

NPF-38-222

ATTACHMENT A

EXISTING SPECIFICATIONS

9908100249 990804
PDR ADOCK 05000382
P PDR

INDEX

ADMINISTRATIVE CONTROLS

<u>SECTION</u>	<u>PAGE</u>
<u>6.11 RADIATION PROTECTION PROGRAM.....</u>	<u>6-22</u>
<u>6.12 HIGH RADIATION AREA.....</u>	<u>6-22</u>
<u>6.13 PROCESS CONTROL PROGRAM.....</u>	<u>6-23</u>
<u>6.14 OFFSITE DOSE CALCULATION MANUAL.....</u>	<u>6-24</u>
<u>6.15 CONTAINMENT LEAKAGE RATE TESTING PROGRAM.....</u>	<u>6-24</u>

EMERGENCY CORE COOLING SYSTEMS

3/4.5.2 ECCS SUBSYSTEMS - MODES 1, 2, AND 3

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 storage pool on a safety injection actuation signal and automatically transferring suction to the safety injection system sump on a recirculation actuation signal.

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

ACTION:

- 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 safety injection nozzle shall be provided in this Special Report whenever its value exceeds 0.70.

*With pressurizer pressure greater than or equal to 1750 psia.

#With RCS average temperature greater than or equal to 500°F.

EMERGENCY CORE COOLING SYSTEMS

3/4.5.3 ECCS SUBSYSTEMS - MODES 3 AND 4

LIMITING CONDITION FOR OPERATION

3.5.1) As a minimum, one ECCS subsystem comprised of the following shall be OPERABLE:

- a. One OPERABLE high pressure safety injection pump, and
- b. An OPERABLE flow path capable of taking suction from the refueling water storage pool on a safety injection actuation signal and automatically transferring suction to the safety injection system sump on a recirculation actuation signal.

APPLICABILITY: MODES 3^a and 4.

ACTION:

- a. With no ECCS subsystem OPERABLE, restore at least one ECCS subsystem to OPERABLE status within 1 hour or be in COLD SHUTDOWN within the next 20 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 safety injection nozzle shall be provided in this Special Report whenever its value exceeds 0.70.

SURVEILLANCE REQUIREMENTS

4.5.3 - The ECCS subsystem shall be demonstrated OPERABLE per the applicable Surveillance Requirements of 4.5.2.

^aWith pressurizer pressure less than 1750 psia and the RCS average temperature less than 500°F.

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 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.

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.

EMERGENCY CORE COOLING SYSTEMS

BASES

ECCS SUBSYSTEMS (Continued)

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 provides 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 requirement to dissolve a representative sample of TSP in a sample of water borated to be representative of post-LOCA sump conditions provides assurance that the stored TSP will dissolve in borated water at the postulated post-LOCA temperatures. A boron concentration of 3011 ppm boron is postulated to be representative of the highest post-LOCA sump boron concentration. Post-LOCA sump pH will remain between 7.0 and 8.1 for the maximum (3011 ppm) and minimum (1504 ppm) boron concentrations calculated using the maximum and minimum post-LOCA sump volumes and conservatively assumed maximum and minimum source boron concentrations.

With the exception of systems in operation, the ECCS pumps are normally in a standby, nonoperating mode. As such, flow path piping has the potential to develop voids and pockets of entrained gases. Maintaining the piping from the ECCS pumps to the RCS full of water ensures that the system will perform properly, injecting its full capacity into the RCS upon demand. This will prevent water hammer, pump cavitation, and pumping noncondensable gas (e.g., air, nitrogen, or hydrogen) into the reactor vessel following an SIAS or during SDC. The 31 day frequency takes into consideration the gradual nature of gas accumulation in the ECCS piping and the adequacy of the procedural controls governing system operation.

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 assurance that proper ECCS flows will be maintained in the event of a LOCA. Maintenance of proper flow resistance and pressure drop in the piping system to each injection point is necessary to: (1) prevent total pump flow from exceeding runout conditions when the system is in its minimum resistance configuration, (2) provide the proper flow split between injection points in accordance with the assumptions used in the ECCS-LOCA analyses, and (3) provide an acceptable level of total ECCS flow to all injection points equal to or above that assumed in the ECCS-LOCA analyses.

The requirement to verify the minimum pump discharge pressure on recirculation flow ensures that the pump performance curve has not degraded below that used to show that the pump exceeds the design flow condition assumed in the safety analysis and is consistent with the requirements of ASME Section XI.

CONTAINMENT LEAKAGE RATE TESTING PROGRAM (Continued)

Leakage rate acceptance criteria are:

- a. Overall containment leakage rate acceptance criteria is $\leq 1.0 L_0$. During the first unit startup following each test performed in accordance with this program, the overall containment leakage rate acceptance criteria are $\leq 0.60 L_0$ for the Type B and Type C tests and $\leq 0.75 L_0$ for Type A tests.
- b. Air lock acceptance criteria are:
 - 1. Overall air lock leakage rate is $\leq 0.05 L_0$ when tested at $\geq P_0$.
 - 2. Leakage rate for each door seal is $\leq 0.005 L_0$ when pressurized to ≥ 10 psig.
- c. Secondary containment bypass leakage rate acceptance criteria is $\leq 0.06 L_0$ when tested at $\geq P_0$.
- d. Containment purge valves with resilient seals acceptance criteria is $\leq 0.06 L_0$ when tested at $\geq P_0$.

The provisions of Specification 4.0.2 do not apply to the test frequencies specified in the Containment Leakage Rate Testing Program.

The provisions of Specification 4.0.3 are applicable to the Containment Leakage Rate Testing Program.

NPF-38-222

ATTACHMENT B

PROPOSED MARKED-UP SPECIFICATIONS

INDEX

ADMINISTRATIVE CONTROLS

<u>SECTION</u>	<u>PAGE</u>
6.11 RADIATION PROTECTION PROGRAM.....	6-22
6.12 HIGH RADIATION AREA.....	6-22
6.13 PROCESS CONTROL PROGRAM.....	6-23
6.14 OFFSITE DOSE CALCULATION MANUAL.....	6-24
6.15 CONTAINMENT LEAKAGE RATE TESTING PROGRAM.....	6-24
6.16 CONFIGURATION RISK MANAGEMENT PROGRAM	6-25

EMERGENCY CORE COOLING SYSTEMS

3/4.5.2 ECCS SUBSYSTEMS - MODES 1, 2, AND 3

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~~, ^{+ train}
- b. One OPERABLE low-pressure safety injection ~~pump~~, ^{+ train} and
- c. An independent OPERABLE flow path capable of taking suction from the refueling water storage pool on a safety injection actuation signal and automatically transferring suction to the safety injection system sump on a recirculation actuation signal.

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

ACTION:

← INSERT 1

- 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.~~
- d. 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 5.9.2 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 safety injection nozzle shall be provided in this Special Report whenever its value exceeds 0.70.

*With pressurizer pressure greater than or equal to 1750 psia.

#With RCS average temperature greater than or equal to 500°F.

INSERT 1

- a. With one ECCS subsystem inoperable due to one high pressure safety injection train inoperable, restore the inoperable train to OPERABLE status within 7 days or be in at least HOT STANDBY within the next 6 hours and reduce pressurizer pressure to less than 1750 psia and RCS average temperature to less than 500°F within the following 6 hours.
- b. With one or more ECCS subsystems inoperable due to conditions other than (a) and 100% of ECCS flow equivalent to a single OPERABLE ECCS subsystem available, restore the inoperable subsystem 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 and RCS average temperature to less than 500°F within the following 6 hours.
- c. With both HPSI trains inoperable due to less than 100% of ECCS flow equivalent to a single OPERABLE ECCS subsystem, restore at least one HPSI train to OPERABLE status within one hour or be in at least HOT STANDBY within the next 6 hours and reduce pressurizer pressure to less than 1750 psia and RCS average temperature to less than 500°F within the following 6 hours.

EMERGENCY CORE COOLING SYSTEMS

3/4.5.3 ECCS SUBSYSTEMS - MODES 3 AND 4

LIMITING CONDITION FOR OPERATION

3.5.3 As a minimum, one ECCS subsystem comprised of the following shall be OPERABLE:

- a. One OPERABLE high pressure safety injection ~~pump~~^{train}, and
- b. An OPERABLE flow path capable of taking suction from the refueling water storage pool on a safety injection actuation signal and automatically transferring suction to the safety injection system sump on a recirculation actuation signal.

APPLICABILITY: MODES 3* and 4.#

ACTION:

- a. With no ECCS subsystem OPERABLE, restore at least one ECCS subsystem to OPERABLE status within 1 hour or be in ~~COLD SHUTDOWN~~ within the next 20 hours. *HOT SHUTDOWN with at least one operable shutdown cooling train in operation*
- 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 safety injection nozzle shall be provided in this Special Report whenever its value exceeds 0.70.

SURVEILLANCE REQUIREMENTS

4.5.3 - The ECCS subsystem shall be demonstrated OPERABLE per the applicable Surveillance Requirements of 4.5.2.

*With pressurizer pressure less than 1750 psia and the RCS average temperature less than 500°F.

With no OPERABLE shutdown cooling train in operation.

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 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.

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.

← INSERT 2

INSERT 2

Each subsystem includes the piping, instruments, and controls to ensure the availability of an OPERABLE flowpath capable of taking suction from the RWSP on a SIAS and automatically transferring suction to the containment sump upon a recirculation actuation signal (RAS). The flowpath for each subsystem must maintain its design independence to ensure that no single failure can disable both ECCS subsystems.

An ECCS subsystem is inoperable if it is not capable of delivering the design flow to the RCS. The individual components are inoperable if they are not capable of performing their automatic design function, or if supporting systems are not available.

The LCO requires the OPERABILITY of a number of independent trains. Due to the redundancy of trains and the diversity of trains, the inoperability of one component in a train does not render the ECCS incapable of performing its function. Neither does the inoperability of two different components, each in a different train, necessarily result in a loss of function for the ECCS. The intent of these ACTIONS is to maintain a combination of OPERABLE equipment such that 100% of the ECCS flow equivalent to a single OPERABLE subsystem remains available.

100% of the ECCS flow equivalent to a single OPERABLE ECCS subsystem exists when the equivalent of one HPSI train, one LPSI train, and a suction flow path as described in the LCO are OPERABLE. The OPERABLE components may be in opposite subsystems. The HPSI component of the 100% ECCS flow equivalent may be composed of any combination of OPERABLE HPSI components such that flow is available to all four RCS loops. The LPSI component of the 100% ECCS flow equivalent may be composed of any combination of OPERABLE LPSI components such that flow is available to any two RCS loops. This allows increased flexibility in plant operations when components in opposite subsystems are inoperable.

3.5.2, ACTION (a) addresses the specific condition where the only affected ECCS subsystem is a single HPSI train. A HPSI train consists of a pump, and four injection flow paths, including motor-operated valves operated by a common AC power source. The availability of at least 100% of the ECCS flow equivalent to a single OPERABLE ECCS subsystem is implicit in the use of ACTION (a).

If LCO 3.5.2 requirements are not met due to the condition described in ACTION (a), then the inoperable HPSI train components must be returned to OPERABLE status within seven (7) days of discovery. This seven (7) day Allowed Outage Time is based on the findings of deterministic and probabilistic analysis, CE NPSD-1041, "CEOG Joint Applications Report for High Pressure Safety Injection System Technical Specification

Modifications,". Seven (7) days is a reasonable amount of time to perform many corrective and preventative maintenance items on the affected HPSI train. CE NPSD-1041 concluded that the overall risk impact of the seven (7) day Allowed Outage Time was either risk-beneficial or risk-neutral.

A Configuration Risk Management Program (CRMP) defined in Administrative Controls section 6.16 is implemented in the event of entry into ACTION (a).

ACTION (b) addresses other scenarios where the availability of at least 100% of the ECCS flow equivalent to a single OPERABLE ECCS subsystem exists but the full requirements of LCO 3.5.2 are not met. If conditions of ACTION (b) were to exist, then inoperable components must be restored within 72 hours of discovery. The 72 hour Allowed Outage Time is based on an NRC reliability study (NRC Memorandum to V. Stello, Jr., from R.L. Baer, "Recommended Interim Revisions to LCOs for ECCS Components," December 1, 1975) and is a reasonable amount of time to effect many repairs.

ACTION (c) addresses the condition in which 100% ECCS flow is unavailable due to two inoperable HPSI trains and requires restoration of at least one HPSI train to OPERABLE status within one hour or the plant placed in HOT STANDBY in 6 hours and reduce pressurizer pressure to less than 1750 psia and RCS average temperature to less than 500°F within the following 6 hours.

In the event less than 100% of the ECCS flow equivalent to a single OPERABLE ECCS subsystem exists due to other conditions, LCO 3.0.3 is entered and the plant must be brought to a MODE (MODE 3 with pressurizer pressure less than 1750 psia and RCS average temperature less than 500°F) in which the LCO does not apply.

EMERGENCY CORE COOLING SYSTEMS

BASES

ECCS SUBSYSTEMS (Continued)

500°F and the RCS pressure below 1750 psia

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.

← INSERT 3

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 provides 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 requirement to dissolve a representative sample of TSP in a sample of water borated to be representative of post-LOCA sump conditions provides assurance that the stored TSP will dissolve in borated water at the postulated post-LOCA temperatures. A boron concentration of 3011 ppm boron is postulated to be representative of the highest post-LOCA sump boron concentration. Post-LOCA sump pH will remain between 7.0 and 8.1 for the maximum (3011 ppm) and minimum (1504 ppm) boron concentrations calculated using the maximum and minimum post-LOCA sump volumes and conservatively assumed maximum and minimum source boron concentrations.

With the exception of systems in operation, the ECCS pumps are normally in a standby, nonoperating mode. As such, flow path piping has the potential to develop voids and pockets of entrained gases. Maintaining the piping from the ECCS pumps to the RCS full of water ensures that the system will perform properly, injecting its full capacity into the RCS upon demand. This will prevent water hammer, pump cavitation, and pumping noncondensable gas (e.g., air, nitrogen, or hydrogen) into the reactor vessel following an SIAS or during SDC. The 31 day frequency takes into consideration the gradual nature of gas accumulation in the ECCS piping and the adequacy of the procedural controls governing system operation.

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 assurance that proper ECCS flows will be maintained in the event of a LOCA. Maintenance of proper flow resistance and pressure drop in the piping system to each injection point is necessary to: (1) prevent total pump flow from exceeding runout conditions when the system is in its minimum resistance configuration, (2) provide the proper flow split between injection points in accordance with the assumptions used in the ECCS-LOCA analyses, and (3) provide an acceptable level of total ECCS flow to all injection points equal to or above that assumed in the ECCS-LOCA analyses.

The requirement to verify the minimum pump discharge pressure on recirculation flow ensures that the pump performance curve has not degraded below that used to show that the pump exceeds the design flow condition assumed in the safety analysis and is consistent with the requirements of ASME Section XI.

INSERT 3

For cases in LCO 3.5.3 where only inoperable HPSI train components result in all ECCS subsystems being inoperable, CE NPSD-1041 demonstrates that "HOT SHUTDOWN with at least one OPERABLE shutdown cooling train in operation" is an acceptable end state. (COLD SHUTDOWN is also an acceptable end state for this condition.) Consequently, the Required Action specifies a maximum completion time of 20 hours from the discovery that the LCO requirements are not met to the time of entry to "HOT SHUTDOWN with at least one OPERABLE shutdown cooling train in operation."

CONTAINMENT LEAKAGE RATE TESTING PROGRAM (Continued)

Leakage rate acceptance criteria are:

- a. Overall containment leakage rate acceptance criteria is $\leq 1.0 L_0$. During the first unit startup following each test performed in accordance with this program, the overall containment leakage rate acceptance criteria are $\leq 0.60 L_0$ for the Type B and Type C tests and $\leq 0.75 L_0$ for Type A tests.
- b. Air lock acceptance criteria are:
 1. Overall air lock leakage rate is $\leq 0.05 L_0$ when tested at $\geq P_0$.
 2. Leakage rate for each door seal is $\leq 0.005 L_0$ when pressurized to ≥ 10 psig.
- c. Secondary containment bypass leakage rate acceptance criteria is $\leq 0.05 L_0$ when tested at $\geq P_0$.
- d. Containment purge valves with resilient seals acceptance criteria is $\leq 0.05 L_0$ when tested at $\geq P_0$.

The provisions of Specification 4.0.2 do not apply to the test frequencies specified in the Containment Leakage Rate Testing Program.

The provisions of Specification 4.0.3 are applicable to the Containment Leakage Rate Testing Program.

INSERT 4

INSERT 4

6.16 Configuration Risk Management Program (CRMP)

The Configuration Risk Management Program (CRMP) provides a proceduralized risk-informed assessment to manage the risk associated with equipment inoperability. The program applies to Technical Specification structures, systems, or components for which a risk-informed Allowed Outage Time has been granted. The program shall include the following elements:

- a. Provisions for the control and implementation of a Level 1 at power, internal events PRA-informed methodology. The assessment shall be capable of evaluating the applicable plant configuration.
- b. Provisions for performing an assessment prior to entering the LCO Condition for preplanned activities.
- c. Provisions for performing an assessment after entering the LCO Condition for unplanned entry into the LCO Condition.
- d. Provisions for assessing the need for additional actions after the discovery of additional equipment out of service conditions while in the LCO Condition.
- e. Provisions for considering other applicable risk significant contributors such as Level 2 issues, and external events, qualitatively or quantitatively.

NPF-38-222

ATTACHMENT C

PROPOSED SPECIFICATIONS

INDEX

ADMINISTRATIVE CONTROLS

<u>SECTION</u>	<u>PAGE</u>
<u>6.11 RADIATION PROTECTION PROGRAM.....</u>	<u>6-22</u>
<u>6.12 HIGH RADIATION AREA.....</u>	<u>6-22</u>
<u>6.13 PROCESS CONTROL PROGRAM.....</u>	<u>6-23</u>
<u>6.14 OFFSITE DOSE CALCULATION MANUAL.....</u>	<u>6-24</u>
<u>6.15 CONTAINMENT LEAKAGE RATE TESTING PROGRAM.....</u>	<u>6-24</u>
<u>6.16 CONFIGURATION RISK MANAGEMENT PROGRAM.....</u>	<u>6-25</u>

EMERGENCY CORE COOLING SYSTEMS

3/4 5.2 ECCS SUBSYSTEMS - MODES 1, 2, AND 3

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 train,
- b. One OPERABLE low-pressure safety injection train, and
- c. An independent OPERABLE flow path capable of taking suction from the refueling water storage pool on a safety injection actuation signal and automatically transferring suction to the safety injection system sump on a recirculation actuation signal.

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

ACTION:

- a. With one ECCS subsystem inoperable due to one high pressure safety injection train inoperable, restore the inoperable train to OPERABLE status within 7 days or be in at least HOT STANDBY within the next 6 hours and reduce pressurizer pressure to less than 1750 psia and RCS average temperature to less than 500°F within the following 6 hours.
- b. With one or more ECCS subsystems inoperable due to conditions other than (a) and 100% of ECCS flow equivalent to a single OPERABLE ECCS subsystem available, restore the inoperable subsystem 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 and RCS average temperature to less than 500°F within the following 6 hours.

*With pressurizer pressure greater than or equal to 1750 psia.

#With RCS average temperature greater than or equal to 500°F.

EMERGENCY CORE COOLING SYSTEMS

3/4.5.2 ECCS SUBSYSTEMS - MODES 1, 2, AND 3

LIMITING CONDITION FOR OPERATION

- c. With both HPSI trains inoperable due to less than 100% of ECCS flow equivalent to a single OPERABLE ECCS subsystem, restore at least one HPSI train to OPERABLE status within one hour be in at least HOT STANDBY within the next 6 hours and reduce pressurizer pressure to less than 1750 psia and RCS average temperature to less than 500°F within the following 6 hours.
- d. 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 safety injection nozzle shall be provided in this Special Report whenever its value exceeds 0.70.

EMERGENCY CORE COOLING SYSTEMS

3/4.5.3 ECCS SUBSYSTEMS - MODES 3 AND 4

LIMITING CONDITION FOR OPERATION

3.5.3 As a minimum, one ECCS subsystem comprised of the following shall be OPERABLE:

- a. One OPERABLE high pressure safety injection train, and
- b. An OPERABLE flow path capable of taking suction from the refueling water storage pool on a safety injection actuation signal and automatically transferring suction to the safety injection system sump on a recirculation actuation signal.

APPLICABILITY: MODES 3* and 4#.

ACTION:

- a. With no ECCS subsystem OPERABLE, restore at least one ECCS subsystem to OPERABLE status within 1 hour or be in HOT SHUTDOWN with at least one operable shutdown cooling train in operation within the next 20 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 safety injection nozzle shall be provided in this Special Report whenever its value exceeds 0.70.

SURVEILLANCE REQUIREMENTS

4.5.3 The ECCS subsystem shall be demonstrated OPERABLE per the applicable Surveillance Requirements of 4.5.2.

*With pressurizer pressure less than 1750 psia and the RCS average temperature less than 500°F.

#With no OPERABLE shutdown cooling train in operation.

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 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.

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.

Each subsystem includes the piping, instruments, and controls to ensure the availability of an OPERABLE flowpath capable of taking suction from the RWSP on a SIAS and automatically transferring suction to the containment sump upon a recirculation actuation signal (RAS). The flowpath for each subsystem must maintain its design independence to ensure that no single failure can disable both ECCS subsystems.

3/4.5 EMERGENCY CORE COOLING SYSTEMS (ECCS)

BASES

3/4.5.2 and 3/4.5.3 ECCS SUBSYSTEMS (Continued)

An ECCS subsystem is inoperable if it is not capable of delivering the design flow to the RCS. The individual components are inoperable if they are not capable of performing their automatic design function, or if supporting systems are not available.

The LCO requires the OPERABILITY of a number of independent trains. Due to the redundancy of trains and the diversity of trains, the inoperability of one component in a train does not render the ECCS incapable of performing its function. Neither does the inoperability of two different components, each in a different train, necessarily result in a loss of function for the ECCS. The intent of these ACTIONS is to maintain a combination of OPERABLE equipment such that 100% of the ECCS flow equivalent to a single OPERABLE subsystem remains available.

100% of the ECCS flow equivalent to a single OPERABLE ECCS subsystem exists when the equivalent of one HPSI train, one LPSI train, and a suction flow path as described in the LCO are OPERABLE. The OPERABLE components may be in opposite subsystems. The HPSI component of the 100% ECCS flow equivalent may be composed of any combination of OPERABLE HPSI components such that flow is available to all four RCS loops. The LPSI component of the 100% ECCS flow equivalent may be composed of any combination of OPERABLE LPSI components such that flow is available to any two RCS loop. This allows increased flexibility in plant operations when components in opposite subsystems are inoperable.

3.5.2, ACTION (a) addresses the specific condition where the only affected ECCS subsystem is a single HPSI train. A HPSI train consists of a pump, and four injection flow paths, including motor-operated valves operated by a common AC power source. The availability of at least 100% of the ECCS flow equivalent to a single OPERABLE ECCS subsystem is implicit in the use of ACTION (a).

If LCO 3.5.2 requirements are not met due to the condition described in ACTION (a), then the inoperable HPSI train components must be returned to OPERABLE status within seven (7) days of discovery. This seven (7) day Allowed Outage Time is based on the findings of deterministic and probabilistic analysis, CE NPSD-1041, "CEOG Joint Applications Report for High Pressure Safety Injection System Technical Specification Modifications." Seven (7) days is a reasonable amount of time to perform many corrective and preventative maintenance items on the affected HPSI train. CE NPSD-1041 concluded that the overall risk impact of the seven (7) day Allowed Outage Time was either risk-beneficial or risk-neutral.

3/4.5 EMERGENCY CORE COOLING SYSTEMS (ECCS)

BASES

3/4.5.2 AND 3/4.5.3 ECCS SUBSYSTEMS (Continued)

A Configuration Risk Management Program (CRMP) defined in Administrative Controls section 6.16 is implemented in the event of entry into ACTION (a).

ACTION (b) addresses other scenarios where the availability of at least 100% of the ECCS flow equivalent to a single OPERABLE ECCS subsystem exists but the full requirements of LCO 3.5.2 are not met. If conditions of ACTION (b) were to exist, then inoperable components must be restored within 72 hours of discovery. The 72 hour Allowed Outage Time is based on an NRC reliability study (NRC Memorandum to V. Stello, Jr., from R.L. Baer, "Recommended Interim Revisions to LCOs for ECCS Components," December 1, 1975) and is a reasonable amount of time to effect many repairs.

ACTION (c) addresses the condition in which 100% ECCS flow is unavailable due to two inoperable HPSI trains and requires restoration of at least one HPSI train to OPERABLE status within one hour or the plant placed in HOT STANDBY in 6 hours and reduce pressurizer pressure to less than 1750 psia and RCS average temperature to less than 500°F within the following 6 hours.

In the event less than 100% of the ECCS flow equivalent to a single OPERABLE ECCS subsystem exists due to other conditions, LCO 3.0.3 is entered and the plant must be brought to a MODE (MODE 3 with pressurizer pressure less than 1750 psia and RCS average temperature less than 500°F) in which the LCO does not apply.

When in MODE 3 and with RCS temperature greater than or equal to 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 or equal to 500°F.

With the RCS temperature below 500°F and the RCS pressure below 1750 psia, 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.

For cases in LCO 3.5.3 where only inoperable HPSI train components result in all ECCS subsystems being inoperable, CE NPSD-1041 demonstrates that "HOT SHUTDOWN with at least one OPERABLE shutdown cooling train in operation" is an acceptable end state. (COLD SHUTDOWN is also an acceptable end state for this condition.) Consequently, the Required Action specifies a maximum completion time of 20 hours from the discovery that the LCO requirements are not met to the time of entry to "HOT SHUTDOWN with at least one OPERABLE shutdown cooling train in operation."

EMERGENCY CORE COOLING SYSTEMS

BASES

3/4.5.2 and 3/4.5.3 ECCS SUBSYSTEMS (Continued)

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 provides 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 requirement to dissolve a representative sample of TSP in a sample of water borated to be representative of post-LOCA sump conditions provides assurance that the stored TSP will dissolve in borated water at the postulated post-LOCA temperatures. A boron concentration of 3011 ppm boron is postulated to be representative of the highest post-LOCA sump boron concentration. Post LOCA sump pH will remain between 7.0 and 8.1 for the maximum (3011 ppm) and minimum (1504 ppm) boron concentrations calculated using the maximum and minimum post-LOCA sump volumes and conservatively assumed maximum and minimum source boron concentrations.

With the exception of systems in operation, the ECCS pumps are normally in a standby, nonoperating mode. As such, flow path piping has the potential to develop voids and pockets of entrained gases. Maintaining the piping from the ECCS pumps to the RCS full of water ensures that the system will perform properly, injecting its full capacity into the RCS upon demand. This will prevent water hammer, pump cavitation, and pumping noncondensable gas (e.g., air, nitrogen, or hydrogen) into the reactor vessel following an SIAS or during SDC. The 31 day frequency takes into consideration the gradual nature of gas accumulation in the ECCS piping and the adequacy of the procedural controls governing system operation.

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 assurance that proper ECCS flows will be maintained in the event of a LOCA. Maintenance of proper flow resistance and pressure drop in the piping system to each injection point is necessary to: (1) prevent total pump flow from exceeding runout conditions when the system is in its minimum resistance configuration, (2) provide the proper flow split between injection points in accordance with the assumptions used in the ECCS-LOCA analyses, and (3) provide an acceptable level of total ECCS flow to all injection points equal to or above that assumed in the ECCS-LOCA analyses.

The requirement to verify the minimum pump discharge pressure on recirculation flow ensures that the pump performance curve has not degraded below that used to show that the pump exceeds the design flow condition assumed in the safety analysis and is consistent with the requirements of ASME Section XI.

EMERGENCY CORE COOLING SYSTEMS

BASES

3/4.5.4 REFUELING WATER STORAGE POOL (RWSP)

The OPERABILITY of the refueling water storage pool (RWSP) as part of the ECCS also ensures that a sufficient supply of borated water is available for injection by the ECCS in the event of a LOCA. The limits on RWSP minimum volume and boron concentration ensure that (1) sufficient water is available within containment to permit recirculation cooling flow to the core, and (2) the reactor will remain subcritical in the cold condition following mixing of the RWSP and the RCS water volumes with all CEAs inserted except for the most reactive control assembly. These assumptions are consistent with the LOCA analyses.

The contained water volume limit includes an allowance for water not usable because of pool discharge line location or other physical characteristics.

The lower limit on contained water volume, the specific boron concentration and the physical size (approximately 600,000 gallons) of the RWSP also ensure a pH value of between 7.0 and 11.0 for the solution recirculated within containment after a LOCA. This pH band minimizes the evolution of iodine and minimizes the effect of chloride and caustic stress corrosion on mechanical systems and components.

The maximum limit on the RWSP temperature ensures that the assumptions used in the containment pressure analysis under design base accident conditions remain valid and avoids the possibility of containment overpressure. The minimum limit on the RWSP temperature is required to prevent freezing and/or boron precipitation in the RWSP.

ADMINISTRATIVE CONTROLS

CONTAINMENT LEAKAGE RATE TESTING PROGRAM (Continued)

Leakage rate acceptance criteria are:

- a. Overall containment leakage rate acceptance criteria is $\leq 1.0 L_a$. During the first unit startup following each test performed in accordance with this program, the overall containment leakage rate acceptance criteria are $\leq 0.60 L_a$ for the Type B and Type C tests and $\leq 0.75 L_a$ for Type A tests.
- b. Air lock acceptance criteria are:
 1. Overall air lock leakage rate is $\leq 0.05 L_a$ when tested at $\geq P_a$.
 2. Leakage rate for each door seal is $\leq 0.005 L_a$ when pressurized to ≥ 10 psig.
- c. Secondary containment bypass leakage rate acceptance criteria is $\leq 0.06 L_a$ when tested at $\geq P_a$.
- d. Containment purge valves with resilient seals acceptance criteria is $\leq 0.06 L_a$ when tested at $\geq P_a$.

The provisions of Specification 4.0.2 do not apply to the test frequencies specified in the Containment Leakage Rate Testing Program.

The provisions of Specification 4.0.3 are applicable to the Containment Leakage Rate Testing Program.

6.16 CONFIGURATION RISK MANAGEMENT PROGRAM (CRMP)

The Configuration Risk Management Program (CRMP) provides a proceduralized risk-informed assessment to manage the risk associated with equipment inoperability. The program applies to Technical Specification structures, systems, or components for which a risk-informed Allowed Outage Time has been granted. The program shall include the following elements:

- a. Provisions for the control and implementation of a Level 1 at power internal events PRA-informed methodology. The assessment shall be capable of evaluating the applicable plant configuration.
- b. Provisions for performing an assessment prior to entering the LCO Condition for preplanned activities.

ADMINISTRATIVE CONTROLS

CONFIGURATION RISK MANAGEMENT PROGRAM (CRMP) (Continued)

- c. Provisions for performing an assessment after entering the LCO Condition for unplanned entry into the LCO Condition.
- d. Provisions for assessing the need for additional actions after the discovery of additional equipment out of service conditions while in the LCO Condition.
- e. Provisions for considering other applicable risk significant contributors such as Level 2 issues, and external events, qualitatively or quantitatively.