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add

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SURVEILLANCE REQUIREMENTS

4.7.11 Each shutdown cooling subsystem shall be demonstrated OPERABLE:

a. At least once per 18 months, during shutdown, by establishing shutdown cooling flow from the RCS hot legs, through the shutdown cooling heat exchangers, and returning to the RCS cold legs.

b. At least once per 18 months, during shutdown, by testing the open permissive interlock action of the shutdown cooling system connections from the RCS. The shutdown cooling system suction valves shall not open when RCS pressure is greater than 410 psia.

SAFETY INJECTION TANKS (Continued)

the Technical Specifications require a minimum of 57% wide range corresponding to 1361 cubic feet and a maximum of 75% narrow range corresponding to 1927 cubic feet of borated water per tank, when three safety injection tanks are operable and a minimum of 36% wide range corresponding to 908 cubic feet and a maximum of 75% narrow range corresponding to 1927 cubic feet per tank, when four safety injection tanks are operable at a minimum pressure of 235 psig and a maximum pressure of 625 psig. To allow for instrument inaccuracy, 60% wide range instrument corresponding to 1415 cubic feet, and 72% narrow range instrument corresponding to 1914 cubic feet, when three safety injection tanks are operable, and 39% wide range instrument corresponding to 962 cubic feet, and 72% narrow range instrument corresponding to 1914 cubic feet, when four SITs are operable, are specified in the Technical Specifications. To allow for instrument inaccuracy 254 psig is specified in the Technical Specifications.

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3/4.5.2 and 3/4.5.3 ECCS SUBSYSTEMS

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Add Insert C → With the RCS temperature below 350°F, one OPERABLE ECCS subsystem is acceptable without single failure consideration on the basis of the stable reactivity condition of the reactor and the limited core cooling requirements.

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The surveillance requirements provided to ensure OPERABILITY of each component ensure that at a minimum, the assumptions used in the safety analyses are met and that subsystem OPERABILITY is maintained. Surveillance requirements for throttle valve position stops and flow balance testing provide

INSERT C (BASES 3/4.5.2 and 3/4.5.3)

Action a addresses the specific condition where the only affected ECCS subsystem is a single LPSI subtrain. The availability of at least 100% of the ECCS flow equivalent to a single OPERABLE ECCS subsystem is implicit in the definition of Action a.

If LCO 3.5.2 requirements are not met due only to the existence of one LPSI subtrain inoperable (Action a), then the inoperable LPSI subtrain components must be returned to OPERABLE status within seven days of discovery. LPSI subtrain components include a LPSI pump and the valves and piping that ensure two injection LPSI flowpaths to the reactor coolant system, but do not include components that are used to ensure a HPSI flowpath. The seven day completion time is based on the findings of the deterministic and probabilistic analysis that are discussed in CE NPSD-995, "CEOG Joint Applications Report for Low Pressure Safety Injection System AOT Extension," May 1995. Seven days is a reasonable amount of time to perform many corrective and preventative maintenance items on the affected LPSI subtrain. CE NPSD-995 concluded that the overall risk impact of this completion time was either risk-beneficial or risk-neutral.

3/4.7.10 SEALED SOURCE CONTAMINATION

The limitations on removable contamination for sources requiring leak testing, including alpha emitters, is based on 10 CFR 70.39(c) limits for plutonium. This limitation will ensure that leakage from byproduct, source, and special nuclear material sources will not exceed allowable intake values.

Sealed sources are classified into three groups according to their use, with surveillance requirements commensurate with the probability of damage to a source in that group. Those sources which are frequently handled are required to be tested more often than those which are not. Sealed sources which are continuously enclosed within a shielded mechanism (i.e. sealed sources within radiation monitoring or boron measuring devices) are considered to be stored and need not be tested unless they are removed from the shield mechanism.

3/4.7.11 SHUTDOWN COOLING SYSTEM

The OPERABILITY of two separate and independent shutdown cooling subsystems ensures that the capability of initiating shutdown cooling in the event of an accident exists even assuming the most limiting single failure occurs. The safety analysis assumes that shutdown cooling can be initiated when conditions permit.

The limits of operation with one shutdown cooling inoperable for any reason minimize the time exposure of the plant to an accident event occurring concurrent with the failure of a component on the other shutdown cooling subsystem.

3/4.7.12 CONTROL ROOM AIR TEMPERATURE

Maintaining the control room air temperature less than or equal to 80°F ensures that (1) the ambient air temperature does not exceed the allowable air temperature for continuous duty rating for the equipment and instrumentation in the control room and (2) the control room will remain habitable for operations personnel during plant operation. The 30 days to return the control room air temperature to less than or equal to 80°F in the Action Statement is consistent with the equipment qualification program for the control room.

Insert

If LCO 3.7.11 requirements are not met due only to the existence of inoperable LPSI components in a shutdown cooling subsystem, then the inoperable LPSI components must be returned to OPERABLE status within seven days of discovery. The seven day completion time is based on the findings of the deterministic and probabilistic analysis that are discussed in CE NPSD-995, "CEOG Joint Applications Report for Low Pressure Safety Injection System AOT Extension," May 1995. Seven days is a reasonable amount of time to perform many corrective and preventative maintenance items on the affected LPSI components. CE NPSD-995 concluded that the overall risk impact of this completion time was either risk-beneficial or risk-neutral.

EMERGENCY CORE COOLING SYSTEMS

3/4.5.2 ECCS SUBSYSTEMS - T_{cold} GREATER THAN OR EQUAL TO 350°F

LIMITING CONDITION FOR OPERATION

3.5.2 Two independent Emergency Core Cooling System (ECCS) subsystems shall be OPERABLE with each subsystem comprised of:

a. One OPERABLE high-pressure safety injection pump, (LPSI)

b. One OPERABLE low-pressure safety injection pump, and

c. An independent OPERABLE flow path capable of taking suction from the refueling water tank on a safety injection actuation signal and automatically transferring suction to the containment sump on a recirculation actuation signal.

APPLICABILITY: MODES 1, 2, and 3*.

ACTION:

due to conditions other than one LPSI subtrain inoperable

~~a.~~ b. With one ECCS subsystem inoperable, restore the inoperable subsystem to OPERABLE status within 72 hours or be in at least HOT STANDBY within the next 6 hours and in HOT SHUTDOWN within the following 6 hours.(**)

~~b.~~ c. In the event the ECCS is actuated and injects water into the Reactor Coolant System, a Special Report shall be prepared and submitted to the Commission pursuant to Specification 6.9.2 within 90 days describing the circumstances of the actuation and the total accumulated actuation cycles to date. The current value of the usage factor for each affected injection nozzle shall be provided in this Special Report whenever its value exceeds 0.70.

Insert

a. With one LPSI subtrain inoperable, restore the LPSI subtrain to OPERABLE status within 7 days, or be in at least HOT STANDBY within the next 6 hours and in HOT SHUTDOWN within the following 6 hours.**

*With pressurizer pressure greater than or equal to 1837 psia.

add

** The conditions of ACTION a and ACTION b are allowed simultaneously only when they occur on the same ECCS subsystem.

PLANT SYSTEMS

3/4.7.11 SHUTDOWN COOLING SYSTEM

LIMITING CONDITION FOR OPERATION

3.7.11 Two independent shutdown cooling subsystems shall be OPERABLE, with each subsystem comprised of:

(LPSI)

a. One OPERABLE low pressure safety injection pump, and

b. An independent OPERABLE flow path capable of taking suction from the RCS hot leg and discharging coolant through the shutdown cooling heat exchanger and back to the RCS through the cold leg injection lines.

APPLICABILITY: MODES 1, 2, and 3.

due to conditions other than inoperable LPSI components

ACTION:

(a.) b. With one shutdown cooling subsystem inoperable, restore the inoperable subsystem to OPERABLE status within 72 hours or be in at least HOT STANDBY within 1 hour, be in at least HOT SHUTDOWN within the next 6 hours and be in COLD SHUTDOWN within the next 30 hours and continue action to restore the required subsystem to OPERABLE status.(*)

(b.) c. With both shutdown cooling subsystems inoperable, restore one subsystem to OPERABLE status within 1 hour or be in at least HOT STANDBY within 1 hour and be in HOT SHUTDOWN within the next 6 hours and continue action to restore the required subsystems to OPERABLE status.

(c.) d. With both shutdown cooling subsystems inoperable and both reactor coolant loops inoperable, initiate action to restore the required subsystems to OPERABLE status.

Insert

SURVEILLANCE REQUIREMENTS

4.7.11 Each shutdown cooling subsystem shall be demonstrated OPERABLE:

a. At least once per 18 months, during shutdown, by establishing shutdown cooling flow from the RCS hot legs, through the shutdown cooling heat exchangers, and returning to the RCS cold legs.

b. At least once per 18 months, during shutdown, by testing the open permissive interlock action of the shutdown cooling system connections from the RCS. The shutdown cooling system suction valves shall not open when RCS pressure is greater than 410 psia.

a. With one shutdown cooling subsystem inoperable due to inoperable LPSI components, restore the inoperable LPSI components to OPERABLE status within 7 days, or be in at least HOT STANDBY within 1 hour, be in at least HOT SHUTDOWN within the next 6 hours and be in COLD SHUTDOWN within the next 30 hours and continue action to restore the LPSI components to OPERABLE status.*

add

* The conditions of ACTION a and ACTION b are allowed simultaneously only when they occur on the same shutdown cooling subsystem.

SAFETY INJECTION TANKS (Continued)

to 1361 cubic feet and a maximum of 75% narrow range corresponding to 1927 cubic feet of borated water per tank, when three safety injection tanks are operable and a minimum of 36% wide range corresponding to 908 cubic feet and a maximum of 75% narrow range corresponding to 1927 cubic feet per tank, when four safety injection tanks are operable at a minimum pressure of 235 psig and a maximum pressure of 625 psig. To allow for instrument inaccuracy, 60% wide range instrument corresponding to 1415 cubic feet, and 72% narrow range instrument corresponding to 1914 cubic feet, when three safety injection tanks are operable, and 39% wide range instrument corresponding to 962 cubic feet, and 72% narrow range instrument corresponding to 1914 cubic feet, when four SITs are operable, are specified in the Technical Specifications. To allow for instrument inaccuracy 254 psig is specified in the Technical Specifications.

The instrumentation vs. volume correlation for the SITs is as follows:

Volume	Narrow Range	Wide Range
962 ft^3	<0%	39%
1415 ft^3	<0%	60%
1802 ft^3	28%	78%
1914 ft^3	72%	83%

3/4.5.2 and 3/4.5.3 ECCS SUBSYSTEMS

The OPERABILITY of two separate and independent ECCS subsystems with the RCS temperatures greater than or equal to 350°F ensures that sufficient emergency core cooling capability will be available in the event of a LOCA assuming the loss of one subsystem through any single failure consideration. Either subsystem operating in conjunction with the safety injection tanks is capable of supplying sufficient core cooling to limit the peak cladding temperatures within acceptable limits for all postulated break sizes ranging from the double-ended break of the largest RCS cold leg pipe downward. In addition, each ECCS subsystem provides long-term core cooling capability in the recirculation mode during the accident recovery period.

Add Insert C

With the RCS temperature below 350°F, one OPERABLE ECCS subsystem is acceptable without single failure consideration on the basis of the stable reactivity condition of the reactor and the limited core cooling requirements.

The trisodium phosphate dodecahydrate (TSP) stored in dissolving baskets located in the containment basement is provided to minimize the possibility of corrosion cracking of certain metal components during operation of the ECCS following a LOCA. The TSP provided this protection by dissolving in the sump water and causing its final pH to be raised to greater than or equal to 7.0.

The surveillance requirements provided to ensure OPERABILITY of each component ensure that at a minimum, the assumptions used in the safety analyses are met and that subsystem OPERABILITY is maintained. Surveillance requirements for throttle valve position stops and flow balance testing provide

INSERT C (BASES 3/4.5.2 and 3/4.5.3)

Action a addresses the specific condition where the only affected ECCS subsystem is a single LPSI subtrain. The availability of at least 100% of the ECCS flow equivalent to a single OPERABLE ECCS subsystem is implicit in the definition of Action a.

If LCO 3.5.2 requirements are not met due only to the existence of one LPSI subtrain inoperable (Action a), then the inoperable LPSI subtrain components must be returned to OPERABLE status within seven days of discovery. LPSI subtrain components include a LPSI pump and the valves and piping that ensure two injection LPSI flowpaths to the reactor coolant system, but do not include components that are used to ensure a HPSI flowpath. The seven day completion time is based on the findings of the deterministic and probabilistic analysis that are discussed in CE NPSD-995, "CEOG Joint Applications Report for Low Pressure Safety Injection System AOT Extension," May 1995. Seven days is a reasonable amount of time to perform many corrective and preventative maintenance items on the affected LPSI subtrain. CE NPSD-995 concluded that the overall risk impact of this completion time was either risk-beneficial or risk-neutral.

3/4.7.10 SEALED SOURCE CONTAMINATION

The limitations on removable contamination for sources requiring leak testing, including alpha emitters, is based on 10 CFR 70.39(c) limits for plutonium. This limitation will ensure that leakage from byproduct, source, and special nuclear material sources will not exceed allowable intake values.

Sealed sources are classified into three groups according to their use, with surveillance requirements commensurate with the probability of damage to a source in that group. Those sources which are frequently handled are required to be tested more often than those which are not. Sealed sources which are continuously enclosed within a shielded mechanism (i.e. sealed sources within radiation monitoring or boron measuring devices) are considered to be stored and need not be tested unless they are removed from the shield mechanism.

3/4.7.11 SHUTDOWN COOLING SYSTEM

The OPERABILITY of two separate and independent shutdown cooling subsystems ensures that the capability of initiating shutdown cooling in the event of an accident exists even assuming the most limiting single failure occurs. The safety analysis assumes that shutdown cooling can be initiated when conditions permit.

The limits of operation with one shutdown cooling inoperable for any reason minimize the time exposure of the plant to an accident event occurring concurrent with the failure of a component on the other shutdown cooling subsystem.

3/4.7.12 CONTROL ROOM AIR TEMPERATURE

Maintaining the control room air temperature less than or equal to 80°F ensures that (1) the ambient air temperature does not exceed the allowable air temperature for continuous duty rating for the equipment and instrumentation in the control room and (2) the control room will remain habitable for operations personnel during plant operation. The 30 days to return the control room air temperature to less than or equal to 80°F in the Action Statement is consistent with the equipment qualification program for the control room.

Insert

If LCO 3.7.11 requirements are not met due only to the existence of inoperable LPSI components in a shutdown cooling subsystem, then the inoperable LPSI components must be returned to OPERABLE status within seven days of discovery. The seven day completion time is based on the findings of the deterministic and probabilistic analysis that are discussed in CE NPSD-995, "CEOG Joint Applications Report for Low Pressure Safety Injection System AOT Extension," May 1995. Seven days is a reasonable amount of time to perform many corrective and preventative maintenance items on the affected LPSI components. CE NPSD-995 concluded that the overall risk impact of this completion time was either risk-beneficial or risk-neutral.

H. SUPPORTING CEOG REPORT: CE NPSD-995, "CEOG JOINT APPLICATIONS REPORT FOR LOW PRESSURE SAFETY INJECTION SYSTEM AOT EXTENSION," MAY 1995

ENCLOSURE 3

PROPOSED AMENDMENT TO TECHNICAL SPECIFICATION

SECTION 3/4.8.1.1 and BASES

A. DESCRIPTION OF THE TECHNICAL SPECIFICATION AMENDMENT REQUEST

This change would revise Technical Specification 3/4.8.1.1 as follows:

- o Extend the allowed outage time (AOT) for an inoperable emergency diesel generator (EDG) from the existing limit of 72 hours to seven days.

- o Add a once-per-cycle 10-day AOT for an inoperable EDG for the purposes of either corrective maintenance (CM) or preventive maintenance (PM).

- o Delete the Surveillance Requirement (SR) (4.8.1.1.2.d.1) that currently requires the EDG to be inspected at least once per 18 months during shutdown. This SR has already been removed in NUREG-1432, "Standard Technical Specifications for Combustion Engineering Plants."

The Bases for Section 3/4.8.1 would also be changed to incorporate a description of the bases for the revised AOTs. In addition, an outdated footnote would be deleted from the PVNGS Unit 2 Technical Specifications.

B. PURPOSE OF THE TECHNICAL SPECIFICATIONS

The operability of the AC and DC power sources and associated distribution systems during operation ensures that sufficient power will be available to supply the safety-related equipment required for 1) the safe shutdown of the facility and 2) the mitigation and control of accident conditions within the facility.

The action requirements specified for the levels of degradation of the power sources provide restriction upon continued facility operation commensurate with the level of degradation. The operability of the power sources is consistent with the initial condition assumptions of the safety analyses and is based upon maintaining at least one redundant set of onsite AC and DC power sources and associated distribution systems operable during accident conditions coincident with an assumed loss-of-offsite power and single failure of the other onsite AC source.

The surveillance requirements for demonstrating the operability of the diesel generators are in accordance with the recommendations of Regulatory Guides 1.9 "Selection of Diesel Generator Set Capacity for Standby Power Supplies;" March 10, 1971, and 1.108 "Periodic Testing of Diesel Generator Units Used as Onsite Electric Power Systems at Nuclear Power Plants," Revision 1, August 1977.

C. NEED FOR THE TECHNICAL SPECIFICATION AMENDMENT

The proposed changes would:

- o Allow increased flexibility in the scheduling and performance of preventive maintenance.

- o Allow the plant better control of resource allocation. During outage maintenance windows plant personnel and resources are spread across a large variety of maintenance tasks. Allowing on-line maintenance gives the plant the flexibility to focus more quality resources on any required or elected EDG maintenance.

- o Avert unplanned plant shutdown and minimize the potential for requests for temporary exemptions to allow continued operation. Risks incurred by unexpected plant shutdowns can be comparable to and often exceed those associated with continued power operation.

- o Improve EDG availability during shutdown modes.

D. SAFETY ANALYSIS FOR THE TECHNICAL SPECIFICATION AMENDMENT REQUEST

This request for AOT extension is consistent with the objectives and intent of 10 CFR 50.65, Appendix A, "Maintenance Rule," and the draft NRC staff guidance for incorporation of EDG reliability requirements within the maintenance rule, as identified in SECY-93-044, "Resolution of Generic Safety Issue B-56, 'Diesel Generator Reliability'," letter to ACRS from J. Taylor (NRC), Enclosure 8. That is, the maintenance rule will be the vehicle which controls the actual maintenance cycle by defining unavailability and reliability performance criteria and assessing maintenance risk. The requested AOT extensions will allow efficient scheduling of maintenance within the boundaries established by implementing the maintenance rule. PVNGS is in the process of implementing the maintenance rule, and is presently setting targets for unavailability and reliability of systems and trains. Therefore, this effort is seen as timely, supportive and integral to the maintenance rule program.

The Combustion Engineering Owners Group (CEOG) "Joint Applications Report for Emergency Diesel Generator AOT Extension," CE NPSD-996, May 1995, has demonstrated risk calculations associated with the requested AOT extension. The results of the analyses indicate that incorporation of the extended AOT into the Technical Specification can potentially result in negligible to small increase in the "at power" risk. When the full scope of risk is considered, the risks incurred by extending the AOT for either corrective or preventive maintenance will be substantially offset by plant benefits associated with avoiding unnecessary plant transitions and/or by reducing risks during plant shutdown operations, improved EDG reliability upon entering shutdown, and

implementation of compensatory measures. The combined results indicate that the risk of performing EDG maintenance at power varies from risk neutral or risk beneficial to risk neutral depending upon the duration and type of maintenance.

The unavailability of one EDG was found to not significantly impact the three classes of events that give rise to large early releases. These include containment bypass sequences, severe accidents accompanied by loss of containment isolation, and containment failure due to energetic events in containment. It is concluded that increased unavailability of an EDG will result in a negligible impact on the large early release probability for PVNGS.

Deleting the 18-month SR (4.8.1.1.2.d.1) for subjecting the EDG to inspection procedures prepared in conjunction with manufacturer's recommendations will not reduce the reliability of the EDG. The EDG will continue to be inspected in accordance with manufacturer's recommendations as part of controlled maintenance programs. The change merely permits taking credit for current maintenance activities without specifying the EDG inspection in an SR. Sufficient SRs are retained to demonstrate the functional capability of the EDGs in accordance with the recommendations of Regulatory Guides 1.9 "Selection of Diesel Generator Set Capacity for Standby Power Supplies," March 10, 1971, and 1.108 "Periodic Testing of Diesel Generator Units Used as Onsite Electric Power Systems at Nuclear Power Plants," Revision 1, August 1977. This change is consistent with NUREG-1432, "Standard Technical Specifications for Combustion Engineering Plants" in that the requirement to inspect the EDGs in accordance with the manufacturer's recommendations is not specifically included in NUREG-1432. Per the guidance specified in GL 94-01 and RG 1.160, EDG reliability and availability will be monitored by the PVNGS Maintenance Rule Program, ensuring appropriate inspections and maintenance activities.

An editorial change will delete an outdated footnote from the Unit 2 Technical Specifications. That footnote, which allowed a surveillance requirement to be deferred, expired on December 31, 1991.

E. NO SIGNIFICANT HAZARDS CONSIDERATION DETERMINATION

The Commission has provided standards for determining whether a significant hazards consideration exists as stated in 10 CFR 50.92. A proposed amendment to an operating license for a facility involves a no significant hazards consideration if operation of the facility in accordance with a proposed amendment would not:

(1) involve a significant increase in the probability or consequences of an accident previously evaluated; or
(2) create the possibility of a new or a different kind of accident from any accident previously evaluated; or
(3) involve a significant reduction in a margin of safety.

Standard 1 -- Does the proposed change involve a significant increase in the probability or consequences of an accident previously evaluated?

This proposed amendment does not involve a significant increase in the probability or consequences of an accident previously evaluated.

The emergency diesel generators (EDGs) are backup alternating current power sources designed to power essential safety systems in the event of a loss of offsite power. EDGs are not an accident initiator in any accident previously evaluated. Therefore, this change does not involve an increase in the probability of an accident previously evaluated.

The EDGs provide backup power to components that mitigate the consequences of accidents. The proposed changes to allowed outage times (AOTs) do not affect any of the assumptions used in the deterministic safety analyses.

In order to fully evaluate the affect of the EDG AOT extension, Probabilistic Safety Analysis (PSA) methods were utilized. The results of these analyses show no significant increase in the core damage frequency. As a result, there would be no significant increase in the consequences of accidents previously evaluated. These analyses are detailed in CE NPSD-996, Combustion Engineering Owners Group "Joint Applications Report for Emergency Diesel Generators AOT Extension," May 1995.

Deleting the 18 month SR requirement (old SR 4.8.1.1.2.d.1) for subjecting the EDG to inspection procedures prepared in conjunction with manufacturer's recommendations will not reduce the reliability of the EDG. The EDG will continue to be inspected in accordance with manufacturer's recommendations as part of controlled maintenance programs. The change merely permits taking credit for current maintenance activities without specifying the EDG inspection in an SR. Sufficient SRs are retained to demonstrate the functional capability of the EDGs in accordance with the recommendations of Regulatory Guides 1.9 "Selection of Diesel Generator Set Capacity for Standby Power Supplies," March 10, 1971, and 1.108 "Periodic Testing of Diesel Generator Units Used as Onsite Electric Power Systems at Nuclear Power Plants," Revision 1, August 1977. This change is consistent with NUREG-1432, "Standard Technical Specifications for Combustion Engineering Plants" in that the requirement to inspect the EDGs in accordance with the manufacturer's recommendations is not specifically included in NUREG-1432. Per the guidance specified in GL 94-01 and RG 1.160, EDG reliability and availability will be monitored by the PVNGS Maintenance Rule Program, ensuring appropriate inspections and maintenance activities.

Standard 2 -- Does the proposed change create the possibility of a new or different kind of accident from any accident previously evaluated?

This proposed change does not change the design, configuration, or method of operation of the plant. Therefore, this change does not create the possibility of a new or different kind of accident from any previously evaluated.

Standard 3 -- Does the proposed change involve a significant reduction in a margin of safety?

The proposed changes do not involve a significant reduction in a margin of safety. The proposed changes do not affect the limiting conditions for operation or their bases that are used in the deterministic analyses to establish the margin of safety. PSA evaluations were used to evaluate these changes. These evaluations demonstrated that the changes are either risk neutral or risk beneficial. These evaluations are detailed in CE NPSD-996.

Deleting the 18-month SR requirement (old SR 4.8.1.1.2.d.1) for subjecting the EDG to inspection procedures prepared in conjunction with manufacturer's recommendations will not reduce the reliability of the EDG. The EDG will continue to be inspected in accordance with manufacturer's recommendations as part of controlled maintenance programs. The change merely permits taking credit for current maintenance activities without specifying the EDG inspection in an SR. Sufficient SRs are retained to demonstrate the functional capability of the EDGs in accordance with the recommendations of Regulatory Guides 1.9 "Selection of Diesel Generator Set Capacity for Standby Power Supplies," March 10, 1971, and 1.108 "Periodic Testing of Diesel Generator Units Used as Onsite Electric Power Systems at Nuclear Power Plants," Revision 1, August 1977.

F. ENVIRONMENTAL CONSIDERATION

APS has determined that the proposed amendment involves no change in the amount or type of effluent that may be released offsite, and that there is no increase in individual or cumulative occupational radiation exposure. As such, operation of PVNGS Units 1, 2, and 3, in accordance with the proposed amendments, does not involve an unreviewed environmental safety question.

G. MARKED-UP TECHNICAL SPECIFICATION PAGES

PVNGS Units 1, 2, and 3 pages:

3/4 8-1
3/4 8-4
B 3/4 8-1

3/4.8 ELECTRICAL POWER SYSTEMS

3/4.8.1 A.C. SOURCES

OPERATING

LIMITING CONDITION FOR OPERATION

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

a. Two physically independent circuits from the offsite transmission network to the switchyard and two physically independent circuits from the switchyard to the onsite Class 1E distribution system, and

b. Two separate and independent diesel generators, each with:

1. Separate day fuel tank with a minimum level of 2.75 feet (550 gallons of fuel), and

2. A separate fuel storage system with a minimum level of 80% (71,500 gallons of fuel), and

3. A separate fuel transfer pump.

APPLICABILITY: MODES 1, 2, 3 and 4.

ACTION:

a. With one offsite circuit of 3.8.1.1.a inoperable, demonstrate the OPERABILITY of the remaining A.C. sources by performing Surveillance Requirements 4.8.1.1.1.a within 1 hour and at least once per 8 hours thereafter. If either EDG has not been successfully tested within the past 24 hours, demonstrate its OPERABILITY by performing Surveillance Requirement 4.8.1.1.2.a.4 separately for each such EDG, unless it is already operating, within 24 hours. Restore the offsite circuit to OPERABLE status within 72 hours or be in at least HOT STANDBY within the next 6 hours and in COLD SHUTDOWN within the following 30 hours.

b. With one emergency diesel generator of 3.8.1.1.b inoperable, demonstrate the OPERABILITY of the A.C. offsite sources by performing Surveillance Requirement 4.8.1.1.1.a within 1 hour and at least once per 8 hours thereafter; and if the EDG became inoperable due to any cause other than preplanned preventative maintenance or testing, demonstrate the OPERABILITY of the remaining OPERABLE EDG by performing Surveillance Requirement 4.8.1.1.2.a.4 within 24 hours*; restore the diesel generator to OPERABLE status within ~~72 hours~~ 7 days** or be in at least HOT STANDBY within the next 6 hours and in COLD SHUTDOWN within the following 30 hours.

*This test is required to be completed regardless of when the inoperable EDG is restored to OPERABILITY.

** Once per fuel cycle, for only one of the EDGs, the completion time may be extended to 10 days.

ELECTRICAL POWER SYSTEM

SURVEILLANCE REQUIREMENTS (Continued)

4.8.1.1.2 (Continued)

b. At least once per 92 days by verifying that a sample of diesel fuel from the fuel storage tank obtained in accordance with ASTM-D4176-82, is within the acceptable limits specified in Table 1 of ASTM D975-81 when checked for viscosity, water and sediment.

c. At least once per 184 days the diesel generator shall be started** and accelerated to generator voltage and frequency at 4160 ± 420 volts and 60 ± 1.2 Hz in less than or equal to 10 seconds. The generator voltage and frequency shall be 4160 ± 420 volts and 60 ± 1.2 Hz within 10 seconds after the start signal. The generator shall be manually synchronized to its appropriate emergency bus, loaded to an indicated 5200-5400*** kW in less than or equal to 60 seconds, and operate for at least 60 minutes.

This test, if it is performed so it coincides with the testing required by Surveillance Requirement 4.8.1.1.2.a.4, may also serve to concurrently meet those requirements as well.

d. At least once per 18 months during shutdown by:

add → This paragraph not used.

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.~~ ← delete

2. Verifying the generator capability to reject a single largest load of greater than or equal to 903 kW (Train B AFW pump) for emergency diesel generator B or 842 kW for emergency diesel generator A (Train A Normal Water Chiller) while maintaining voltage at 4160 ± 420 volts and frequency at 60 ± 1.2 Hz.

3. Verifying the generator capability to reject a load of 5500 kW without tripping. The generator voltage shall not exceed 6200 volts during and following the load rejection.

4. Verifying that the automatic load sequencers are OPERABLE with the interval between each load block within ± 1 second of its design interval.

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

***This band is meant as guidance to avoid routine overloading of the engine. Loads in excess of this band for special testing under direct monitoring of the manufacturer or momentary variations due to changing bus loads shall not invalidate the test.

3/4.8 ELECTRICAL POWER SYSTEMS

BASES

3/4.8.1, 3/4.8.2 and 3/4.8.3 A.C. SOURCES, D.C SOURCES and ONSITE POWER DISTRIBUTION SYSTEMS

The OPERABILITY of the A.C. and D.C. power sources and associated distribution systems during operation ensures that sufficient power will be available to supply the safety-related equipment required for (1) the safe shutdown of the facility and (2) the mitigation and control of accident conditions within the facility. The minimum specified independent and redundant A.C. and D.C. power sources and distribution systems satisfy the requirements of General Design Criterion 17 of Appendix "A" to 10 CFR 50.

The ACTION requirements specified for the levels of degradation of the power sources provide restriction upon continued facility operation commensurate with the level of degradation. The OPERABILITY of the power sources are consistent with the initial condition assumptions of the safety analyses and are based upon maintaining at least one redundant set of onsite A.C. and D.C. power sources and associated distribution systems OPERABLE during accident conditions coincident with an assumed loss-of-offsite power and single failure of the other onsite A.C. source.

Add insert D

The required steady state frequency for the emergency diesels is 60 + 1.2/-0.3 Hz to be consistent with the safety analysis to provide adequate safety injection flow.

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 surveillance requirements for demonstrating the OPERABILITY of the diesel generators are in accordance with the recommendations of Regulatory Guides 1.9 "Selection of Diesel Generator Set Capacity for Standby Power Supplies," March 10, 1971, and 1.108 "Periodic Testing of Diesel Generator Units Used as Onsite Electric Power Systems at Nuclear Power Plants," Revision 1, August 1977. Surveillance load testing uses the referenced equipment or equivalent loading.

INSERT D (BASES 3/4.8.1)

With respect to ACTION b of LCO 3.8.1.1, according to CE NPSD-996, "CEOG Joint Applications Report for Emergency Diesel Generator AOT Extension," May 1995, operation may continue with one EDG inoperable for a period that should not exceed 7 days. Additionally, CE NPSD-996 states that operation may continue with one EDG inoperable for a maximum continuous period of 10 days on a once per refueling cycle frequency. CE NPSD-996 provides a series of deterministic and probabilistic justifications for the completion times corresponding to the periods in which continued power operations are allowed with one EDG inoperable. With one EDG inoperable, the remaining OPERABLE EDG and offsite circuits are adequate to supply electrical power to the onsite Class 1E power distribution system. The 7 day completion time takes into account the capacity and capability of the remaining AC sources; a reasonable time for corrective or preventive maintenance, and the low probability of a DBA occurring during this period.

3/4.8 ELECTRICAL POWER SYSTEMS

3/4.8.1 A.C. SOURCES

OPERATING

LIMITING CONDITION FOR OPERATION

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

a. Two physically independent circuits from the offsite transmission network to the switchyard and two physically independent circuits from the switchyard to the onsite Class 1E distribution system, and

b. Two separate and independent diesel generators, each with:

1. Separate day fuel tank with a minimum level of 2.75 feet (550 gallons of fuel), and

2. A separate fuel storage system with a minimum level of 80% (71,500 gallons of fuel), and

3. A separate fuel transfer pump.

APPLICABILITY: MODES 1, 2, 3 and 4.

ACTION:

a. With one offsite circuit of 3.8.1.1.a inoperable, demonstrate the OPERABILITY of the remaining A.C. sources by performing Surveillance Requirements 4.8.1.1.1.a within 1 hour and at least once per 8 hours thereafter. If either EDG has not been successfully tested within the past 24 hours, demonstrate its OPERABILITY by performing Surveillance Requirement 4.8.1.1.2.a.4 separately for each such EDG, unless it is already operating, within 24 hours. Restore the offsite circuit to OPERABLE status within 72 hours or be in at least HOT STANDBY within the next 6 hours and in COLD SHUTDOWN within the following 30 hours.

b. With one emergency diesel generator of 3.8.1.1.b inoperable, demonstrate the OPERABILITY of the A.C. offsite sources by performing Surveillance Requirement 4.8.1.1.1.a within 1 hour and at least once per 8 hours thereafter; and if the EDG became inoperable due to any cause other than preplanned preventative maintenance or testing, demonstrate the OPERABILITY of the remaining OPERABLE EDG by performing Surveillance Requirement 4.8.1.1.2.a.4 within 24 hours*; restore the diesel generator to OPERABLE status within ~~72 hours~~ 7 days** or be in at least HOT STANDBY within the next 6 hours and in COLD SHUTDOWN within the following 30 hours.

*This test is required to be completed regardless of when the inoperable EDG is restored to OPERABILITY.

add

** Once per fuel cycle, for only one of the EDGs, the completion time may be extended to 10 days.

ELECTRICAL POWER SYSTEM

SURVEILLANCE REQUIREMENTS (Continued)

4.8.1.1.2 (Continued)

b. At least once per 92 days by verifying that a sample of diesel fuel from the fuel storage tank obtained in accordance with ASTM-D4176-82, is within the acceptable limits specified in Table 1 of ASTM D975-81 when checked for viscosity, water and sediment.

c. At least once per 184 days the diesel generator shall be started** and accelerated to generator voltage and frequency at 4160 ± 420 volts and 60 ± 1.2 Hz in less than or equal to 10 seconds. The generator voltage and frequency shall be 4160 ± 420 volts and 60 ± 1.2 Hz within 10 seconds after the start signal. The generator shall be manually synchronized to its appropriate emergency bus, loaded to an indicated 5200-5400*** kW in less than or equal to 60 seconds, and operate for at least 60 minutes.

This test, if it is performed so it coincides with the testing required by Surveillance Requirement 4.8.1.1.2.a.4, may also serve to concurrently meet those requirements as well.

d. At least once per 18 months during shutdown by:

add → This paragraph not used.

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.*~~ ← delete

delete ↓

~~*Except that the Surveillance Requirement inspection due no later than September 29, 1991, may be deferred until the next refueling outage but no later than December 31, 1991.~~

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

***This band is meant as guidance to avoid routine overloading of the engine. Loads in excess of this band for special testing under direct monitoring of the manufacturer or momentary variations due to changing bus loads shall not invalidate the test.

3/4.8 ELECTRICAL POWER SYSTEMS

BASES

3/4.8.1, 3/4.8.2 and 3/4.8.3 A.C. SOURCES, D.C SOURCES and ONSITE POWER DISTRIBUTION SYSTEMS

The OPERABILITY of the A.C. and D.C. power sources and associated distribution systems during operation ensures that sufficient power will be available to supply the safety-related equipment required for (1) the safe shutdown of the facility and (2) the mitigation and control of accident conditions within the facility. The minimum specified independent and redundant A.C. and D.C. power sources and distribution systems satisfy the requirements of General Design Criterion 17 of Appendix "A" to 10 CFR 50.

The ACTION requirements specified for the levels of degradation of the power sources provide restriction upon continued facility operation commensurate with the level of degradation. The OPERABILITY of the power sources are consistent with the initial condition assumptions of the safety analyses and are based upon maintaining at least one redundant set of onsite A.C. and D.C. power sources and associated distribution systems OPERABLE during accident conditions coincident with an assumed loss-of-offsite power and single failure of the other onsite A.C. source.

Add insert D

The required steady state frequency for the emergency diesels is 60 + 1.2/ -0.3 Hz to be consistent with the safety analysis to provide adequate safety injection flow.

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 surveillance requirements for demonstrating the OPERABILITY of the diesel generators are in accordance with the recommendations of Regulatory Guides 1.9 "Selection of Diesel Generator Set Capacity for Standby Power Supplies," March 10, 1971, and 1.108 "Periodic Testing of Diesel Generator Units Used as Onsite Electric Power Systems at Nuclear Power Plants," Revision 1, August 1977. Surveillance load testing uses the referenced equipment or equivalent loading.

INSERT D (BASES 3/4.8.1)

With respect to ACTION b of LCO 3.8.1.1, according to CE NPSD-996, "CEOG Joint Applications Report for Emergency Diesel Generator AOT Extension," May 1995, operation may continue with one EDG inoperable for a period that should not exceed 7 days. Additionally, CE NPSD-996 states that operation may continue with one EDG inoperable for a maximum continuous period of 10 days on a once per refueling cycle frequency. CE NPSD-996 provides a series of deterministic and probabilistic justifications for the completion times corresponding to the periods in which continued power operations are allowed with one EDG inoperable. With one EDG inoperable, the remaining OPERABLE EDG and offsite circuits are adequate to supply electrical power to the onsite Class 1E power distribution system. The 7 day completion time takes into account the capacity and capability of the remaining AC sources, a reasonable time for corrective or preventive maintenance, and the low probability of a DBA occurring during this period.

3/4.8 ELECTRICAL POWER SYSTEMS

3/4.8.1 A.C. SOURCES

OPERATING

LIMITING CONDITION FOR OPERATION

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

a. Two physically independent circuits from the offsite transmission network to the switchyard and two physically independent circuits from the switchyard to the onsite Class 1E distribution system, and

b. Two separate and independent diesel generators, each with:

1. Separate day fuel tank with a minimum level of 2.75 feet (550 gallons of fuel), and

2. A separate fuel storage system with a minimum level of 80% (71,500 gallons of fuel), and

3. A separate fuel transfer pump.

APPLICABILITY: MODES 1, 2, 3 and 4.

ACTION:

a. With one offsite circuit of 3.8.1.1.a inoperable, demonstrate the OPERABILITY of the remaining A.C. sources by performing Surveillance Requirements 4.8.1.1.1.a within 1 hour and at least once per 8 hours thereafter. If either EDG has not been successfully tested within the past 24 hours, demonstrate its OPERABILITY by performing Surveillance Requirement 4.8.1.1.2.a.4 separately for each such EDG, unless it is already operating, within 24 hours. Restore the offsite circuit to OPERABLE status within 72 hours or be in at least HOT STANDBY within the next 6 hours and in COLD SHUTDOWN within the following 30 hours.

b. With one emergency diesel generator of 3.8.1.1.b inoperable, demonstrate the OPERABILITY of the A.C. offsite sources by performing Surveillance Requirement 4.8.1.1.1.a within 1 hour and at least once per 8 hours thereafter; and if the EDG became inoperable due to any cause other than preplanned preventative maintenance or testing, demonstrate the OPERABILITY of the remaining OPERABLE EDG by performing Surveillance Requirement 4.8.1.1.2.a.4 within 24 hours*; restore the diesel generator to OPERABLE status within ~~72 hours~~ 7 days** or be in at least HOT STANDBY within the next 6 hours and in COLD SHUTDOWN within the following 30 hours.

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*This test is required to be completed regardless of when the inoperable EDG is restored to OPERABILITY.

add

** Once per fuel cycle, for only one of the EDGs, the completion time may be extended to 10 days.

ELECTRICAL POWER SYSTEM

SURVEILLANCE REQUIREMENTS (Continued)

4.8.1.1.2 (Continued)

b. At least once per 92 days by verifying that a sample of diesel fuel from the fuel storage tank obtained in accordance with ASTM-D4176-82, is within the acceptable limits specified in Table 1 of ASTM D975-81 when checked for viscosity, water and sediment.

c. At least once per 184 days the diesel generator shall be started** and accelerated to generator voltage and frequency at 4160 ± 420 volts and 60 ± 1.2 Hz in less than or equal to 10 seconds. The generator voltage and frequency shall be 4160 ± 420 volts and 60 ± 1.2 Hz within 10 seconds after the start signal. The generator shall be manually synchronized to its appropriate emergency bus, loaded to an indicated 5200-5400*** kW in less than or equal to 60 seconds, and operate for at least 60 minutes.

This test, if it is performed so it coincides with the testing required by Surveillance Requirement 4.8.1.1.2.a.4, may also serve to concurrently meet those requirements as well.

d. At least once per 18 months during shutdown by:

add → (This paragraph not used.)

delete ↓

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 single largest load of greater than or equal to 903 kW (Train B AFW pump) for emergency diesel generator B or 842 kW for emergency diesel generator A (Train A Normal Water Chiller) while maintaining voltage at 4160 ± 420 volts and frequency at 60 ± 1.2 Hz.

3. Verifying the generator capability to reject a load of 5500 kW without tripping. The generator voltage shall not exceed 6200 volts during and following the load rejection.

4. Verifying that the automatic load sequencers are OPERABLE with the interval between each load block within ± 1 second of its design interval.

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

***This band is meant as guidance to avoid routine overloading of the engine. Loads in excess of this band for special testing under direct monitoring of the manufacturer or momentary variations due to changing bus loads shall not invalidate the test.

3/4.8 ELECTRICAL POWER SYSTEMS

BASES

3/4.8.1, 3/4.8.2 and 3/4.8.3 A.C. SOURCES, D.C SOURCES and ONSITE POWER DISTRIBUTION SYSTEMS

The OPERABILITY of the A.C. and D.C. power sources and associated distribution systems during operation ensures that sufficient power will be available to supply the safety-related equipment required for (1) the safe shutdown of the facility and (2) the mitigation and control of accident conditions within the facility. The minimum specified independent and redundant A.C. and D.C. power sources and distribution systems satisfy the requirements of General Design Criterion 17 of Appendix "A" to 10 CFR 50.

The ACTION requirements specified for the levels of degradation of the power sources provide restriction upon continued facility operation commensurate with the level of degradation. The OPERABILITY of the power sources are consistent with the initial condition assumptions of the safety analyses and are based upon maintaining at least one redundant set of onsite A.C. and D.C. power sources and associated distribution systems OPERABLE during accident conditions coincident with an assumed loss-of-offsite power and single failure of the other onsite A.C. source.

Add insert D

The required steady state frequency for the emergency diesels is 60 + 1.2/ -0.3 Hz to be consistent with the safety analysis to provide adequate safety injection flow.

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 surveillance requirements for demonstrating the OPERABILITY of the diesel generators are in accordance with the recommendations of Regulatory Guides 1.9 "Selection of Diesel Generator Set Capacity for Standby Power Supplies," March 10, 1971, and 1.108 "Periodic Testing of Diesel Generator Units Used as Onsite Electric Power Systems at Nuclear Power Plants," Revision 1, August 1977. Surveillance load testing uses the referenced equipment or equivalent loading.

INSERT D (BASES 3/4.8.1)

With respect to ACTION b of LCO 3.8.1.1, according to CE NPSD-996, "CEOG Joint Applications Report for Emergency Diesel Generator AOT Extension," May 1995, operation may continue with one EDG inoperable for a period that should not exceed 7 days. Additionally, CE NPSD-996 states that operation may continue with one EDG inoperable for a maximum continuous period of 10 days on a once per refueling cycle frequency. CE NPSD-996 provides a series of deterministic and probabilistic justifications for the completion times corresponding to the periods in which continued power operations are allowed with one EDG inoperable. With one EDG inoperable, the remaining OPERABLE EDG and offsite circuits are adequate to supply electrical power to the onsite Class 1E power distribution system. The 7 day completion time takes into account the capacity and capability of the remaining AC sources, a reasonable time for corrective or preventive maintenance, and the low probability of a DBA occurring during this period.

H. SUPPORTING CEOG REPORT: CE NPSD-996, "CEOG JOINT APPLICATIONS REPORT FOR EMERGENCY DIESEL GENERATOR AOT EXTENSION," MAY 1995