

ENCLOSURE 5

CHANGES TO UNIT 2 AMENDMENT NUMBER 127 AND UNIT 3 AMENDMENT NUMBER 116
TECHNICAL SPECIFICATION AND BASES PAGES FOR PROPOSED CHANGE NUMBER 418

NOTE

This change adds a new section to the Technical Specifications: Section 3.7.7.1, Component Cooling Water (CCW) Safety Related Makeup System. New Technical Specification and Bases pages for Section 3.7.7.1 are attached. Changes to the Technical Specification Table of Contents which reflect the new section are also attached and highlighted appropriately. The following summarizes the changes.

CHANGED PAGES: Pages iv and viii

NEW PAGES: 3.7-19a through 3.7-19c
 B 3.7-43c through B 3.7-43j

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ACTIONS

| CONDITION | REQUIRED ACTION | COMPLETION TIME |
|---|---------------------------------|-----------------|
| C. Required Actions and associated Completion Times of Conditions A or B not met. | C.1 Be in MODE 3. | 6 hours |
| | <u>AND</u> C.2 Be in MODE 5. | 30 hours |

SURVEILLANCE REQUIREMENTS

| SURVEILLANCE | FREQUENCY |
|---|--|
| SR 3.7.7.1.1 Verify the contained water volume in the Primary Plant Makeup Storage Tank is within its limits. | 7 days |
| SR 3.7.7.1.2 Verify each CCW Safety Related Makeup System pump develops the required differential pressure on recirculation flow. | In accordance with inservice testing program |
| SR 3.7.7.1.3 Measure CCW Leakage. | 24 months |

TOTAL ALLOWABLE CCW LEAKAGE VERSUS THE PPMU TANK LEVEL

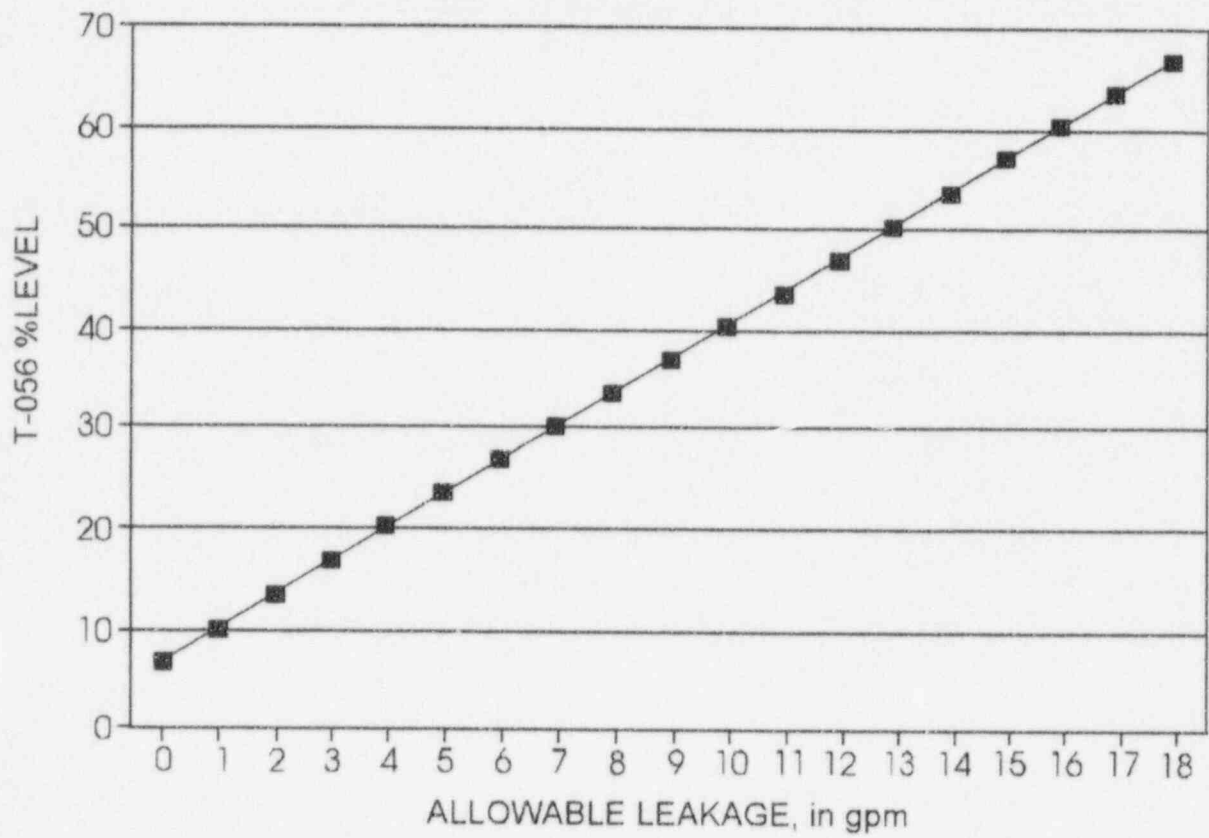


Figure 3.7.7.1-1

B 3.7 PLANT SYSTEMS

B 3.7.7.1 Component Cooling Water (CCW) Safety Related Makeup System

BASES

BACKGROUND

The SONGS Component Cooling Water (CCW) System consists of two independent critical loops (trains) and one non-critical loop (NCL). All three loops are interconnected, such that the non-critical loop can be aligned to either one of the critical loops. Each of the two CCW trains is provided with a dedicated pump and a surge tank. A third, swing pump is also provided and can be aligned to either CCW train. Normal makeup to the CCW trains is provided from the non-safety related, Seismic Category II Nuclear Service Water (NSW) System via the CCW surge tanks.

The safety related makeup system is designed to supply water to the CCW trains following loss of normal CCW makeup from the nuclear service water system. It is train-oriented and provides sufficient water inventory to accommodate a maximum allowable leakage from both CCW trains for a period of seven days. The CCW safety related makeup system is an integral part of the CCW system.

The CCW safety related makeup system for each Unit consists of one primary plant makeup water (PPMU) storage tank (T-055 for Unit 3 and T-056 for Unit 2) and two makeup transfer trains, each supplying the associated CCW train. Each transfer train includes a 100% capacity makeup pump, pump discharge solenoid valve, check valve, isolation valves and interconnecting suction and discharge piping. A test loop is provided for each transfer train to enable In-service Testing (IST) of each pump. All components and piping of the CCW safety related makeup system are either designed or upgraded to Quality Class II, Seismic Category I. Power to each transfer train component is provided from independent Class 1E sources.

Makeup to the safety related CCW trains is initiated/terminated manually on loss of normal CCW makeup capability, as required. The pumps are started/stopped from the Control Room or from the associated Motor Control Center (MCC), based on the CCW surge tank level indication (remote or local). Manual operation of the CCW safety related makeup is acceptable because:

(continued)

BASES

BACKGROUND
(continued)

- sufficient time is available after the limiting event for the operator to initiate manual action
- emergency makeup is a continuously supervised operation and continuous safety related CCW surge tank level indication is being provided.

Safety related CCW makeup utilizes the PPMU tank located in the Radwaste Building at El. 9' for each unit as a source of makeup water. The PPMU tanks are provided with a floating diaphragm to maintain air tight integrity. This diaphragm is made of elastomer with a specific gravity less than 1.0.

The nominal capacity of each PPMU tank is 300,000 gallons, 203,800 gallons in tank T-056 and 203,719 gallons in tank T-055 are dedicated to the CCW safety related makeup. This amount includes the total tank level instrumentation loop uncertainty (TLU) and the unrecoverable volume. For both tanks, this volume corresponds to the water level at plant elevation 30'-9 3/4" (or 65.6% tank level as indicated in the Control Room). The dedicated volume allows makeup for CCW system leakage (from both CCW trains) of up to 18 gpm for a period of seven days. The minimum water level required in the PPMU tank for the CCW safety related makeup system to be considered OPERABLE is a function of the CCW system total leak rate. The volume above that controlled by the TS is available for the PPMU system use.

A common suction header connects the CCW safety related makeup pumps to the PPMU tank at elevation 11'-0". The suction nozzle has a pointing downward elbow attached inside the tank. This is done to increase the tank usable volume and to provide an adequate margin to prevent vortex formation. After transferring the TS volume from the tank, the level of water remaining in the tank is 10" above the pump suction nozzle inlet.

To enable in-service testing of the CCW makeup pumps, a test loop capable of passing a flow approximately equal to the nominal makeup flow is provided.

The high and low level alarms annunciate in the Radwaste Control Room on Panel 2/3L-5 at 95% (LSH-7133) and 75% tank level (LSL-7133), respectively. The high level alarm also annunciates in the main Control Room.

(continued)

BASES

BACKGROUND
(continued)

Safety related instruments are required to monitor the CCW surge tank level. To satisfy the provisions of 10CFR 50, Appendix A, GDC-19, the capability to safely shutdown the plant from outside the Control Room is required. To operate the CCW safety related makeup system from outside the control room, the capability to start/stop the makeup pumps and to monitor the CCW surge tank level is required. QC II, SC I gages are used to monitor the tank level to support safe shutdown from outside the Control Room.

All components of the CCW safety related makeup system are located within the Radwaste Building and Penetration Area (Seismic Category I structures), which are capable of withstanding the impact of tornado generated missiles. The only potential path for intrusion of tornado missiles into the PPMU tank rooms (127A and 127B) are external access doors AR307 and AR311 in the Radwaste Building east wall. These metal doors are normally closed and are protected by L-shaped, 12" thick concrete enclosures (two walls and a roof). These enclosures are open to the South in Unit 2 and to the North in Unit 3.

APPLICABLE
SAFETY ANALYSES

The CCW safety related makeup system for each Unit consists of one passive component (storage tank) and two redundant transfer trains employing active components. The CCW safety related makeup system is designed such that passive component failures do not have to be postulated. Each makeup transfer train is powered from a separate Class 1E Bus, the same as the CCW train it supports. This design assures that only one CCW train can be affected by a single active component failure within the CCW safety related makeup system. It is conservatively assumed that such failure would result in loss of the affected CCW safety related makeup train and eventually in loss of the associated CCW train. The remaining CCW train (critical loop) is available for accident mitigation, as required. From the safety analysis perspective, loss of one CCW train is acceptable as shown in the UFSAR Chapter 15 analyses.

However, loss of a CCW train is not a limiting consequence of some single failures within the safety related CCW makeup system. The limiting consequence of inadvertent/spurious actuation of the CCW safety related makeup system (makeup pump start) is the potential for depletion of the PPMU tank water inventory credited for long term accident mitigation,
(continued)

BASES

APPLICABLE
SAFETY ANALYSES
(continued)

common for both CCW trains. Such depletion of the inventory would take place should relief valves on the CCW surge tank lift as a result of tank overfilling and water being discharged from the CCW system into the plant vent stack. Makeup water inventory depletion would impact the CCW safety related makeup system capability to perform its safety function.

Operator action is required outside the control room to mitigate the single active failure of a CCW pump motor control relay stuck in the "operate" position, because this failure prevents both pump trip and discharge valve closure using the control switches. The specific mitigating action is to open the respective pump breaker at the MCC in the E1.50' switchgear room. The assumed above operator action time of 30 minutes is sufficient to mitigate this failure.

The single tank and common suction nozzle configuration of the CCW makeup system is subject to the single passive failure criteria of ANSI Standard N658-1976, because the system is required to operate for more than 24 hours post-accident. Concurrent passive failures which must be considered under this standard are flow path blockage and pressure boundary failures.

Flow path blockage due to entrainment of foreign material is not credible because the system is operated using only filtered and demineralized water. Furthermore, blockages due to component internal failures are not credible because: a) there are no valves in the common flow path, and b) the tank diaphragm is made of material with the specific gravity less than 1.0 (closed cell elastomer which would float even if the diaphragm were to disintegrate), and c) the system suction line is provided with a pointing downward elbow inside the tank (which ensures sufficient submergence of the suction inlet to prevent entrainment of any floating debris even at the maximum suction velocity).

Passive failure of the pressure boundary may be limited to failed valve packing and pump mechanical seals for systems designed and maintained to ASME Section III and Section XI criteria. All such failures in the proposed makeup system can be isolated because the suction isolation valve for each train has a back seat to prevent leakage due to failure of its packing. This valve can be used to isolate all other

(continued)

BASES

APPLICABLE
SAFETY ANALYSES
(continued)

packing or seal failures in this train. Therefore, the limiting passive failure is a pump shaft seal failure.

The design function of the safety related CCW makeup system is to maintain the water inventory in the CCW trains during a 7-day post-accident period. For this purpose, sufficient water inventory is contained in the single PPMU storage tank for both CCW trains. From the PPMU tank water is transferred to the CCW return heads by two safety related pumps.

LCO

The water source for the Component Cooling Water Safety Related Makeup System is the PPMU Tank. The total capacity of each PPMU Tank is approximately 303,500 gallons. The curve for PPMU Tank volume represents a seven day supply of makeup water at a specific allowable leakage rate from the CCW system. The requirement for seven days is consistent with Standard Review Plan, Section 9.2.2.III.c.

Specification 3.0.4 requires that entry not be made into an OPERATIONAL MODE or other specified condition unless the conditions of the Limiting Condition for Operation are met without reliance on provisions contained in the Action requirements. The exemption from this requirement gives Operations more flexibility to change MODES while still performing required Actions. Exemption from Specification 3.0.4 will not restrain Operations from changing MODES. The CCW Safety Related Makeup System is only required to support the CCW system in the event of a Design Basis Earthquake.

It should be noted that the CCW system itself does not have a 3.0.4 exemption. Therefore, the CCW system is always OPERABLE during up MODE changes. The Probabilistic Risk Assessment (PRA) has demonstrated that the allowed outage times specified would result in an acceptably small risk of core damage. Therefore, a 3.0.4 exemption for the CCW Safety Related Makeup System is considered acceptable.

(continued)

BASES

APPLICABILITY The Component Cooling Water Safety Related Makeup System is a support system to the CCW System. This means whenever the CCW System is required to be OPERABLE its support system should be OPERABLE also. In MODES 1, 2, 3, and 4, Technical Specification 3.7.7, "Component Cooling Water" requires "At least two independent component cooling water loops shall be OPERABLE." Therefore, in MODES 1, 2, 3, and 4, the PPMU Tank and both trains of the makeup flow of the Component Cooling Water Safety Related Makeup System shall be OPERABLE.

ACTIONS

A.1

With one CCW Safety Related Makeup System's flow path inoperable, action must be taken to restore OPERABLE status within 7 days.

The allowable completion time of 7 days is considered reasonable based on the low probability of a DBE occurring during the 7 days and the redundant capability of the OPERABLE CCW Safety Related Makeup flow path. A Probabilistic Risk Assessment (PRA) was performed to assess the increased risk of core damage from a 7 day allowed outage time for one train of the CCW Safety Related Makeup System. The PRA indicated that the increased risk of core damage from a 7 day allowed outage time is less than 1×10^{-6} per year. This increase in core damage risk is considered acceptable small.

B.1 and B.2

This operating condition is more restrictive than the Action A condition. If the level in the PPMU Tank drops below that required to support two CCW critical loops operation for seven days, the condition is similar to loss of both CCW Safety Related Makeup System flow paths. Actions should be taken to restore the PPMU Tank level within 8 hours. If both CCW Safety related Makeup flow paths are inoperable, one CCW Safety Related Makeup flow path should be restored to OPERABLE status within 8 hours.

The allowed completion time of 8 hours is based on operating experience and a Probabilistic Risk Assessment (PRA).

(continued)

BASES

ACTIONS

B.1 and B.2 (continued)

Operating experience shows that the likelihood of Primary Plant Makeup Storage Tank level dropping below 66% (which corresponds to an allowable CCW leakage of 18 gpm based on Figure 3.7.7.1-1) is extremely low. Also, a Probabilistic Risk Assessment (PRA) was performed to assess the increased risk of core damage from an 8 hour allowed outage time for two trains of the CCW Safety Related Makeup System. The PRA indicated that the increased risk of core damage from an 8 hour allowed outage time is less than 1×10^{-6} per year. This increase in core damage risk is considered acceptably small.

C.1 and C.2

In MODES 1, 2, 3, and 4, two CCW System critical loops provide cooling to a number of safety related systems, such as HPSI, LPSI, shutdown cooling, emergency chillers, etc. The CCW Safety Related Makeup System is a support system for the CCW System. Two CCW Safety Related Makeup flow paths are required to provide makeup to the two CCW critical loops. If one CCW Safety Related Makeup flow path cannot be restored to OPERABLE status in seven days, the Unit must be placed in a MODE in which the LIMITING CONDITION FOR OPERATION does not apply.

To achieve this status, the Unit must be placed in at least HOT STANDBY within the next 6 hours, and in COLD SHUTDOWN within 30 hours.

Similarly, action should be taken if the PPMU Tank level is below that required for two CCW critical loops operation and/or both CCW Safety Related Makeup flow paths are inoperable. If both the PPMU Tank level and at least one flow path are not OPERABLE within 8 hours, the Unit must then be placed in a MODE in which the LIMITING CONDITION FOR OPERATION does not apply. To achieve this status, the Unit must be placed in at least HOT STANDBY within the next 6 hours, and in the COLD SHUTDOWN within 30 hours.

The allowed completion Time is consistent with other Technical Specification completion Time requirements to

(continued)

BASES

ACTIONS

C.1 and C.2 (continued)

reach the required unit conditions from full power conditions in an orderly manner.

SURVEILLANCE
REQUIREMENTS

SR 3.7.7.1.1

This SURVEILLANCE REQUIREMENT verifies that the PPMU Tank contains the required volume of makeup water. The 7 days frequency is based on similar SURVEILLANCE REQUIREMENT frequencies. The 7 days frequency is considered adequate in view of other indications in the control room, including alarms, to alert the operator to abnormal PPMU Tank level deviations.

SR 3.7.7.1.2

This SURVEILLANCE REQUIREMENT verifies that the CCW makeup pumps develop sufficient discharge pressure to deliver the required flow to the CCW system from the Primary Plant Makeup Tank. Performance of inservice testing, discussed in the ASME Code, Section XI at three month intervals, satisfies this requirement.

SR 3.7.7.1.3

This SURVEILLANCE REQUIREMENT measures CCW leakage to ensure the PPMU Tank level is adequate in accordance with Figure 3.7.7.1-1. The specified frequency is considered adequate in view of the special alignment required to perform this test. This measurement can be performed only when one CCW critical loop can be removed from service. Therefore, this measurement needs to be performed during refueling outages.

REFERENCES

None.

NOTE

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| B 3.9.5 | Shutdown Cooling (SDC) and Coolant Circulation—Low Water Level | B 3.9-21 |
| B 3.9.6 | Refueling Water Level | B 3.9-25 |

3.7 PLANT SYSTEMS

3.7.7.1 Component Cooling Water (CCW) Safety Related Makeup System

LCO 3.7.7.1 Two trains of Component Cooling Water (CCW) Safety Related Makeup System shall be OPERABLE with a contained volume in the Primary Plant Makeup Storage Tank \geq the level specified in Figure 3.7.7.1-1.

-----NOTE-----
LCO 3.0.4 is not applicable.

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

ACTIONS

| CONDITION | REQUIRED ACTION | COMPLETION TIME |
|--|--|--|
| A. One CCW Safety Related Makeup flow path inoperable. | A.1 Restore the flow path to OPERABLE status. | 7 days |
| B. Two CCW Safety Related Makeup flow paths inoperable. <u>OR/AND</u> The Primary Plant Makeup Storage Tank Level < that required by Figure 3.7.7.1-1. | B.1 Restore one CCW Safety Related Makeup flow path to OPERABLE status. <u>AND</u> B.2 Restore the Primary Plant Makeup Storage Tank Level to OPERABLE status. | 8 hours (continued) |

ACTIONS

| CONDITION | REQUIRED ACTION | COMPLETION TIME |
|---|---------------------------------|-----------------|
| C. Required Actions and associated Completion Times of Conditions A or B not met. | C.1 Be in MODE 3. | 6 hours |
| | <u>AND</u> C.2 Be in MODE 5. | 30 hours |

SURVEILLANCE REQUIREMENTS

| SURVEILLANCE | FREQUENCY |
|---|--|
| SR 3.7.7.1.1 Verify the contained water volume in the Primary Plant Makeup Storage Tank is within its limits. | 7 days |
| SR 3.7.7.1.2 Verify each CCW Safety Related Makeup System pump develops the required differential pressure on recirculation flow. | In accordance with inservice testing program |
| SR 3.7.7.1.3 Measure CCW Leakage. | 24 months |

TOTAL ALLOWABLE CCW LEAKAGE VERSUS THE PPMU TANK LEVEL

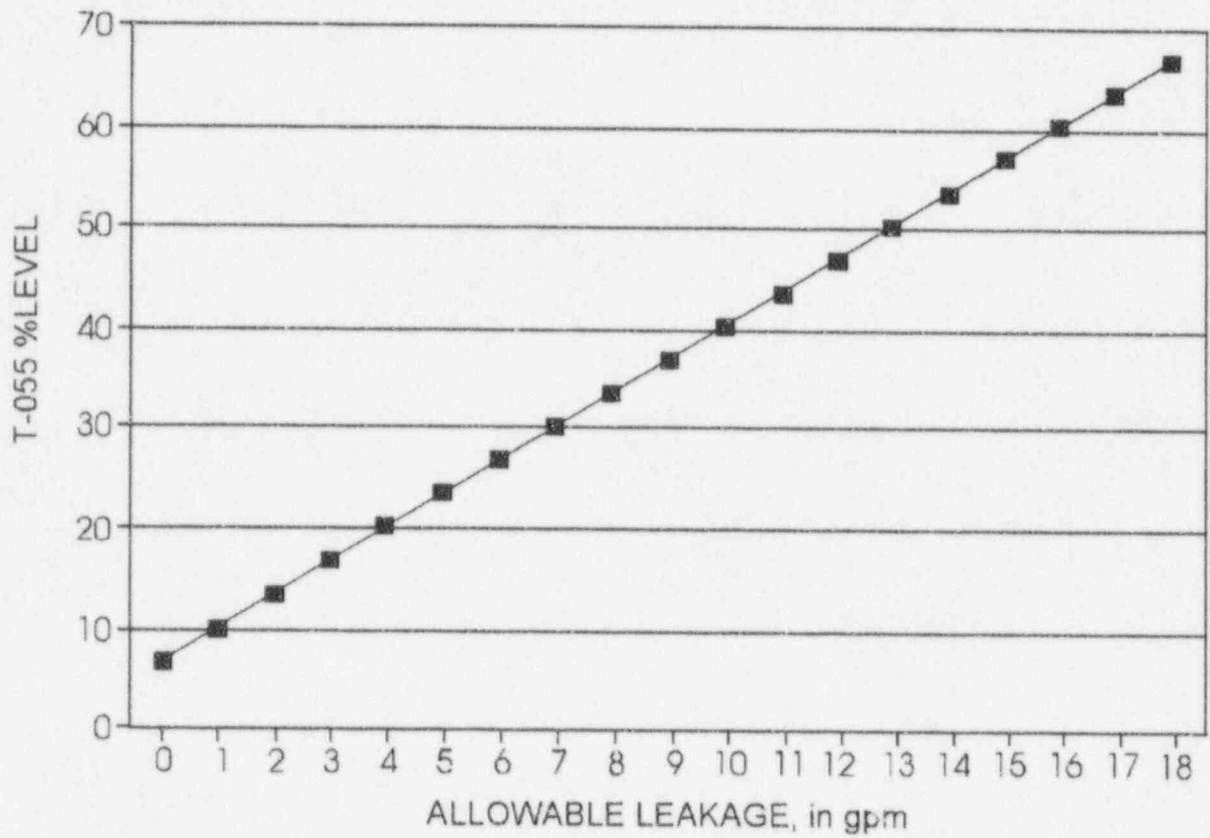


Figure 3.7.7.1-1

B 3.7 PLANT SYSTEMS

B 3.7.7.1 Component Cooling Water (CCW) Safety Related Makeup System

BASES

BACKGROUND

The SONGS Component Cooling Water (CCW) System consists of two independent critical loops (trains) and one non-critical loop (NCL). All three loops are interconnected, such that the non-critical loop can be aligned to either one of the critical loops. Each of the two CCW trains is provided with a dedicated pump and a surge tank. A third, swing pump is also provided and can be aligned to either CCW train. Normal makeup to the CCW trains is provided from the non-safety related, Seismic Category II Nuclear Service Water (NSW) System via the CCW surge tanks.

The safety related makeup system is designed to supply water to the CCW trains following loss of normal CCW makeup from the nuclear service water system. It is train-oriented and provides sufficient water inventory to accommodate a maximum allowable leakage from both CCW trains for a period of seven days. The CCW safety related makeup system is an integral part of the CCW system.

The CCW safety related makeup system for each Unit consists of one primary plant makeup water (PPMU) storage tank (T-055 for Unit 3 and T-056 for Unit 2) and two makeup transfer trains, each supplying the associated CCW train. Each transfer train includes a 100% capacity makeup pump, pump discharge solenoid valve, check valve, isolation valves and interconnecting suction and discharge piping. A test loop is provided for each transfer train to enable In-service Testing (IST) of each pump. All components and piping of the CCW safety related makeup system are either designed or upgraded to Quality Class II, Seismic Category I. Power to each transfer train component is provided from independent Class 1E sources.

Makeup to the safety related CCW trains is initiated/terminated manually on loss of normal CCW makeup capability, as required. The pumps are started/stopped from the Control Room or from the associated Motor Control Center (MCC), based on the CCW surge tank level indication (remote or local). Manual operation of the CCW safety related makeup is acceptable because:

(continued)

BASES

BACKGROUND
(continued)

- sufficient time is available after the limiting event for the operator to initiate manual action
- emergency makeup is a continuously supervised operation and continuous safety related CCW surge tank level indication is being provided.

Safety related CCW makeup utilizes the PPMU tank located in the Radwaste Building at El. 9' for each unit as a source of makeup water. The PPMU tanks are provided with a floating diaphragm to maintain air tight integrity. This diaphragm is made of elastomer with a specific gravity less than 1.0.

The nominal capacity of each PPMU tank is 300,000 gallons. 203,800 gallons in tank T-056 and 203,719 gallons in tank T-055 are dedicated to the CCW safety related makeup. This amount includes the total tank level instrumentation loop uncertainty (TLU) and the unrecoverable volume. For both tanks, this volume corresponds to the water level at plant elevation 30'-9 3/4" (or 65.6% tank level as indicated in the Control Room). The dedicated volume allows makeup for CCW system leakage (from both CCW trains) of up to 18 gpm for a period of seven days. The minimum water level required in the PPMU tank for the CCW safety related makeup system to be considered OPERABLE is a function of the CCW system total leak rate. The volume above that controlled by the TS is available for the PPMU system use.

A common suction header connects the CCW safety related makeup pumps to the PPMU tank at elevation 11'-0". The suction nozzle has a pointing downward elbow attached inside the tank. This is done to increase the tank usable volume and to provide an adequate margin to prevent vortex formation. After transferring the TS volume from the tank, the level of water remaining in the tank is 10" above the pump suction nozzle inlet.

To enable in-service testing of the CCW makeup pumps, a test loop capable of passing a flow approximately equal to the nominal makeup flow is provided.

The high and low level alarms annunciate in the Radwaste Control Room on Panel 2/3L-5 at 95% (LSH-7133) and 75% tank level (LSL-7133), respectively. The high level alarm also annunciates in the main Control Room.

(continued)

BASES

BACKGROUND
(continued)

Safety related instruments are required to monitor the CCW surge tank level. To satisfy the provisions of 10CFR 50, Appendix A, GDC-19, the capability to safely shutdown the plant from outside the Control Room is required. To operate the CCW safety related makeup system from outside the control room, the capability to start/stop the makeup pumps and to monitor the CCW surge tank level is required. QC II, SC I gages are used to monitor the tank level to support safe shutdown from outside the Control Room.

All components of the CCW safety related makeup system are located within the Radwaste Building and Penetration Area (Seismic Category I structures), which are capable of withstanding the impact of tornado generated missiles. The only potential path for intrusion of tornado missiles into the PPMU tank rooms (127A and 127B) are external access doors AR307 and AR311 in the Radwaste Building east wall. These metal doors are normally closed and are protected by L-shaped, 12" thick concrete enclosures (two walls and a roof). These enclosures are open to the South in Unit 2 and to the North in Unit 3.

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SAFETY ANALYSES

The CCW safety related makeup system for each Unit consists of one passive component (storage tank) and two redundant transfer trains employing active components. The CCW safety related makeup system is designed such that passive component failures do not have to be postulated. Each makeup transfer train is powered from a separate Class 1E Bus, the same as the CCW train it supports. This design assures that only one CCW train can be affected by a single active component failure within the CCW safety related makeup system. It is conservatively assumed that such failure would result in loss of the affected CCW safety related makeup train and eventually in loss of the associated CCW train. The remaining CCW train (critical loop) is available for accident mitigation, as required. From the safety analysis perspective, loss of one CCW train is acceptable as shown in the UFSAR Chapter 15 analyses.

However, loss of a CCW train is not a limiting consequence of some single failures within the safety related CCW makeup system. The limiting consequence of inadvertent/spurious actuation of the CCW safety related makeup system (makeup pump start) is the potential for depletion of the PPMU tank water inventory credited for long term accident mitigation,
(continued)

BASES

APPLICABLE
SAFETY ANALYSES
(continued)

common for both CCW trains. Such depletion of the inventory would take place should relief valves on the CCW surge tank lift as a result of tank overflowing and water being discharged from the CCW system into the plant vent stack. Makeup water inventory depletion would impact the CCW safety related makeup system capability to perform its safety function.

Operator action is required outside the control room to mitigate the single active failure of a CCW pump motor control relay stuck in the "operate" position, because this failure prevents both pump trip and discharge valve closure using the control switches. The specific mitigating action is to open the respective pump breaker at the MCC in the E1.50' switchgear room. The assumed above operator action time of 30 minutes is sufficient to mitigate this failure.

The single tank and common suction nozzle configuration of the CCW makeup system is subject to the single passive failure criteria of ANSI Standard N658-1976, because the system is required to operate for more than 24 hours post-accident. Concurrent passive failures which must be considered under this standard are flow path blockage and pressure boundary failures.

Flow path blockage due to entrainment of foreign material is not credible because the system is operated using only filtered and demineralized water. Furthermore, blockages due to component internal failures are not credible because: a) there are no valves in the common flow path, and b) the tank diaphragm is made of material with the specific gravity less than 1.0 (closed cell elastomer which would float even if the diaphragm were to disintegrate), and c) the system suction line is provided with a pointing downward elbow inside the tank (which ensures sufficient submergence of the suction inlet to prevent entrainment of any floating debris even at the maximum suction velocity).

Passive failure of the pressure boundary may be limited to failed valve packing and pump mechanical seals for systems designed and maintained to ASME Section III and Section XI criteria. All such failures in the proposed makeup system can be isolated because the suction isolation valve for each train has a back seat to prevent leakage due to failure of its packing. This valve can be used to isolate all other

(continued)

BASES

APPLICABLE
SAFETY ANALYSES
(continued)

packing or seal failures in this train. Therefore, the limiting passive failure is a pump shaft seal failure.

The design function of the safety related CCW makeup system is to maintain the water inventory in the CCW trains during a 7-day post-accident period. For this purpose, sufficient water inventory is contained in the single PPMU storage tank for both CCW trains. From the PPMU tank water is transferred to the CCW return heads by two safety related pumps.

LCO

The water source for the Component Cooling Water Safety Related Makeup System is the PPMU Tank. The total capacity of each PPMU Tank is approximately 303,500 gallons. The curve for PPMU Tank volume represents a seven day supply of makeup water at a specific allowable leakage rate from the CCW system. The requirement for seven days is consistent with Standard Review Plan, Section 9.2.2.III.c.

Specification 3.0.4 requires that entry not be made into an OPERATIONAL MODE or other specified condition unless the conditions of the Limiting Condition for Operation are met without reliance on provisions contained in the Action requirements. The exemption from this requirement gives Operations more flexibility to change MODES while still performing required Actions. Exemption from Specification 3.0.4 will not restrain Operations from changing MODES. The CCW Safety Related Makeup System is only required to support the CCW system in the event of a Design Basis Earthquake.

It should be noted that the CCW system itself does not have a 3.0.4 exemption. Therefore, the CCW system is always OPERABLE during up MODE changes. The Probabilistic Risk Assessment (PRA) has demonstrated that the allowed outage times specified would result in an acceptably small risk of core damage. Therefore, a 3.0.4 exemption for the CCW Safety Related Makeup System is considered acceptable.

(continued)

BASES

APPLICABILITY The Component Cooling Water Safety Related Makeup System is a support system to the CCW System. This means whenever the CCW System is required to be OPERABLE its support system should be OPERABLE also. In MODES 1, 2, 3, and 4, Technical Specification 3.7.7, "Component Cooling Water" requires "At least two independent component cooling water loops shall be OPERABLE." Therefore, in MODES 1, 2, 3, and 4, the PPMU Tank and both trains of the makeup flow of the Component Cooling Water Safety Related Makeup System shall be OPERABLE.

ACTIONS

A.1

With one CCW Safety Related Makeup System's flow path inoperable, action must be taken to restore OPERABLE status within 7 days.

The allowable completion time of 7 days is considered reasonable based on the low probability of a DBE occurring during the 7 days and the redundant capability of the OPERABLE CCW Safety Related Makeup flow path. A Probabilistic Risk Assessment (PRA) was performed to assess the increased risk of core damage from a 7 day allowed outage time for one train of the CCW Safety Related Makeup System. The PRA indicated that the increased risk of core damage from a 7 day allowed outage time is less than 1×10^{-6} per year. This increase in core damage risk is considered acceptable small.

B.1 and B.2

This operating condition is more restrictive than the Action A condition. If the level in the PPMU Tank drops below that required to support two CCW critical loops operation for seven days, the condition is similar to loss of both CCW Safety Related Makeup System flow paths. Actions should be taken to restore the PPMU Tank level within 8 hours. If both CCW Safety related Makeup flow paths are inoperable, one CCW Safety Related Makeup flow path should be restored to OPERABLE status within 8 hours.

The allowed completion time of 8 hours is based on operating experience and a Probabilistic Risk Assessment (PRA).

(continued)

BASES

ACTIONS

B.1 and B.2 (continued)

Operating experience shows that the likelihood of Primary Plant Makeup Storage Tank level dropping below 66% (which corresponds to an allowable CCW leakage of 18 gpm based on Figure 3.7.7.1-1) is extremely low. Also, a Probabilistic Risk Assessment (PRA) was performed to assess the increased risk of core damage from an 8 hour allowed outage time for two trains of the CCW Safety Related Makeup System. The PRA indicated that the increased risk of core damage from an 8 hour allowed outage time is less than 1×10^{-6} per year. This increase in core damage risk is considered acceptably small.

C.1 and C.2

In MODES 1, 2, 3, and 4, two CCW System critical loops provide cooling to a number of safety related systems, such as HPSI, LPSI, shutdown cooling, emergency chillers, etc. The CCW Safety Related Makeup System is a support system for the CCW System. Two CCW Safety Related Makeup flow paths are required to provide makeup to the two CCW critical loops. If one CCW Safety Related Makeup flow path cannot be restored to OPERABLE status in seven days, the Unit must be placed in a MODE in which the LIMITING CONDITION FOR OPERATION does not apply.

To achieve this status, the Unit must be placed in at least HOT STANDBY within the next 6 hours, and in COLD SHUTDOWN within 30 hours.

Similarly, action should be taken if the PPMU Tank level is below that required for two CCW critical loops operation and/or both CCW Safety Related Makeup flow paths are inoperable. If both the PPMU Tank level and at least one flow path are not OPERABLE within 8 hours, the Unit must then be placed in a MODE in which the LIMITING CONDITION FOR OPERATION does not apply. To achieve this status, the Unit must be placed in at least HOT STANDBY within the next 6 hours, and in the COLD SHUTDOWN within 30 hours.

The allowed completion Time is consistent with other Technical Specification completion Time requirements to

(continued)

BASES

ACTIONS

C.1 and C.2 (continued)

reach the required unit conditions from full power conditions in an orderly manner.

SURVEILLANCE REQUIREMENTS

SR 3.7.7.1.1

This SURVEILLANCE REQUIREMENT verifies that the PPMU Tank contains the required volume of makeup water. The 7 days frequency is based on similar SURVEILLANCE REQUIREMENT frequencies. The 7 days frequency is considered adequate in view of other indications in the control room, including alarms, to alert the operator to abnormal PPMU Tank level deviations.

SR 3.7.7.1.2

This SURVEILLANCE REQUIREMENT verifies that the CCW makeup pumps develop sufficient discharge pressure to deliver the required flow to the CCW system from the Primary Plant Makeup Tank. Performance of inservice testing, discussed in the ASME Code, Section XI at three month intervals, satisfies this requirement.

SR 3.7.7.1.3

This SURVEILLANCE REQUIREMENT measures CCW leakage to ensure the PPMU Tank level is adequate in accordance with Figure 3.7.7.1-1. The specified frequency is considered adequate in view of the special alignment required to perform this test. This measurement can be performed only when one CCW critical loop can be removed from service. Therefore, this measurement needs to be performed during refueling outages.

REFERENCES

None.
