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Waterford 3

W3F1-99-0176
A4.05
PR

December 9, 1999

U.S. Nuclear Regulatory Commission
Attn: Document Control Desk
Washington, D.C. 20555

Subject: Waterford 3 SES
Docket No. 50-382
License No. NPF-38
Technical Specification Change Request NPF-38-214, Revision 1
Safety Injection Tank Allowed Outage Time

Gentlemen:

The purpose of this letter is for Entergy to revise a previous license amend request. Entergy submitted Technical Specification Change Request (TSCR) NPF-38-214 by Letter W3F1-99-0003 dated January 25, 1999 to revise the Safety Injection Tank Technical Specifications and Bases to increase the allowed outage time. This request constituted a submittal based on NUREG-1366, NUREG-1432 Revision 1, and CE NPSD-994.

In discussions with the NRC Staff concerning information submitted, Entergy has been requested to make changes to the proposed Bases Section of this TSCR. Therefore, Attachments B and C have been revised to reflect these changes. Although only the Bases were changed from the original TSCR, please replace Attachment A (Existing Specification), Attachment B (Proposed Marked-up Specification), and Attachment C (Proposed Specification) in their entirety due to pagination changes and the incorporation of Amendment 147 into the Waterford 3 Technical Specifications.

Entergy has concluded this change is bounded by the No Significant Hazards Consideration Determination submitted in the January 25, 1999 license amendment request; therefore, it remains applicable.

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This submittal does not contain any commitments.

Should you have any questions or comments concerning this request, please contact Gene Wemett at (504) 739-6692.

Very truly yours,

C.M. Dugger
Vice President, Operations
Waterford 3

CMD/CED/rtk
Attachments: Affidavit
Attachment A, Existing Specifications
Attachment B, Proposed Marked-up Specifications
Attachment C, Proposed Specifications

cc: E.W. Merschoff, NRC Region IV
C.P. Patel, NRC-NRR
J. Smith
N.S. Reynolds
NRC Resident Inspectors Office
Louisiana DEQ/Surveillance Division
American Nuclear Insurers

UNITED STATES OF AMERICA
NUCLEAR REGULATORY COMMISSION

In the matter of	)	
	)	
Entergy Operations, Incorporated	)	Docket No. 50-382
Waterford 3 Steam Electric Station	)	

AFFIDAVIT

Charles Marshall Dugger, being duly sworn, hereby deposes and says that he is Vice President Operations - Waterford 3 of Entergy Operations, Incorporated; that he is duly authorized to sign and file with the Nuclear Regulatory Commission the attached Technical Specification Change Request NPF-38-214, Revision 1; that he is familiar with the content thereof; and that the matters set forth therein are true and correct to the best of his knowledge, information and belief.

Charles Marshall Dugger
Vice President Operations - Waterford 3

STATE OF LOUISIANA)
) ss
PARISH OF ST. CHARLES)

Subscribed and sworn to before me, a Notary Public in and for the Parish and State above named this 15 day of December, 1999.

Notary Public

My Commission expires at death.

NPF-38-214, Revision 1

ATTACHMENT A

EXISTING SPECIFICATIONS

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 shall be OPERABLE with:

a. The isolation valve open,

b. A contained borated water volume of between 926 (40%) and 1807 (83.8%) cubic feet,

c. Between 2050 and 2900 ppm of boron, and

d. A nitrogen cover-pressure of between 600 and 670 psig.

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.

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, and

2. Verifying that each safety injection tank isolation valve is open.

*With pressurizer pressure greater than or equal to 1750 psia. When pressurizer pressure is less than 1750 psia, at least three safety injection tanks must be OPERABLE, each with a minimum pressure of 235 psig and a maximum pressure of 670 psig, and a contained borated water volume of between 1332 (61%) and 1807 (83.8%) cubic feet. With all four safety injection tanks OPERABLE, each tank shall have a minimum pressure of 235 psig and a maximum pressure of 670 psig, a boron concentration of between 2050 and 2900 ppm boron, and a contained borated water volume of between 888 (39%) and 1807 (83.8%) cubic feet. In MODE 4 with pressurizer pressure less than 392 psia (700 psia for remote shutdown from LCP-43), the safety injection tanks may be isolated.

SURVEILLANCE REQUIREMENTS (Continued)

b. At least once per 31 days and within 6 hours after each solution volume increase of greater than or equal to 1% of tank volume by verifying the boron concentration of the safety injection tank solution.

c. At least once per 31 days when the RCS pressure is above 1750 psia, by verifying that the isolation valve operator breakers are padlocked in the open position.

d. At least once per 18 months by verifying that each safety injection tank isolation valve opens automatically under each of the following conditions:

   1. When an actual or simulated RCS pressure signal exceeds 535 psia, and

   2. Upon receipt of a safety injection test signal.

3/4.5 EMERGENCY CORE COOLING SYSTEMS (ECCS)

BASES

3/4.5.1 SAFETY INJECTION TANKS

The OPERABILITY of each of the Reactor Coolant System (RCS) 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 core provides the initial cooling mechanism during large RCS pipe ruptures.

The limits on safety injection tank volume, boron concentration, and pressure ensure that the assumptions used for safety injection tank injection in the safety analysis are met.

The safety injection tank power operated isolation valves are considered to be "operating bypasses" in the context of IEEE Std. 279-1971, which requires that bypasses of a protective function be removed automatically whenever permissive conditions are not met. In addition, as these safety injection tank isolation valves fail to meet single failure criteria, removal of power to the valves is required.

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 occuring 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.

3/4.5.2 and 3/4.5.3 ECCS SUBSYSTEMS

The OPERABILITY of two separate and independent ECCS subsystems 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.

When in mode 3 and with RCS temperature 500°F two OPERABLE ECCS subsystems are required to ensure sufficient emergency core cooling capability is available to prevent the core from becoming critical during an uncontrolled cooldown (i.e., a steam line break) from greater than 500°F.

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ATTACHMENT B

PROPOSED MARKED-UP SPECIFICATIONS

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 shall be OPERABLE with:

a. The isolation valve open,

b. A contained borated water volume of between 926 (40%) and 1807 (83.8%) cubic feet,

c. Between 2050 and 2900 ppm of boron, and

d. A nitrogen cover-pressure of between 600 and 670 psig.

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

ACTION:

INSERT 1

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, and

2. Verifying that each safety injection tank isolation valve is open.

*With pressurizer pressure greater than or equal to 1750 psia. When pressurizer pressure is less than 1750 psia, at least three safety injection tanks must be OPERABLE, each with a minimum pressure of 235 psig and a maximum pressure of 670 psig, and a contained borated water volume of between 1332 (61%) and 1807 (83.8%) cubic feet. With all four safety injection tanks OPERABLE, each tank shall have a minimum pressure of 235 psig and a maximum pressure of 670 psig, a boron concentration of between 2050 and 2900 ppm boron, and a contained borated water volume of between 888 (39%) and 1807 (83.8%) cubic feet. In MODE 4 with pressurizer pressure less than 392 psia (700 psia for remote shutdown from LCP-43), the safety injection tanks may be isolated.

INSERT 1

MODES 1, 2, 3 and 4 with pressurizer pressure greater than or equal to 1750 psia.

a. With one of the required safety injection tanks 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 reduce pressurizer pressure to less than 1750 psia within the following 6 hours.

b. With one of the required safety injection tanks inoperable due to inability to verify level or pressure, restore the tank to OPERABLE status within 72 hours, or be in at least HOT STANDBY within the next 6 hours and reduce pressurizer pressure to less than 1750 psia within the following 6 hours.

c. With one of the required safety injection tanks inoperable for reasons other than ACTION a or b, restore the tank to OPERABLE status within 24 hours, or be in HOT STANDBY within the next 6 hours and reduce pressurizer pressure to less than 1750 psia within the following 6 hours.

d. With two of the required safety injection tanks inoperable, restore one of the tanks to OPERABLE status within 1 hour, or be in HOT STANDBY within the next 6 hours and reduce pressurizer pressure to less than 1750 psia within the following 6 hours.

MODES 3 and 4 with pressurizer pressure less than 1750 psia.

e. With one of the required safety injection tanks inoperable due to boron concentration not within limits, restore the boron concentration to within limits within 72 hours, or be in at least COLD SHUTDOWN within the following 24 hours.

f. With one of the required safety injection tanks inoperable due to inability to verify level or pressure, restore the tank to OPERABLE status within 72 hours, or be in at least COLD SHUTDOWN within the following 24 hours.

g. With one of the required safety injection tanks inoperable for reasons other than ACTION a or b, restore the inoperable tank to OPERABLE status within 1 hour, or be in at least COLD SHUTDOWN within the following 24 hours.

h. With two of the required safety injection tanks inoperable, restore one of the tanks to OPERABLE status within 1 hour, or be in at least COLD SHUTDOWN within the following 24 hours.

SURVEILLANCE REQUIREMENTS (Continued)

INSERT 2

b. At least once per 31 days and within 6 hours after each solution volume increase of greater than or equal to 1% of tank volume by verifying the boron concentration of the safety injection tank solution.

d. At least once per 31 days when the RCS pressure is above 1750 psia, by verifying that the isolation valve operator breakers are padlocked in the open position.

e. At least once per 18 months by verifying that each safety injection tank isolation valve opens automatically under each of the following conditions:

1. When an actual or simulated RCS pressure signal exceeds 535 psia, and

2. Upon receipt of a safety injection test signal.

INSERT 2

c. Within 6 hours after each solution volume increase of greater than or equal to 1% of tank volume by verifying the boron concentration of the safety injection tank solution. This surveillance is not required when the volume increase makeup source is the RWSP.

3/4.5 EMERGENCY CORE COOLING SYSTEMS (ECCS)

BASES

3/4.5.1 SAFETY INJECTION TANKS

The OPERABILITY of each of the Reactor Coolant System (RCS) 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 core provides the initial cooling mechanism during large RCS pipe ruptures.

INSERT 3

The limits on safety injection tank volume, boron concentration, and pressure ensure that the assumptions used for safety injection tank injection in the safety analysis are met.

The safety injection tank power operated isolation valves are considered to be "operating bypasses" in the context of IEEE Std. 279-1971, which requires that bypasses of a protective function be removed automatically whenever permissive conditions are not met. In addition, as these safety injection tank isolation valves fail to meet single failure criteria, removal of power to the valves is required.

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 occuring 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.

3/4.5.2 and 3/4.5.3 ECCS SUBSYSTEMS

The OPERABILITY of two separate and independent ECCS subsystems 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.

When in mode 3 and with RCS temperature 500°F two OPERABLE ECCS subsystems are required to ensure sufficient emergency core cooling capability is available to prevent the core from becoming critical during an uncontrolled cooldown (i.e., a steam line break) from greater than 500°F.

BASES INSERT 3

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 an SIT were not available for injection. Thus, 72 hours is allowed to return the boron concentration to within limits.

If one SIT is inoperable due to inability to verify level or pressure, ability to verify level or pressure should be restored within 72 hours. NUREG-1366, "Improvements to Technical Specifications Surveillance Requirements," Section 7.4 and Generic Letter 93-05 "Line Item Technical Specifications Improvements to Reduce Surveillance Requirements for Testing During Power Operation" discuss surveillance requirements for the instrumentation channels used in the measurement of water level and pressure in SITs. It is the recommendation of the NUREG and Generic Letter that when one SIT is inoperable due only to the inability to verify water level and pressure, 72 hours be allowed to restore the SIT to an OPERABLE status.

The limits on safety injection tank volume, boron concentration, and pressure ensure the assumptions used for SIT injection in the safety analysis are met. 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. This condition would encompass a closed isolation valve, or actual level or pressure not within limits. In this condition, the total contents of the three remaining SITs cannot be assumed to reach the core during a LOCA, contrary to the assumptions of 10 CFR 50, Appendix K.

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

The TS allow operation below 1750 psia with three SITs at reduced pressure and increased volume or four SITs at reduced SIT pressure and volume. CE NPSD-994 does not address operation with less than 3 SITs. Therefore, since CE NPSD-994 is not applicable at less than 1750 psia, a separate 1 hour ACTION consistent with the Waterford 3 licensing basis is

BASES INSERT 3 contd.

provided. The limits for operation with a safety injection tank inoperable for any reason except boron concentration or inability to verify water level and pressure 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 one of the required SITs cannot be restored within one hour, 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. If more than two SITs are inoperable, then entry into 3.0.3 is required.

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 Refueling Water Storage Pool (RWSP), as long as the water contained in the RWSP is within the SIT boron concentration requirements. This is consistent with the recommendations of NUREG-1366. Likewise, movement of water between SITs is within the confines of the tank system (not from an external makeup source) and is within the SIT boron concentration requirements for tank OPERABILITY, thus sampling is not required for these level changes.

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ATTACHMENT C

PROPOSED SPECIFICATIONS

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 shall be OPERABLE with:

a. The isolation valve open,

b. A contained borated water volume of between 926 (40%) and 1807 (83.8%) cubic feet,

c. Between 2050 and 2900 ppm of boron, and

d. A nitrogen cover-pressure of between 600 and 670 psig.

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

ACTION: MODES 1, 2, 3 and 4 with pressurizer pressure greater than or equal to 1750 psia.

a. With one of the required safety injection tanks 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 reduce pressurizer pressure to less than 1750 psia within the following 6 hours.

b. With one of the required safety injection tanks inoperable due to inability to verify level or pressure, restore the tank to OPERABLE status within 72 hours, or be in at least HOT STANDBY within the next 6 hours and reduce pressurizer pressure to less than 1750 psia within the following 6 hours.

c. With one of the required safety injection tanks inoperable for reasons other than ACTION a or b, restore the tank to OPERABLE status within 24 hours, or be in HOT STANDBY within the next 6 hours and reduce pressurizer pressure to less than 1750 psia within the following 6 hours.

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* With pressurizer pressure greater than or equal to 1750 psia. When pressurizer pressure is less than 1750 psia, at least three safety injection tanks must be OPERABLE, each with a minimum pressure of 235 psig and a maximum pressure of 670 psig, and a contained borated water volume of between 1332 (61%) and 1807 (83.8%) cubic feet. With all four safety injection tanks OPERABLE, each tank shall have a minimum pressure of 235 psig and a maximum pressure of 670 psig, a boron concentration of between 2050 and 2900 ppm boron, and a contained borated water volume of between 888 (39%) and 1807 (83.8%) cubic feet. In MODE 4 with pressurizer pressure less than 392 psia (700 psia for remote shutdown from LCP-43), the safety injection tanks may be isolated.

ACTION: (Continued)

MODES 1, 2, 3 and 4 with pressurizer pressure greater than or equal to 1750 psia (continued).

d. With two of the required safety injection tanks inoperable, restore one of the tanks to OPERABLE status within 1 hour, or be in HOT STANDBY within the next 6 hours and reduce pressurizer pressure to less than 1750 psia within the following 6 hours.

MODES 3 and 4 with pressurizer pressure less than 1750 psia

e. With one of the required safety injection tanks inoperable due to boron concentration not within limits, restore the boron concentration to within limits within 72 hours, or be in at least COLD SHUTDOWN within the following 24 hours.

f. With one of the required safety injection tanks inoperable due to inability to verify level or pressure, restore the tank to OPERABLE status within 72 hours, or be in at least COLD SHUTDOWN within the following 24 hours.

g. With one of the required safety injection tanks inoperable for reasons other than ACTION a or b, restore the inoperable tank to OPERABLE status within 1 hour, or be in at least COLD SHUTDOWN within the following 24 hours.

h. With two of the required safety injection tanks inoperable, restore one of the tanks to OPERABLE status within 1 hour, or be in at least COLD SHUTDOWN within the following 24 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, and

2. Verifying that each safety injection tank isolation valve is open.

b. At least once per 31 days by verifying the boron concentration of the safety injection tank solution.

c. Within 6 hours after each solution volume increase of greater than or equal to 1% of tank volume by verifying the boron concentration of the safety injection tank solution. This surveillance is not required when the volume increase makeup source is the RWSP.

SURVEILLANCE REQUIREMENTS (Continued)

d. At least once per 31 days when the RCS pressure is above 1750 psia, by verifying that the isolation valve operator breakers are padlocked in the open position.

e. At least once per 18 months by verifying that each safety injection tank isolation valve opens automatically under each of the following conditions:

1. When an actual or simulated RCS pressure signal exceeds 535 psia, and

2. Upon receipt of a safety injection test signal.

3/4.5 EMERGENCY CORE COOLING SYSTEMS (ECCS)

BASES

3/4.5.1 SAFETY INJECTION TANKS

The OPERABILITY of each of the Reactor Coolant System (RCS) 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 core provides the initial cooling mechanism during large RCS pipe ruptures.

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 an SIT were not available for injection. Thus, 72 hours is allowed to return the boron concentration to within limits.

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The limits on safety injection tank volume, boron concentration, and pressure ensure the assumptions used for SIT injection in the safety analysis are met. 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. This condition would encompass a closed isolation valve, or actual level or pressure not within limits. In this condition, the total contents of the three remaining SITs cannot be assumed to reach the core during a LOCA, contrary to the assumptions of 10 CFR 50, Appendix K.

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3/4.5.1 SAFETY INJECTION TANKS (Continued)

The TS allow operation below 1750 psia with three SITs at reduced pressure and increased volume or four SITs at reduced SIT pressure and volume. CE NPSD-994 does not address operation with less than 3 SITs. Therefore, since CE NPSD-994 is not applicable at less than 1750 psia, a separate 1 hour ACTION consistent with the Waterford 3 licensing basis is provided. The limits for operation with a safety injection tank inoperable for any reason except boron concentration or inability to verify water level and pressure 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 one of the required SITs cannot be restored within one hour, 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. If more than two SITs are inoperable, then entry into 3.0.3 is required.

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 Refueling Water Storage Pool (RWSP), as long as the water contained in the RWSP is within the SIT boron concentration requirements. This is consistent with the recommendations of NUREG-1366. Likewise, movement of water between SITs is within the confines of the tank system (not from an external makeup source) and is within the SIT boron concentration requirements for tank OPERABILITY, thus sampling is not required for these level changes.

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3/4.5.2 and 3/4.5.3 ECCS SUBSYSTEMS

The OPERABILITY of two separate and independent ECCS subsystems 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.

When in mode 3 and with RCS temperature above 500°F two OPERABLE ECCS subsystems are required to ensure sufficient emergency core cooling capability is available to prevent the core from becoming critical during an uncontrolled cooldown (i.e., a steam line break) from greater than 500°F.