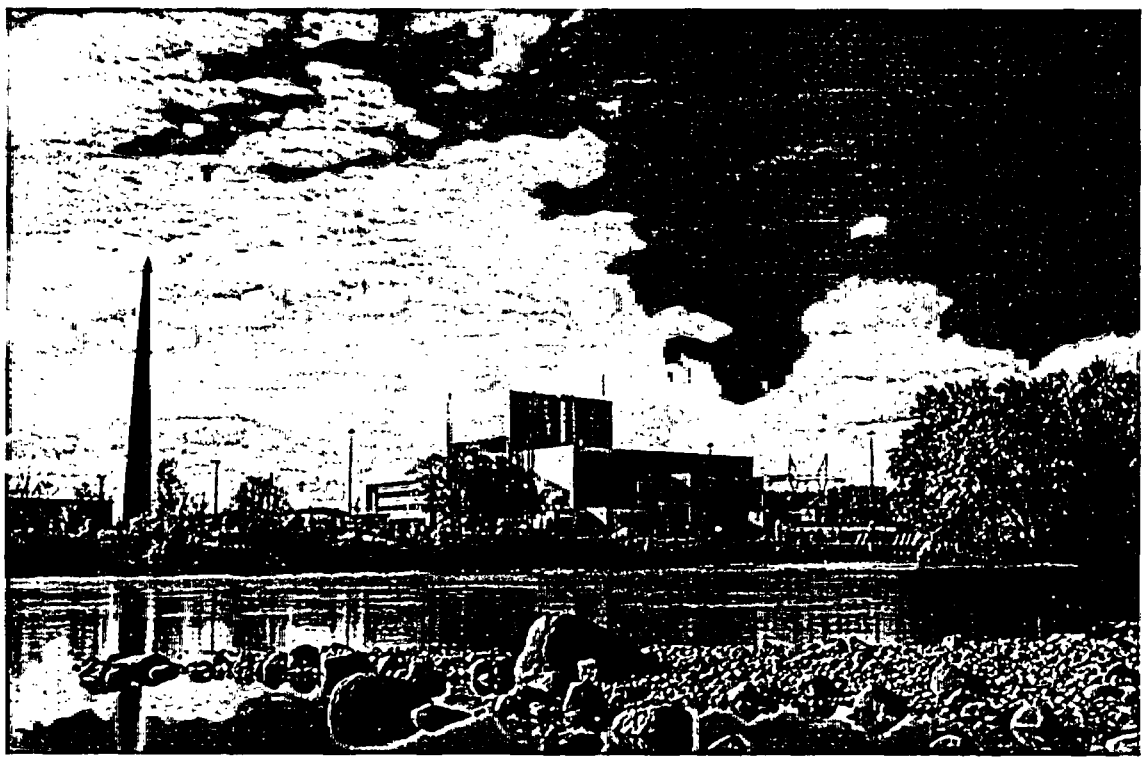
IMPROVED TECHNICAL SPECIFICATIONS



MONTICELLO NUCLEAR GENERATING PLANT

VOLUME 10

ITS Section 3.5,
Emergency Core Cooling Systems (ECCS)

NMC
Committed to Nuclear Excellence

ATTACHMENT 1

VOLUME 10

MONTICELLO IMPROVED TECHNICAL SPECIFICATIONS CONVERSION

ITS SECTION 3.5 EMERGENCY CORE COOLING SYSTEM (ECCS) AND REACTOR CORE ISOLATION COOLING SYSTEM (RCIC)

Revision 0

LIST OF ATTACHMENTS

1. ITS 3.5.1
2. ITS 3.5.2
3. ITS 3.5.3

ATTACHMENT 1

ITS 3.5.1, Emergency Core Cooling System (ECCS) - Operating

Current Technical Specification (CTS) Markup and Discussion of Changes (DOCs)

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A.1

ITS

ITS

3.0 LIMITING CONDITIONS FOR OPERATION	4.0 SURVEILLANCE REQUIREMENTS
3.5 CORE AND CONTAINMENT SPRAY/COOLING SYSTEMS	**4.5 CORE AND CONTAINMENT SPRAY/COOLING SYSTEMS**
Applicability: Applies to the operational status of the emergency cooling systems.	Applicability: Applies to the periodic testing of the emergency cooling systems.
Objective: To insure adequate cooling capability for heat removal in the event of a loss of coolant accident or isolation from the normal reactor heat sink.	Objective: To verify the operability of the emergency cooling systems.
Specification:	Specification:
3.5.1 A. ECCS Systems	A. ECCS Systems
LCO 3.5.1 1. Except as specified in section 3.5.A.3, both Core Spray subsystems and the Low Pressure Coolant Injection (LPCI) Subsystem (LPCI Mode of RHR System) shall be operable whenever irradiated fuel is in the reactor vessel and the reactor water temperature is greater than 212°F. (M.1)	SR 3.5.1.7 1. Demonstrate the Core Spray Pumps develop a 2,600 gpm flow rate against a system head corresponding to a reactor pressure of 130 psi greater than containment pressure, when tested in accordance with the Inservice Testing Program.
Applicability	
LCO 3.5.1 2. Except as specified in section 3.5.A.3, the High Pressure Coolant Injection (HPCI) System and the Automatic Depressurization System (ADS) shall be operable whenever the reactor pressure is greater than 150 psig and irradiated fuel is in the reactor vessel except during reactor vessel hydrostatic or leakage tests. (See ITS 3.10.1)	2. Demonstrate the LPCI Pumps develop a 3,870 gpm flow rate against a system head corresponding to two pumps delivering 7,740 gpm at a reactor pressure of 20 psi greater than containment pressure, when tested in accordance with the Inservice Testing Program. (LA.1)
Applicability	SR 3.5.1.7

(L.6)

3.5/4.5

Add proposed LCO 3.5.1 Note

101 08/01/01

Amendment No. ~~77, 79, 93,~~ 122

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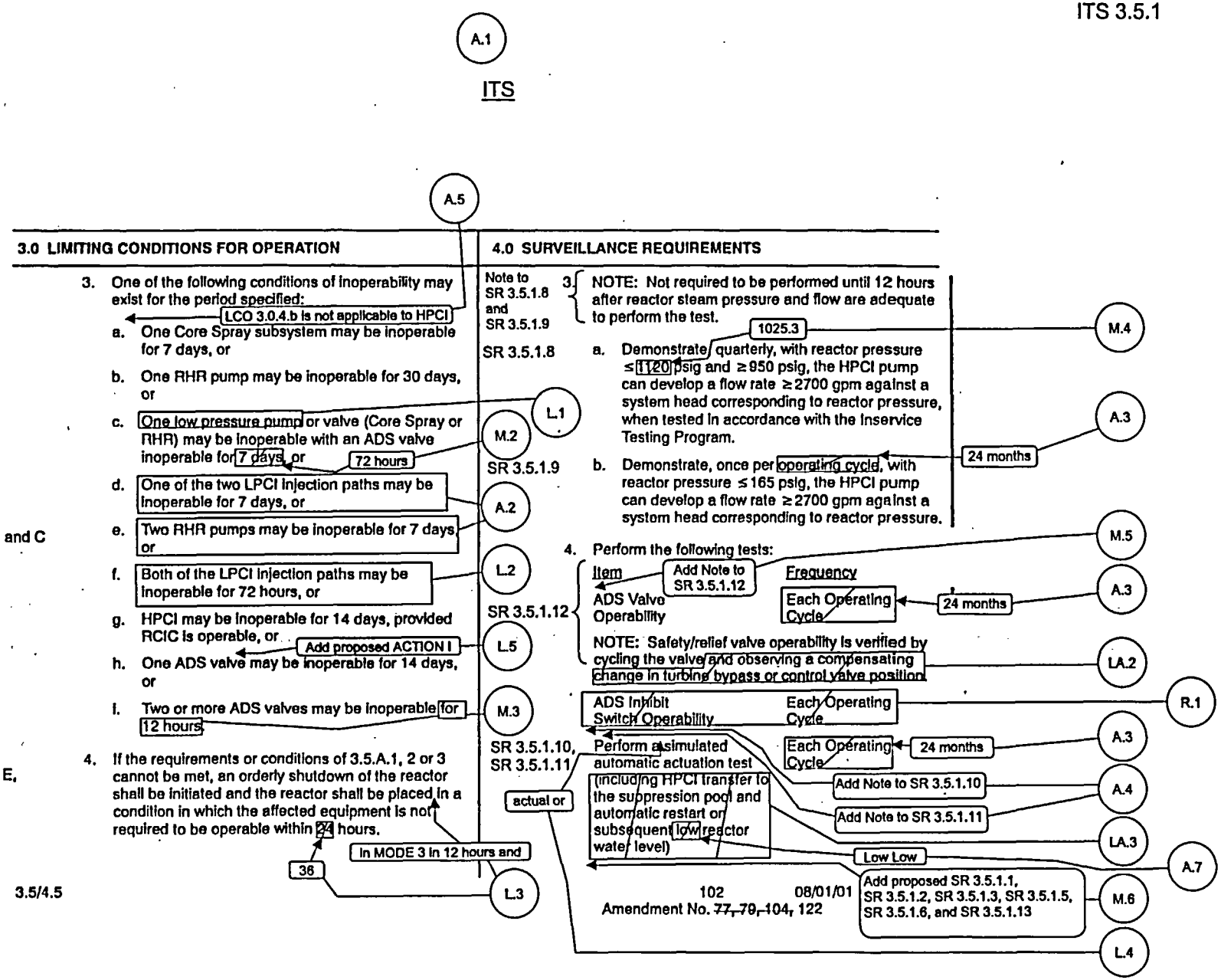
ITS

ITS



3.5/4.5

102 08/01/01
Amendment No. ~~77, 79, 104,~~ 122

A.1

ITS

3.0 LIMITING CONDITIONS FOR OPERATION	4.0 SURVEILLANCE REQUIREMENTS
	5. Perform the following test on the Core Spray Δp Instrumentation: Check — Once/day Test — Once/month Calibrate — Once/3 months → LA.4
B. RHR Intertie Return Line Isolation Valves	
LCO 3.5.1, SR 3.5.1.4 (including Note) 1. Both RHR Intertie Return Line Isolation Valves shall be operable whenever the mode switch is in RUN. To be considered operable, each valve must be capable of automatic closure on a LPCI initiation signal or be in the closed position. Flow shall not be established in the RHR Intertie line with the reactor in the Run Mode.	→ M.7 ← Add proposed SR 3.5.1.4
2. If one valve is inoperable, either: → A.6	
ACTION F a. Close the inoperable valve, or b. Close the other Return Line Isolation valve and the RHR Suction Line Isolation valve.	← Isolate RHR Intertie line. → LA.5
ACTION G 3. If the requirements of 3.5.B.1 and 2 cannot be met, the reactor shall be taken out of the RUN mode within 24 hours. → A.6	

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DISCUSSION OF CHANGES
ITS 3.5.1, EMERGENCY CORE COOLING SYSTEM (ECCS) - OPERATING

ADMINISTRATIVE CHANGES

A.1 In the conversion of the Monticello Current Technical Specifications (CTS) to the plant specific Improved Technical Specifications (ITS), certain changes (wording preferences, editorial changes, reformatting, revised numbering, etc.) are made to obtain consistency with NUREG-1433, Rev. 3, "Standard Technical Specifications General Electric Plants, BWR/4" (ISTS).

These changes are designated as administrative changes and are acceptable because they do not result in technical changes to the CTS.

A.2 CTS 3.5.A.3.d specifies a condition for one of the two LPCI injection paths being inoperable while CTS 3.5.A.3.e specifies a condition for two RHR pumps being inoperable. Both CTS 3.5.A.3.d and CTS 3.5.A.3.e allow 7 days to restore the associated inoperabilities before requiring a unit shutdown. ITS 3.5.1 ACTION B (first Condition) provides the actions for one LPCI subsystem inoperable while ITS 3.5.1 ACTION C provides the actions for one LPCI pump in each subsystem being inoperable. Both of the ACTIONS also allow a 7 day restoration time. This changes the CTS by specifying the LPCI inoperabilities with respect to a LPCI "subsystem" instead of LPCI "injection path" or "RHR pumps."

The purpose of CTS 3.5.A.3.d is to allow the flow path associated with two LPCI pumps on the same RHR loop to be inoperable for a short period of time prior to requiring a unit shutdown. The purpose of CTS 3.5.A.3.e is to allow any two LPCI pumps to be inoperable for a short period of time prior to requiring a unit shutdown. The ITS 3.5.1 Bases defines that a LPCI subsystem consists of two motor driven pumps in the same RHR loop and the piping and valves to transfer water from the suppression pool to the reactor pressure vessel via the selected recirculation loop. This change is acceptable since ITS 3.5.1 covers the conditions for the same inoperabilities and provides the same time for restoration. This change is considered administrative because it does not result in technical changes to the CTS.

A.3 CTS 4.5.A.3.b requires the low pressure HPCI pump flow test to be performed once per operating cycle. CTS 4.5.A.4 requires the performance of an automatic actuation test of the CS, LPCI, HPCI, and ADS Systems each operating cycle. CTS 4.5.A.4 also requires the cycling of each ADS valve and observing a compensatory turbine bypass or control valve position each operating cycle. ITS SR 3.5.1.9, SR 3.5.1.10, SR 3.5.1.11, and SR 3.5.1.12 require similar tests every "24 months." This changes the CTS by changing the Frequencies from once per "operating cycle" to "24 months."

This change is acceptable because the current "operating cycle" is "24 months." In letter L-MT-04-036, from Thomas J. Palmisano (NMC) to the USNRC, dated June 30, 2004, NMC has proposed to extend the fuel cycle from 18 months to 24 months and the same time has performed an evaluation in accordance with Generic Letter 91-04 to extend the unit Surveillance Requirements from 18 months to 24 months. CTS 4.5.A.3.b and CTS 4.5.A.4 were included in this evaluation. This change is designated as administrative because it does not result in any technical changes to the CTS.

DISCUSSION OF CHANGES
ITS 3.5.1, EMERGENCY CORE COOLING SYSTEM (ECCS) - OPERATING

A.4 CTS 4.5.A.4 requires the performance of a simulated automatic actuation test of the ECCS subsystems. ITS SR 3.5.1.10 requires the performance of a similar test for the ECCS injection/spray subsystems, however a Note has been included that states "Vessel injection/spray may be excluded." ITS SR 3.5.1.11 requires the performance of a similar test for the ADS, however a Note has been included that states "Valve actuation may be excluded." This changes the CTS by providing clarification Notes that exclude vessel injection/spray for the ECCS injection/spray subsystems and valve actuation for the ADS.

The purpose of CTS 4.5.A.4 is to ensure that all active ECCS components operate correctly upon receipt of an actuation signal. This change provides clarification Notes that do not modify the testing requirements. CTS 4.5.A.4 states it is a "simulated" test; it does not have a statement such as "Vessel injection/spray is required," or "Valve actuation is required." ITS SR 3.5.1.10 verifies that, with a required system initiation signal, the automatic initiation logic of HPCI, CS, and LPCI will cause the systems or subsystems to operate as designed, including actuation of the system throughout its emergency operating sequence, automatic pump startup and actuation of all automatic valves to their required positions. However, vessel injection/spray may be excluded from the test. This is acceptable since all active components are testable and because full flow may be demonstrated by recirculation through the test line. CS and LPCI flow verification is performed in accordance with SR 3.5.1.7 while HPCI flow verification is performed in accordance with SR 3.5.1.8 and SR 3.5.1.9. ITS SR 3.5.1.11 verifies that, with a required system initiation signal, the automatic initiation logic of ADS will cause the system to operate as designed, including the mechanical portions of the ADS function (i.e., solenoids). However, valve actuation may be excluded from the test. This is acceptable since all active components are testable and actual valve operation is demonstrated in accordance with ITS SR 3.5.1.12. This change is considered administrative because it does not result in technical changes to the CTS.

A.5 The ITS 3.5.1 ACTIONS include a Note that states LCO 3.0.4.b is not applicable to HPCI. The CTS does not include this Note. This changes the CTS by including the ACTION Note.

The purpose of the ITS 3.5.1 ACTIONS Note is to prohibit entry into the Applicability of LCO 3.5.1 with an inoperable HPCI System. Currently, entry into a MODE or other specified condition in the Applicability is not allowed when the HPCI System is inoperable. ITS LCO 3.0.4 has been added in accordance with the Discussion of Changes for ITS Section 3.0, DOC L.1. This LCO allows entry into a MODE or other specified condition in the Applicability under certain conditions when a Technical Specification required component is inoperable. ITS LCO 3.0.4.b allows entry into a MODE or other specified condition in the Applicability of a Specification if a risk assessment is performed, that determines it is acceptable to enter the Applicability, and appropriate risk management actions are established. The addition of this restriction (LCO 3.0.4.b is not applicable) is acceptable because there is an increased risk associated with entering a MODE or other specified condition in the Applicability with an inoperable HPCI System, and therefore the provisions of LCO 3.0.4.b should not be applied in this circumstance. The change is acceptable because CTS 3.5.D

does not currently allow this option. This change is considered administrative because it does not result in technical changes to the CTS.

A.6 CTS 3.5.B.2 states that if one RHR intertie return line isolation valve is inoperable to either close the inoperable valve or close the other return line isolation valve and the RHR suction line isolation valve. No specific time is provided to complete this action. However, if the requirement in CTS 3.5.B.2 cannot be met, CTS 3.5.B.3 requires the reactor to be taken out of the Run mode within 24 hours. ITS 3.5.1 ACTION F covers the condition for inoperable RHR intertie return line isolation valve(s) in MODE 1 and requires isolation of the RHR intertie line within 18 hours. ITS 3.5.1 ACTION G covers the condition when ACTION F is not met and it requires the unit to be in MODE 2 within 6 hours. This changes the CTS by dividing the completion time in CTS 3.5.B.3 into two specific times; one time to isolate the RHR intertie line and one time to be in MODE 2. Other changes to CTS 3.5.B.2 (relative to how to isolate the RHR intertie line) are discussed in DOC LA.5.

The purpose of CTS 3.5.B.2 is to provide the appropriate compensatory actions when one RHR intertie return line isolation valve is inoperable. The purpose of CTS 3.5.B.3 is to allow 24 hours to place the unit in a safe condition if the allowance of CTS 3.5.B.2 cannot be met. The proposed changes to the CTS will continue to require the unit to be in MODE 2 within 24 hours if there are any inoperabilities associated with the RHR intertie return line isolation valves and the associated line cannot be properly isolated. The change allows 18 hours to isolate the return line, as stated in ITS 3.5.1 ACTION F, and allows an additional 6 hours to be in MODE 2, as stated in ITS 3.5.1 ACTION G. The sum of the Completion Times in ITS 3.5.1 ACTIONS F and G is still 24 hours. The changes are made to be consistent with the format of the ITS. This change is considered administrative because it does not result in technical changes to the CTS.

A.7 This change to CTS 4.5.A.4 is provided in the Monticello ITS consistent with the Technical Specifications Change Request submitted to the USNRC for approval in NMC letter L-MT-04-036, from Thomas J. Palmisano (NMC) to USNRC, dated June 30, 2004. As such, this change is administrative.

MORE RESTRICTIVE CHANGES

M.1 CTS 3.5.A.1 is applicable whenever irradiated fuel is in the reactor vessel and reactor water temperature is above 212°F. ITS LCO 3.5.1 is applicable in MODES 1, 2, and 3. This changes the CTS by requiring the Core Spray (CS) System and the Low Pressure Coolant Injection mode of the Residual Heat Removal (RHR) System is to be OPERABLE in MODE 2, when reactor water temperature is less than or equal to 212°F.

The purpose of CTS 3.5.A.1 is to ensure the CS System and LPCI are OPERABLE to mitigate the consequences of a design basis accident. ECCS are required to be OPERABLE during MODES 1, 2, and 3 when there is considerable energy in the reactor core and core cooling would be required to prevent fuel damage in the event of a break in the primary system piping. In MODES 1 and 3, the reactor coolant temperature will always be above 212°F. In

DISCUSSION OF CHANGES
ITS 3.5.1, EMERGENCY CORE COOLING SYSTEM (ECCS) - OPERATING

MODE 2, the reactor coolant temperature may be less than or equal to 212°F when the reactor is subcritical but control rods are withdrawn. Therefore, it is necessary and acceptable to require the CS System and LPCI to be OPERABLE. This change is designated as more restrictive because the LCO will be applicable under more reactor operating conditions than in the CTS.

M.2 CTS 3.5.A.3.c covers the condition associated with one low pressure pump or valve associated with CS or LPCI being inoperable with an ADS valve inoperable. CTS 3.5.A.3.c allows this condition to exist for 7 days before commencing a reactor shutdown. Under similar inoperabilities, ITS 3.5.1 ACTION K requires restoration of either the inoperable ADS valve or low pressure ECCS injection/spray subsystem(s) to OPERABLE status in 72 hours. This changes the CTS by reducing the restoration time from 7 days to 72 hours.

The purpose of CTS 3.5.A.3.c is to provide a short period of time to restore the inoperable ECCS components. This change is acceptable since it reduces the restoration time from 7 days to 72 hours, and is based on a reliability study documented in a Memorandum from R.L. Baer (NRC) to V. Stello, Jr. (NRC), "Recommended Interim Revisions to LCOs for ECCS Components," dated December 1, 1975. This change is designated as more restrictive because it allows less time to restore inoperable subsystems or components to OPERABLE status than in the CTS.

M.3 CTS 3.5.A.3.i allows 12 hours to restore two or more ADS valves to OPERABLE status prior to commencing a reactor shutdown. The ITS does not allow any restoration time prior to requiring a unit shutdown. ITS 3.5.1 ACTION L provides the actions for two or more inoperable ADS valves and requires the unit to be in MODE 3 in 12 hours and to reduce reactor steam dome pressure to $\leq$ 150 psig within 36 hours. This changes the CTS by deleting the 12 hour restoration time when two or more ADS valves are inoperable.

The purpose of CTS 3.5.A.3.i is to allow 12 hours to restore the inoperable ADS valves to OPERABLE status prior to requiring a unit shutdown. Under the same conditions in the ITS, no restoration time is provided; the unit is required to be shutdown. This change is acceptable because with two or more ADS valve inoperable the loss of coolant accident safety analysis cannot be met. This safety analysis assumes two ADS valves function to perform the reactor depressurization function. This change is designated as more restrictive because it removes a 12 hour restoration time prior to requiring a unit shutdown.

M.4 CTS 4.5.A.3.a requires the quarterly HPCI pump flow test to be performed at a reactor pressure of $\leq$ 1120 psig and $\geq$ 950 psig. ITS SR 3.5.1.8 requires the same test to be performed at a reactor steam dome pressure of $\leq$ 1025.3 psig and $\geq$ 950 psig. This changes the CTS by reducing the upper pressure limit from 1120 psig to 1025.3 psig.

The purpose of CTS 4.5.A.3.a is to ensure the HPCI System can supply the required flow rated at a high pressure condition. This change reduces the upper pressure limit for the high pressure quarterly HPCI test. While the HPCI System is designed to operate at pressures as high as 1120 psig, this test is normally performed during MODE 1 operation, and if the reactor steam dome pressure

were increased to 1120 psig the reactor would scram (i.e., the reactor pressure scram Allowable Value is < 1120 psig). This change is acceptable because the proposed range is consistent with normal unit operating steam dome pressures and the proposed maximum allowed reactor steam dome pressure limit allowed in ITS LCO 3.4.10. This change is designated as more restrictive because it reduces the upper pressure limit from 1120 psig to 1025.3 psig.

M.5 CTS 4.5.A.4 requires the performance of an "ADS Valve Operability" test by cycling each ADS valve and observing a compensatory turbine bypass or control valve position. ITS SR 3.5.1.12 requires the same test to be performed, however a Note is included that states that the test is "Not required to be performed until 12 hours after reactor steam pressure and flow low are adequate to perform the test." This changes the CTS by providing a time limit for when the Surveillance must be completed.

The purpose of CTS 4.5.A.4 is to perform the ADS Valve Operability test at the appropriate unit conditions to ensure each ADS valve can be opened and that there is no blockage in the associated ADS discharge piping to the suppression pool. CTS 4.5.A.4 requires the Surveillance to be performed at a condition where the turbine bypass or turbine control valves are initially opened so that when an ADS valve is opened, turbine bypass or turbine control valve closure can be observed. Turbine bypass or control valve closure helps to ensure some of the steam is being rerouted from the turbine bypass or control valve pathway to the ADS discharge pathway to the suppression pool. The Note to ITS SR 3.5.1.12 places a time limit for when the test must be performed after achieving the appropriate pressure and flow rate. The proposed time limit is considered sufficient to achieve stable conditions and provides adequate time to complete the Surveillance for all three ADS valves. This change is more restrictive because it places a time limit for when the test must be completed.

M.6 ITS SR 3.5.1.1 requires verification, for each low pressure ECCS injection/spray subsystem, that the piping is filled with water from the pump discharge valve to the injection valve every 31 days. ITS SR 3.5.1.2 requires verification that each ECCS injection/spray subsystem manual, power operated, and automatic valve in the flow path, that is not locked, sealed, or otherwise secured in position is in the correct position every 31 days. ITS SR 3.5.1.3 requires verification that the ADS pneumatic pressure for each required ADS supply is within the specified limits every 31 days. ITS SR 3.5.1.5 requires verification of correct breaker alignment to the LPCI swing bus every 31 days. ITS SR 3.5.1.6 requires verification that each recirculation pump discharge valve cycles through one complete cycle of full travel or is de-energized in the closed position in accordance with the Inservice Testing Program. ITS SR 3.5.1.13 requires verification of the automatic transfer capability of the LPCI swing bus power supply from the normal source to the backup source every 24 months. These Surveillances are not in the CTS. This changes the CTS by adding these Surveillance Requirements to the Technical Specifications.

The purpose of ITS SR 3.5.1.1 is to help ensure the pump discharge lines of the CS System and LPCI subsystems are full of water, ensuring that the ECCS will perform properly (injecting its full capacity into the RCS upon demand). This will also prevent a water hammer following an ECCS initiation signal. The purpose of

DISCUSSION OF CHANGES
ITS 3.5.1, EMERGENCY CORE COOLING SYSTEM (ECCS) - OPERATING

ITS SR 3.5.1.2 is to provide assurance that the proper flow paths will exist for ECCS operation. The purpose of ITS SR 3.5.1.3 is to ensure each required ADS valve has sufficient pneumatic supply for at least one valve actuation. The purpose of ITS SR 3.5.1.5 and SR 3.5.1.13 is to ensure the LPCI swing bus functions properly during a loss of coolant accident. The purpose of ITS SR 3.5.1.6 is to ensure that the recirculation pump discharge valves can close to their accident position. This change is acceptable because it provides additional assurance that the ECCS will be capable of performing its function. This change is designated as more restrictive because it adds new Surveillance Requirements to the CTS.

M.7 CTS 3.5.B specifies requirements for the RHR intertie return line isolation valves. CTS 3.5.B.1 requires these valves to be OPERABLE whenever the mode switch is in Run. To be considered OPERABLE, each valve must be capable of automatic closure on a LPCI initiation signal or be in the closed position. In addition, flow is not permitted to be established in the RHR intertie line with the reactor in MODE 1. ITS LCO 3.5.1 requires the LPCI System to be OPERABLE. ITS SR 3.5.1.4 requires verification that the RHR System intertie return line isolation valves are closed every 31 days. A Note is included that states that this Surveillance Requirement is only required to be met in MODE 1. This changes the CTS by including the OPERABILITY of the RHR intertie valves as part of LPCI OPERABILITY and by requiring verification that the RHR System intertie return line isolation valves are closed every 31 days. It also deletes the allowance that the valve can be considered OPERABLE if the valve is capable of automatic closure on a LPCI initiation signal.

The purpose of CTS 3.5.B is to ensure the RHR System intertie return line isolation valves are closed in MODE 1. While the second paragraph of CTS 3.5.B.1 allows the RHR intertie valves to be open as long as they are capable of being automatically closed, the third paragraph of CTS 3.5.B.1 states that flow shall not be established in the RHR intertie line. This can only be accomplished by closing at least one of the RHR intertie valves; with the RHR intertie valves open and a recirculation pump in operation, there will be flow through the RHR intertie line. Therefore, this part of the change is acceptable, and is considered a presentation preference, thus it is administrative. The change to include the OPERABILITY requirements of the RHR intertie valves as part of the LPCI OPERABILITY requirements is also a presentation preference and is considered administrative. ITS SR 3.5.1.4 is a new Surveillance to periodically (every 31 days) verify the RHR intertie valves are closed. This addition is acceptable since it provides a periodic verification to ensure that the valves are in their correct position as assumed in the accident analysis. This change is considered more restrictive because a Surveillance Requirement has been added to the CTS.

RELOCATED SPECIFICATIONS

R.1 CTS 4.5.A.4 requires the performance of an ADS Inhibit Switch Operability test. This implies that ADS OPERABILITY includes the ADS Inhibit Switch Function. The ADS Inhibit Switch allows the operator to defeat ADS actuation, as directed by the emergency operating procedures, under conditions for which ADS

actuation would not be desirable. For example, during an ATWS event, low pressure ECCS activation would dilute sodium pentaborate injected by the Standby Liquid Control (SLC) System, thereby reducing the effectiveness of the SLC System ability to shut down the reactor. This SR does not meet the criteria for retention in the ITS; therefore, it will be relocated to the Technical Requirements Manual (TRM). While 10 CFR 50.36(c)(2) criteria are not normally used for an individual Surveillance requirement, they are used in this case since the previous STS included the ADS Manual Inhibit Switch as a separate Specification and the NRC evaluated it as such as documented in the NRC Staff Review of NSSS Vendor Owners Groups Application of the Commissions Interim Policy Criteria to Standard Technical Specifications, letter dated May 9, 1988.

This change is acceptable because CTS 4.5.A.4 (ADS Inhibit Switch Operability Test) does not meet the 10 CFR 50.36(c)(2)(ii) criteria for inclusion into the ITS.

10 CFR 50.36(c)(2)(ii) Criteria Evaluation:

1. The ADS Inhibit Switch is not an instrument used for, nor capable of, detecting a significant abnormal degradation of the reactor coolant pressure boundary prior to a design basis accident (DBA).

2. The ADS Inhibit Switch is not used for, nor capable of, monitoring a process variable that is an initial condition of a DBA or transient analysis.

3. The ADS Inhibit Switch is not used as part of a primary success path in the mitigation of a DBA or transient. The inhibit feature was added to allow defeating the automatic ADS function when such action is required by the Emergency Operating Procedures. However, such manual operator action is not credited in a design basis accident or transient analysis.

4. As discussed in Sections 3.5 and 6, and summarized in Table 4-1 (item 112B) of NEDO-31466, the loss of the ADS Inhibit switch was found to be a non-significant risk contributor to core damage frequency and offsite releases. Nuclear Management Company, LLC (NMC) has reviewed this evaluation, considers it applicable to Monticello, and concurs with the assessment.

Since the 10 CFR 50.36(c)(2)(ii) criteria have not been met, the portions of the LCO and Surveillances applicable to the ADS Manual Inhibit switch may be relocated to other plant controlled documents outside the Technical Specifications. This change is designated as relocation because the Specification did not meet the criteria in 10 CFR 50.36(c)(2)(ii) and has been relocated to the TRM.

REMOVED DETAIL CHANGES

LA.1 *(Type 3 – Removing Procedural Details for Meeting TS Requirements or Reporting Requirements)* CTS 4.5.A.2 requires the demonstration that LPCI pumps develop a 3,870 gpm flow rate against a system head corresponding to

DISCUSSION OF CHANGES
ITS 3.5.1, EMERGENCY CORE COOLING SYSTEM (ECCS) - OPERATING

"two pumps delivering 7,740 gpm" at a reactor pressure of 20 psi greater than containment pressure. ITS SR 3.5.1.7 includes the same requirement, except the detail that the system head must correspond to "two pumps delivering 7,740 gpm" is not included. This changes CTS by moving the system head correction due to two pumps operating in parallel to the ITS Bases.

The removal of these details for performing Surveillance Requirements from the Technical Specifications is acceptable because this type of information is not necessary to be included in the Technical Specifications to provide adequate protection of public health and safety. The ITS still retains the requirement to verify each LPCI pump develops the flow rate of 3,870 gpm at a system head corresponding to a reactor to containment pressure of 20 psi. Also, this change is acceptable because the removed information will be adequately controlled in the ITS Bases. Changes to the Bases are controlled by the Technical Specification Bases Control Program in Chapter 5 of the ITS. This program provides for the evaluation of changes to ensure the Bases are properly controlled. This change is designated as a less restrictive removal of detail change because information relating to procedure details for meeting TS requirements is being removed from the Technical Specifications.

LA.2 *(Type 3 – Removing Procedural Details for Meeting TS Requirements or Reporting Requirements)* CTS 4.5.A.4 requires the performance of an ADS Valve Operability test by cycling each ADS valve "and observing a compensatory change in turbine bypass or control valve position." ITS SR 3.5.1.12 requires the verification that each ADS valve opens when manually actuated, but does not include the method for determining that the ADS valve has opened. This changes the CTS by moving the detail that the change in turbine bypass or control valve position shall be observed during the test to the ITS Bases.

The removal of these details for performing Surveillance Requirements from the Technical Specifications is acceptable because this type of information is not necessary to be included in the Technical Specifications to provide adequate protection of public health and safety. The ITS still retains the requirement to verify each ADS valve opens when manually actuated. Also, this change is acceptable because the removed information will be adequately controlled in the ITS Bases. Changes to the Bases are controlled by the Technical Specification Bases Control Program in Chapter 5 of the ITS. This program provides for the evaluation of changes to ensure the Bases are properly controlled. This change is designated as a less restrictive removal of detail change because information relating to procedural details for meeting TS requirements design is being removed from the Technical Specifications.

LA.3 *(Type 3 – Removing Procedural Details for Meeting TS Requirements or Reporting Requirements)* CTS 4.5.A.4 requires the performance of a simulated automatic actuation test of all ECCS subsystems and includes HPCI transfer to the suppression pool and automatic restart on subsequent Low Low reactor water level. ITS SR 3.5.1.10 requires the verification that each ECCS injection/spray subsystem actuates on an actual or simulated automatic initiation signal. This changes the CTS by moving the detail that the test verification must include "HPCI transfer to the suppression pool and automatic restart on

subsequent Low Low reactor water level" to the ITS Bases. The change to allow an actual signal is discussed in DOC L.4.

The removal of these details for performing Surveillance Requirements from the Technical Specifications is acceptable because this type of information is not necessary to be included in the Technical Specifications to provide adequate protection of public health and safety. The ITS still retains the requirement to verify that each ECCS injection/spray subsystem actuates on an actual or simulated automatic initiation signal. Also, this change is acceptable because the removed information will be adequately controlled in the ITS Bases. Changes to the Bases are controlled by the Technical Specification Bases Control Program in Chapter 5 of the ITS. This program provides for the evaluation of changes to ensure the Bases are properly controlled. This change is designated as a less restrictive removal of detail change because information relating to procedural details for meeting TS requirements is being removed from the Technical Specifications.

LA.4 *(Type 4 – Removing Performance Requirements for Indication-Only Instrumentation and Alarms)* CTS 4.5.A.5 requires the performance of an instrument check, test, and calibration of the Core Spray Δp Instrumentation. ITS 3.5.1 does not include any Surveillance Requirements for the Core Spray Δp instrumentation. This changes the CTS by relocating this Surveillance Requirement to the Technical Requirements Manual (TRM).

The removal of requirements for indication-only instrumentation and alarms from the Technical Specifications is acceptable because this type of information is not necessary to be included in the Technical Specifications to provide adequate protection of public health and safety. This instrumentation is not required to be OPERABLE to support TS OPERABILITY of the CS System. Therefore, the availability of this equipment is more appropriately specified in the plant procedures that are required by ITS 5.4.1. Also, this change is acceptable because the removed information will be adequately controlled in the TRM. The TRM is incorporated by reference into the USAR and any changes to the TRM are made under 10 CFR 50.59, which ensures changes are properly evaluated. This change is designated as a less restrictive removal of detail change because performance requirements for indication-only instrumentation are being removed from the Technical Specifications.

LA.5 *(Type 3 – Removing Procedural Details for Meeting TS Requirements or Reporting Requirements)* CTS 4.5.B.2 states to either close the inoperable valve or close the other Return Line isolation valve and the RHR suction line isolation valve when it is determined that one RHR intertie return line isolation valve is inoperable. ITS 3.5.1 ACTION F covers the condition for inoperable RHR intertie return line isolation valve(s) and requires isolation of the RHR intertie line. This changes the CTS by moving the details on how to isolate the line to the ITS Bases.

The removal of these details for performing Surveillance Requirements from the Technical Specifications is acceptable because this type of information is not necessary to be included in the Technical Specifications to provide adequate protection of public health and safety. The ITS still retains the requirement to

isolate the RHR intertie line. Also, this change is acceptable because the removed information will be adequately controlled in the ITS Bases. Changes to the Bases are controlled by the Technical Specification Bases Control Program in Chapter 5 of the ITS. This program provides for the evaluation of changes to ensure the Bases are properly controlled. This change is designated as a less restrictive removal of detail change because information relating to procedural details for meeting TS requirements is being removed from the Technical Specifications.

LESS RESTRICTIVE CHANGES

L.1 *(Category 4 – Relaxation of Required Action)* CTS 3.5.A.3.c covers the inoperabilities associated with one low pressure pump or valve associated with CS or LPCI to be inoperable with an ADS valve inoperable. ITS 3.5.1 ACTION K also allows an ADS valve to be inoperable with the same inoperabilities associated with CS and LPCI specified in CTS 3.5.A.3.c (ITS 3.5.1 ACTION A and ACTION B), however it also covers the inoperability of one entire LPCI subsystem due to both pumps being inoperable (ITS 3.5.1 ACTION B (first Condition)) and one LPCI pump in each subsystem (ITS 3.5.1 ACTION C). This changes the CTS by allowing more ECCS components to be inoperable when an ADS valve is inoperable.

The purpose of CTS 3.5.A.3.c is to provide a short period of time to restore the inoperable ECCS components. This change is acceptable because the Required Actions are used to establish remedial measures that must be taken in response to the degraded conditions in order to minimize risk associated with continued operation while providing time to repair inoperable features. The Required Actions are consistent with safe operation under the specified Condition, considering the OPERABILITY status of the redundant systems of required features, the capacity and capability of remaining features, a reasonable time for repairs or replacement of required features, and the low probability of a DBA occurring during the repair period. ITS 3.5.1 allows an ADS valve to be inoperable with certain other inoperabilities. These inoperabilities include: one LPCI pump (ITS 3.5.1 ACTION A), one LPCI subsystem for reasons other than Condition A (ITS 3.5.1 ACTION B first part), one CS subsystem (ITS 3.5.1 ACTION B second Condition), and one LPCI pump in each subsystem (ITS 3.5.1 ACTION C). The allowance in ITS 3.5.1 ACTION A and ITS 3.5.1 ACTION B (first Condition for a LPCI valve that results in inoperability of a LPCI subsystem and second Condition for an inoperable CS subsystem) are consistent with the CTS allowances. The change will now allow an ADS valve to be inoperable with a LPCI subsystem inoperable (due to both LPCI pumps being inoperable) or with a LPCI pump in each subsystem inoperable. These inoperabilities are acceptable because the ECCS single failure analysis shows that the other ECCS subsystems can still mitigate the consequences of a design basis event as long as there are no additional ECCS failures. The time provided in CTS 3.5.A.3.c to restore the equipment to OPERABLE status has been modified as discussed in DOC M.2. This change is designated as less restrictive because less stringent Required Actions are being applied in the ITS than were applied in the CTS.

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ITS 3.5.1, EMERGENCY CORE COOLING SYSTEM (ECCS) - OPERATING

L.2 *(Category 4 – Relaxation of Required Action)* CTS 3.5.A.3.f covers the inoperability associated with both LPCI injection paths, and allows 72 hours to restore a LPCI injection path to OPERABLE status. ITS 3.5.1 ACTION D covers the condition of two inoperable LPCI subsystems. This changes the CTS by allowing 3 or 4 LPCI pumps to be inoperable for up to 72 hours.

The purpose of CTS 3.5.A.3.f is to provide a short period of time to restore the inoperable LPCI injections paths. CTS 3.5.A.3.f only applies when the pathways are inoperable. Currently a shutdown is required by CTS 3.5.A.4 if three or more LPCI pumps are inoperable since CTS 3.5.A.3 does not provide a condition. ITS 3.5.1 ACTION D allows both LPCI subsystems to be inoperable for 72 hours. This ACTION must be entered when both LPCI pathways are inoperable (i.e., LPCI loop select is inoperable or when both loop suction or discharge pathways are blocked) or when three or more LPCI pumps are inoperable. This change is acceptable because the inoperabilities associated with ITS 3.5.1 ACTION D are covered in the single failure analysis (LPCI injection valve failure) which assumes that all LPCI pumps are inoperable. In addition, all four LPCI pumps inoperable is equivalent to both flow paths being inoperable, i.e., no LPCI capability exists. This change is acceptable because the Required Actions are used to establish remedial measures that must be taken in response to the degraded conditions in order to minimize risk associated with continued operation while providing time to repair inoperable features. The Required Actions are consistent with safe operation under the specified Condition, considering the OPERABILITY status of the redundant systems of required features, the capacity and capability of remaining features, a reasonable time for repairs or replacement of required features, and the low probability of a DBA occurring during the repair period. This change is designated as less restrictive because less stringent Required Actions are being applied in the ITS than were applied in the CTS.

L.3 *(Category 3 – Relaxation of Completion Time)* If the requirements or conditions of CTS 3.5.A.1, 3.5.A.2, or 3.5.A.3 cannot be met, CTS 3.5.A.4 requires an orderly shutdown of the reactor to be initiated and the reactor shall be placed in a condition in which the affected equipment is not required to be OPERABLE within 24 hours. ITS 3.5.1 ACTION E provides the shutdown actions for when the low pressure injection/spray systems are not restored to OPERABLE status in the required time and requires the reactor to be in MODE 3 in 12 hours and MODE 4 in 36 hours. ITS 3.5.1 ACTION L provides the shutdown action for when the high pressure ECCS components (HPCI and ADS) are not restored to OPERABLE status within the required time and requires the reactor to be in MODE 3 in 12 hours and to reduce reactor steam dome pressure to $\leq$ 150 psig within 36 hours. ITS 3.5.1 ACTION M covers the condition when two or more low pressure ECCS injection/spray subsystems are inoperable for reasons other than Condition C, D, or F or when HPCI and ADS are concurrently inoperable, and requires the unit to enter LCO 3.0.3 immediately. LCO 3.0.3 requires initiation of action within 1 hour be in MODE 2 in 7 hours, be in MODE 3 in 13 hours, and either be in MODE 4 or reduce reactor steam dome pressure to $\leq$ 150 psig (as applicable) in 37 hours. This changes the CTS by adding a requirement to be in MODE 2 in 7 hours (for inoperabilities specified in Condition M only), to be in MODE 3 in 12 hours (or 13 hours for inoperabilities specified in Condition M only). and by extending the time the unit must be out of the Applicability of the

DISCUSSION OF CHANGES
ITS 3.5.1, EMERGENCY CORE COOLING SYSTEM (ECCS) - OPERATING

Specification from 24 hours to 36 hours or 37 hours (for inoperabilities specified in Condition M only).

The purpose of CTS 3.5.A.4 is to place the unit outside of the Applicability of the inoperable systems within a reasonable amount of time. This change is acceptable because the Completion Time is consistent with safe operation under the specified Condition, considering the OPERABLE status of the redundant systems or features. This includes the capacity and capability of remaining systems or features, a reasonable time for repairs or replacement, and the low probability of a DBA occurring during the allowed Completion Time. This change is also acceptable because it requires the unit to be in an intermediate condition (MODE 2 within 7 hours (ITS 3.5.1 ACTION M) and MODE 3 within 12 hours (ITS 3.5.1 ACTIONS E and K) or 13 hours (ITS 3.5.1 ACTION M), sooner than is currently required. This portion of the change reduces the amount of time the unit would be allowed to continue to operate in MODES 1 and 2 once the condition is identified. In addition, the time allowed for reactor cooldown to either MODE 4 or a reactor steam dome pressure ≤ 150 psig is extended from 24 hours to 36 hours (ITS 3.5.1 ACTION E and K) or 37 hours (ITS 3.5.1 ACTION M). The allowed Completion Times are reasonable, based on operating experience, to reach the required unit conditions from full power conditions in an orderly manner and without challenging unit systems. This change is designated as less restrictive because additional time is allowed to place the unit outside of the Applicability of the associated ECCS than is allowed in the CTS.

L.4 *(Category 6 – Relaxation Of Surveillance Requirement Acceptance Criteria)* CTS 4.5.A.4 requires the performance of a simulated automatic actuation test of all ECCS subsystems. ITS SR 3.5.1.10 requires the verification each ECCS injection/spray subsystem actuates on an actual or simulated automatic initiation signal. ITS SR 3.5.1.11 requires the verification each ADS valve actuates on an actual or simulated automatic initiation signal. This changes the CTS by explicitly allowing the use of either an actual or simulated signal for the test.

The purpose of CTS 4.5.A.4 is to ensure that the ECCS subsystems operate correctly upon receipt of an actuation signal. This change is acceptable because it has been determined that the relaxed Surveillance Requirement acceptance criteria are not necessary for verification that the equipment used to meet the LCO can perform its required functions. Equipment cannot discriminate between an "actual," "simulated," or "test" signal and, therefore, the results of the testing are unaffected by the type of signal used to initiate the test. This change allows taking credit for an unplanned actuation if sufficient information is collected to satisfy the Surveillance test requirements. The change also continues to allow a simulated signal to be used, if necessary. This change is designated as less restrictive because less stringent Surveillance Requirements are being applied in the ITS than were applied in the CTS.

L.5 (Category *4 – Relaxation of Required Action)* CTS 3.5.A.3 does not cover the condition of HPCI inoperable concurrent with any low pressure ECCS subsystems inoperable. Thus, CTS 3.5.A.4 requires a unit shutdown when in this condition. ITS 3.5.1 ACTION I covers the condition of HPCI inoperable concurrent with the inoperabilities in ITS 3.5.1 ACTION A, B, or C (one LPCI pump inoperable, one LPCI subsystem inoperable for reasons other than

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Condition A, one Core Spray subsystem inoperable, or one LPCI pump inoperable in each subsystem) and requires either the HPCI System or the low pressure ECCS injection/spray subsystem(s) to be restored to OPERABLE status within 72 hours. This changes the CTS by allowing low pressure ECCS components be inoperable for a short period of time concurrent with the HPCI System being inoperable prior to requiring a unit shutdown.

The purpose of ITS 3.5.1 ACTION I is to provide a short period of time to restore the inoperable ECCS components. This change is acceptable because the Required Actions are used to establish remedial measures that must be taken in response to the degraded conditions in order to minimize risk associated with continued operation while providing time to repair inoperable features. The Required Actions are consistent with safe operation under the specified Condition, considering the OPERABILITY status of the redundant systems of required features, the capacity and capability of remaining features, a reasonable time for repairs or replacement of required features, and the low probability of a DBA occurring during the repair period. ITS 3.5.1 ACTION I allows the HPCI System to be inoperable concurrent with certain low pressure ECCS injection/spray subsystem inoperabilities. These inoperabilities include: one LPCI pump (ITS 3.5.1 ACTION A), one LPCI subsystem for reasons other than Condition A (ITS 3.5.1 ACTION B first Condition), one CS subsystem (ITS 3.5.1 ACTION B second Condition), and one LPCI pump in each subsystem (ITS 3.5.1 ACTION C). These inoperabilities are acceptable because the ECCS single failure analysis shows that the remaining ECCS subsystems can still mitigate the consequences of a design basis event as long as there are no additional ECCS failures. The Completion Time of 72 hours is also acceptable because it is based on a reliability study (Memorandum from R.L. Baer (NRC) to V. Stello, Jr. (NRC), "Recommended Interim Revisions to LCOs for ECCS Components," December 1, 1975. This change is designated as less restrictive because less stringent Required Actions are being applied in the ITS than were applied in the CTS.

L.6 *(Category 1 – Relaxation of LCO Requirements)* ITS LCO 3.5.1 includes a Note that states the low pressure coolant injection (LPCI) subsystems may be considered OPERABLE during alignment and operation for decay heat removal with reactor steam dome pressure less than the Residual Heat Removal (RHR) shutdown cooling supply isolation interlock in MODE 3, if capable of being manually realigned and not otherwise inoperable. CTS 3.5.A does not include this explicit allowance. This changes the CTS by adding this explicit allowance.

The purpose of the LCO 3.5.1 Note is to allow one or two RHR shutdown cooling subsystems to be placed in service so that the unit can commence a shutdown to remove decay heat and sensible heat from the reactor and not declare the LPCI subsystems inoperable. This change adds an explicit allowance that allows the RHR shutdown cooling subsystems to be placed in service with reactor steam dome pressure less than the RHR shutdown cooling supply isolation interlock in MODE 3, if capable of being manually realigned and not otherwise inoperable. When taking advantage of this allowance the LPCI subsystems do not have to be declared inoperable and the Actions are not required to be entered. This change is necessary because when the unit is shutdown the unit will be in a safer condition where a complete complement of ECCS and other unit systems are not

DISCUSSION OF CHANGES
ITS 3.5.1, EMERGENCY CORE COOLING SYSTEM (ECCS) - OPERATING

required to be OPERABLE. This allowance will permit operations to focus attention on placing the unit in a safe condition and eliminate the need to declare the LPCI subsystems inoperable and enter an action and monitor the time in this condition. This change is acceptable since when the reactor steam dome pressure is less than the RHR shutdown cooling supply isolation interlock, the steam pressure and decay heat levels are low enough so that a reduced complement of ECCS subsystems should provide the required core cooling. In addition to being able to utilize this allowance the RHR System will have the capability to be manually transferred to the LPCI mode if there is a need for this operation. This change is designated as less restrictive because the RHR shutdown cooling subsystem may be placed in service with reactor steam dome pressure less than the RHR shutdown cooling supply isolation interlock in MODE 3, if capable of being manually realigned and not otherwise inoperable, without declaring the LPCI subsystems inoperable.

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Improved Standard Technical Specifications (ISTS) Markup and Justification for Deviations (JFDs)

CTS

3.5 EMERGENCY CORE COOLING SYSTEM (ECCS) AND REACTOR CORE ISOLATION COOLING SYSTEM (RCIC)

3.5.A 3.5.1 ECCS - Operating

3.5.A.1, 3.5.A.2 LCO 3.5.1 Each ECCS injection/spray subsystem and the Automatic Depressurization System (ADS) function of [seven] three safety/relief valves shall be OPERABLE. (1)

---NOTE---

DOC L.6 Low pressure coolant injection (LPCI) subsystems may be considered OPERABLE during alignment and operation for decay heat removal with reactor steam dome pressure less than [the Residual Heat Removal (RHR) cut in permissive pressure] shutdown cooling supply isolation interlock in MODE 3, if capable of being manually realigned and not otherwise inoperable. (1)

APPLICABILITY: MODE 1,

3.5.A.1, 3.5.A.2 MODES 2 and 3, except high pressure coolant injection (HPCI) and ADS valves are not required to be OPERABLE with reactor steam dome pressure ≤ [150] psig. (1)

ACTIONS

---NOTE---

DOC A.5 LCO 3.0.4.b is not applicable to HPCI.

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. One low pressure ECCS injection/spray subsystem inoperable. OR One LPCI pump in both LPCI subsystems inoperable.	A.1 Restore low pressure ECCS injection/spray subsystem(s) to OPERABLE status.	7 days

INSERT 1 (2)

2

INSERT 1

CTS

3.5.A.3.b	A. One LPCI pump inoperable.	A.1 Restore LPCI pump to OPERABLE status.	30 days
3.5.A.3.d, 3.5.A.3.e	B. One LPCI subsystem inoperable for reasons other than Condition A. OR 3.5.A.3.a One Core Spray subsystem inoperable.	B.1 Restore low pressure ECCS injection/spray subsystem to OPERABLE status.	7 days
3.5.A.3.e	C. One LPCI pump in both LPCI subsystems inoperable.	C.1 Restore one LPCI pump to OPERABLE status.	7 days
3.5.A.3.f	D. Two LPCI subsystems inoperable for reasons other than Condition C or F.	D.1 Restore one LPCI subsystem to OPERABLE status.	72 hours

Insert Page 3.5.1-1

CTS

ACTIONS (continued)

	CONDITION	REQUIRED ACTION	COMPLETION TIME	
3.5.A.4	E B. Required Action and associated Completion Time of Condition A not met. B, C, or D	E B.1 Be in MODE 3. AND B.2 Be in MODE 4.	12 hours 36 hours	2 2
3.5.A.3.g	H C. HPCI System inoperable.	H C.1 Verify by administrative means RCIC System is OPERABLE. AND C.2 Restore HPCI System to OPERABLE status.	Immediately 14 days	2 2
DOC L.5	I D. HPCI System inoperable. AND Condition A entered. B, or C	I D.1 Restore HPCI System to OPERABLE status. OR D.2 Restore low pressure ECCS injection/spray subsystem to OPERABLE status. (s)	72 hours 72 hours	2 2 3
3.5.A.3.h	J E. One ADS valve inoperable.	J E.1 Restore ADS valve to OPERABLE status.	14 days	2

INSERT 2

CTS

(2) **INSERT 2**

3.5.B.2, 3.5.B.3	F. Two LPCI subsystems inoperable due to open RHR intertie return line isolation valve(s).	F.1 Isolate the RHR intertie line.	18 hours
3.5.B.3	G. Required Action and associated Completion Time of Condition F not met.	G.1 Be in MODE 2.	6 hours

Insert Page 3.5.1-2

CTS

ACTIONS (continued)

	CONDITION	REQUIRED ACTION	COMPLETION TIME	
3.5.A.3.c	K F. One ADS valve inoperable. AND Condition A entered. B, or C	K F.1 Restore ADS valve to OPERABLE status. OR K F.2 Restore low pressure ECCS injection/spray subsystem to OPERABLE status. (s)	72 hours 72 hours	2 2 3 2
3.5.A.3.l	L G. Two or more ADS valves inoperable. OR	L G.1 Be in MODE 3. AND L G.2 Reduce reactor steam dome pressure to ≤ [150] psig.	12 hours 36 hours	2 4 2 1
3.5.A.4	Required Action and associated Completion Time of Condition C, D, J E, or F not met. K H I			2
3.5.A.4	M H. Two or more low pressure ECCS injection/spray subsystems inoperable for reasons other than Condition A. C, D, or F OR HPCI System and one or more ADS valves inoperable.	M H.1 Enter LCO 3.0.3.	Immediately	2 2

CTS

SURVEILLANCE REQUIREMENTS

		SURVEILLANCE	FREQUENCY	
DOC M.6	SR 3.5.1.1	Verify, for each low pressure ECCS injection/spray subsystem, the piping is filled with water from the pump discharge valve to the injection valve.	31 days	12
DOC M.6	SR 3.5.1.2	Verify each ECCS injection/spray subsystem manual, power operated, and automatic valve in the flow path, that is not locked, sealed, or otherwise secured in position, is in the correct position.	31 days	
DOC M.6	SR 3.5.1.3	Verify ADS pneumatic [air supply header] pressure is ≥ [90] psig. INSERT 2A	31 days	1
		INSERT 3		10
3.5.B.1	SR 3.5.1.4	[Verify the [RHR] System intertie return line isolation cross tie valve[s] are [is] closed and power is removed from the valve operator[s].	31 days [	10
DOC M.6	SR 3.5.1.5	[Verify each LPCI inverter output voltage is ≥ [570] V and ≤ [630] V while supplying the respective bus. correct breaker alignment to the LPCI swing bus	31 days [	1 6
DOC M.6	SR 3.5.1.6	----------NOTE---------- Not required to be performed if performed within the previous 31 days. ----------	In accordance with the Inservice Testing Program	7
		Verify each recirculation pump discharge valve [and bypass valve] cycles through one complete cycle of full travel [or is de-energized in the closed position].	Once each startup prior to exceeding 25% RTP	5 1

3.5.1

CTS

1 **INSERT 2A**

DOC M.6 as follows for each required ADS pneumatic supply:

a. S/RV Accumulator Bank header pressure $\geq$ 88.3 psig; and

b. Alternate Nitrogen System pressure is $\geq$ 220 psig.

10 **INSERT 3**

----------NOTE----------
Only required to be met in MODE 1.

3.5.B

Insert Page 3.5.1-4

CTS

SURVEILLANCE REQUIREMENTS (continued)

		SURVEILLANCE	FREQUENCY
4.5.A.1, 4.5.A.2	SR 3.5.1.7	Verify the following ECCS pumps develop the specified flow rate [against a system head corresponding to the specified reactor pressure]. [System Head Corresponding to a Reactor Pressure of] (to containment; to Containment) System / Flow Rate / No. of Pumps / [System Head Corresponding to a Reactor Pressure of] Core Spray: ≥ [4250] (2,800) gpm / [1] / ≥ [113] (130) psig LPCI: ≥ [17,000] (3,870) gpm / [2] (1) / ≥ [20] psig	[In accordance with the Inservice Testing Program or 92 days] (1)
4.5.A.3, 4.5.A.3.a	SR 3.5.1.8	----------NOTE---------- Not required to be performed until 12 hours after reactor steam pressure and flow are adequate to perform the test. ---------- Verify, with [reactor pressure] (steam dome) ≤ [1020] (1025.3 psig) and (950) ≥ [920] (2700) psig, the HPCI pump can develop a flow rate ≥ [4250] gpm [against a system head corresponding to reactor pressure].	In accordance with the Inservice Testing Program (8) 92 days (1)
4.5.A.3, 4.5.A.3.b	SR 3.5.1.9	----------NOTE---------- Not required to be performed until 12 hours after reactor steam pressure and flow are adequate to perform the test. ---------- (2700) Verify, with [reactor pressure] ≤ [165] psig, the HPCI pump can develop a flow rate ≥ [4250] gpm [against a system head corresponding to reactor pressure].	(.24) [18] months (1)

CTS

SURVEILLANCE REQUIREMENTS (continued)

	SURVEILLANCE	FREQUENCY	
4.5.A.4	SR 3.5.1.10 ----------NOTE---------- Vessel injection/spray may be excluded. ---------- Verify each ECCS injection/spray subsystem actuates on an actual or simulated automatic initiation signal.	24 [18] months	1
4.5.A.4	SR 3.5.1.11 ----------NOTE---------- Valve actuation may be excluded. ---------- Verify the ADS actuates on an actual or simulated automatic initiation signal.	24 [18] months	1
4.5.A.4	SR 3.5.1.12 ----------NOTE---------- Not required to be performed until 12 hours after reactor steam pressure and flow are adequate to perform the test. (is) ---------- Verify each ADS valve opens when manually actuated.	24 [18] months [on a STAGGERED TEST BASIS for each valve solenoid]	11 1 5

INSERT 4 (9)

9

INSERT 4

CTS

DOC M.6	SR 3.5.1.13	Verify automatic transfer capability of the LPCI swing bus power supply from the normal source to the backup source.	24 months

JUSTIFICATION FOR DEVIATIONS
ITS 3.5.1, EMERGENCY CORE COOLING SYSTEM (ECCS) - OPERATING

1. The brackets have been removed and the proper plant specific information/value has been provided.

2. ISTS 3.5.1 ACTION A provides the actions for when one low pressure ECCS injection/spray subsystem is inoperable or when one LPCI pump in both LPCI subsystems are inoperable. This ACTION has been subdivided into three actions, consistent with the current licensing basis. ITS 3.5.1 ACTION A Specification 3.5.1 allows one LPCI pump to be inoperable for 30 days, consistent with CTS 3.5.A.3.b. ITS 3.5.1 ACTION B allows one Core Spray subsystem to be inoperable or one LPCI subsystem to be inoperable for reasons other than Condition A (i.e., one LPCI pump inoperable) for 7 days, consistent with CTS 3.5.A.3.a, 3.5.A.3.d, and 3.5.A.3.e. ITS 3.5.1 ACTION C allows one LPCI pump in both subsystems to be inoperable for 7 days, consistent with CTS 3.5.A.3.e. In addition, even though ITS 3.5.1 ACTIONS B and C have the same Completion Time (7 days) and the Completion Time is the same as in ISTS 3.5.1 ACTION A, the two ITS ACTIONS are not combined since their Required Actions are different. ITS 3.5.1 Required Action C.1 only requires one of the inoperable LPCI pumps to be restored to OPERABLE status in lieu of both pumps (like that required in ISTS 3.5.1 Required Action A.1), since once one of the two inoperable pumps are restored, ITS 3.5.1 ACTION C can be exited and operation may continue in ITS 3.5.1 ACTION A for the remaining time left on the 30 day Completion Time clock. ITS 3.5.1 ACTION D has also been added to allow two LPCI subsystems to be inoperable for 72 hours, consistent with CTS 3.5.A.3.f and DOC L.2. In addition, ITS 3.5.1 ACTIONS F and G have been added to reflect current licensing basis concerning inoperable RHR intertie return valves, consistent with CTS 3.5.B.2 and CTS 3.5.B.3. Due to these additions, subsequent Conditions and Required Actions have been modified and renumbered as required.

3. ISTS 3.5.1 Required Action D.2 (ITS 3.5.1 Required Action I.2) and ISTS 3.5.1 Required Action F.2 (ITS 3.5.1 Required Action K.2) have been modified to restore the low pressure ECCS injection/spray subsystem(s) to OPERABLE status instead of a subsystem because ISTS 3.5.1 ACTION A (ITS 3.5.1 ACTION C) allows more than "one" ECCS injection/spray subsystem to be inoperable. The second Condition in ISTS 3.5.1 ACTION A (the ITS 3.5.1 Condition C) specifies that one LPCI pump in both subsystems are inoperable; thus both LPCI subsystems are inoperable and must be restored to OPERABLE status to exit ISTS 3.5.1 Condition D (ITS 3.5.1 Condition I) or ISTS 3.5.1 Condition F (ITS 3.5.1 Condition K), as applicable. Therefore, this change is in essence a typographical error that is being corrected.

4. The order of the two Conditions in ISTS 3.5.1 Condition G (ITS 3.5.1 Condition L) have been reversed to be consistent with similar Conditions in the ISTS. In general, the default Condition ("Required Action and associated Completion Time not met") is the first Condition listed. For example, in ISTS Section 3.4, ISTS 3.4.1 Condition B, ISTS 3.4.3 Condition B, ISTS 3.4.4 Condition C, ISTS 3.4.7 Condition B all have the default Condition as the first Condition. Therefore, for consistency and clarity, this order of the two Conditions has been reversed.

5. The brackets have been removed and the information deleted since the requirements to not apply to the Monticello design.

6. LPCI injection and recirculation pump discharge valves are supplied by the LPCI swing bus, and are not powered from separate DC to AC LPCI inverters. These are

powered from AC power. The design is more fully described in the ITS 3.5.1 Bases. Proper breaker alignment is necessary to help ensure OPERABILITY of these valves. Therefore, ISTS SR 3.5.1.5 (ITS SR 3.5.1.5), the LPCI inverter Surveillance, has been revised to reflect the appropriate requirement for the Monticello design.

7. The Frequency of ISTS 3.5.1.6 (ITS SR 3.5.1.6), the recirculation pump discharge valve stroke test, has been changed from "Once each startup prior to exceeding 25% RTP" to "In accordance with the Inservice Testing Program" consistent with the current requirements in the Monticello IST Program. In addition, the Note for ISTS SR 3.5.1.6 (ITS SR 3.5.1.6) has been deleted, also consistent with the current requirements in the Monticello IST Program.

8. The Frequency of ISTS SR 3.5.1.8 (ITS SR 3.5.1.8), the HPCI high pressure flow test, has been changed from "92 days" to "In accordance with the Inservice Testing Program." While CTS 4.5.A.3.a uses the term "quarterly" it also uses the term "in accordance with the Inservice Testing Program." Since the two Frequencies are the same, the Frequency in ITS SR 3.5.1.8 has been stated as "In accordance with the Inservice Testing Program."

9. ITS SR 3.5.1.13 has been added to require the verification of the automatic transfer capability of the LPCI swing bus power supply from the normal source to the backup source every 24 months. This added requirement is necessary to help ensure the safety analysis assumptions are satisfied.

10. ISTS SR 3.5.1.4 does not apply to the Monticello design since the RHR cross tie valve is required to be open. Verification that the RHR cross tie valve is open will be performed as part of ISTS SR 3.5.1.2 (ITS SR 3.5.1.2). However, the Monticello design includes RHR intertie return isolation valves that must be closed in MODE 1. Therefore, ISTS SR 3.5.1.4 (ITS SR 3.5.1.4) has been revised to reflect the requirements for the RHR intertie return isolation valves, consistent with CTS 3.5.B (as identified by DOC M.7).

11. A minimum reactor steam pressure is not necessary to prevent damage to the ADS valves. Only an adequate reactor steam flow is necessary to properly test the ADS valves (i.e., as long as the turbine bypass valves are controlling reactor steam pressure, the ADS valves can be tested safely).

12. ISTS SR 3.5.1.1 requires a verification, for each ECCS injection/spray subsystem, that the piping is filled with water from the pump discharge valve to the injection valve. ITS SR 3.5.1.1 includes a similar verification, but it is only applicable to the low pressure ECCS injection/spray subsystems; a HPCI System verification is not required by ITS SR 3.5.1.1. Monticello has performed an engineering analysis on the effects of a void in the HPCI System. This analysis has determined that a void in the HPCI System does not impact the ability of HPCI to perform its required safety function. In addition, the HPCI System does not have a "keep-fill" system, nor does it have any readily accessible high point vents between the pump discharge valve and the injection valve. Thus, there is no effective manner in which to maintain the piping filled at all times, nor is there an effective manner to vent the system between the two valves. Furthermore, the Monticello CTS does not have any requirements similar to ISTS SR 3.5.1.1.

Improved Standard Technical Specifications (ISTS) Bases Markup and Justification for Deviations (JFDs)

B 3.5 EMERGENCY CORE COOLING SYSTEM (ECCS) AND REACTOR CORE ISOLATION COOLING (RCIC) SYSTEM

B 3.5.1 ECCS - Operating

BASES

BACKGROUND

The ECCS is designed, in conjunction with the primary and secondary containment, to limit the release of radioactive materials to the environment following a loss of coolant accident (LOCA). The ECCS uses two independent methods (flooding and spraying) to cool the core during a LOCA. The ECCS network consists of the High Pressure Coolant Injection (HPCI) System, the Core Spray (CS) System, the low pressure coolant injection (LPCI) mode of the Residual Heat Removal (RHR) System, and the Automatic Depressurization System (ADS). The suppression pool provides the required source of water for the ECCS. Although no credit is taken in the safety analyses for the condensate storage tank (CST), it is capable of providing a source of water for the HPCI and CS systems. (1)

On receipt of an initiation signal, ECCS pumps automatically start, simultaneously, the system aligns and the pumps inject water, taken either from the CST or suppression pool, into the Reactor Coolant System (RCS) as RCS pressure is overcome by the discharge pressure of the ECCS pumps. Although the system is initiated, ADS action is delayed, allowing the operator to interrupt the timed sequence if the system is not needed. The HPCI pump discharge pressure almost immediately exceeds that of the RCS, and the pump injects coolant into the vessel to cool the core. If the break is small, the HPCI System will maintain coolant inventory as well as vessel level while the RCS is still pressurized. If HPCI fails, it is backed up by ADS in combination with LPCI and CS. In this event, the ADS timed sequence would be allowed to time out and open the selected safety/relief valves (S/RVs) depressurizing the RCS, thus allowing the LPCI and CS to overcome RCS pressure and inject coolant into the vessel. If the break is large, RCS pressure initially drops rapidly and the LPCI and CS cool the core. (1)

Water from the break returns to the suppression pool where it is used again and again. Water in the suppression pool is circulated through a heat exchanger cooled by the RHR Service Water System. Depending on the location and size of the break, portions of the ECCS may be ineffective; however, the overall design is effective in cooling the core regardless of the size or location of the piping break. Although no credit is taken in the safety analysis for the RCIC System, it performs a similar function as HPCI, but has reduced makeup capability. Nevertheless, it will maintain inventory and cool the core while the RCS is still pressurized following a reactor pressure vessel (RPV) isolation. (2)

BASES

BACKGROUND (continued)

The combined operation of All ECCS subsystems are designed to ensure that no single active component failure will prevent automatic initiation and successful operation of the minimum required ECCS equipment. (3)

The CS System (Ref. 1) is composed of two independent subsystems. Each subsystem consists of a motor driven pump, a spray sparger above the core, and piping and valves to transfer water from the suppression pool to the sparger. The CS System is designed to provide cooling to the reactor core when reactor pressure is low. Upon receipt of an initiation signal, the CS pumps in both subsystems are automatically started when AC power is available. When the RPV pressure drops sufficiently, CS System flow to the RPV begins. A full flow test line is provided to route water from and to the suppression pool to allow testing of the CS System without spraying water in the RPV. (1)

INSERT 1

in the same RHR loop

LPCI is an independent operating mode of the RHR System. There are two LPCI subsystems (Ref. 2), each consisting of two motor driven pumps and piping and valves to transfer water from the suppression pool to the RPV via the corresponding recirculation loop. The two LPCI subsystems can be interconnected via the RHR System cross tie valve; however, the cross tie valve is maintained closed with its power removed to prevent loss of both LPCI subsystems during a LOCA. The LPCI subsystems are designed to provide core cooling at low RPV pressure. Upon receipt of an initiation signal, all four LPCI pumps are automatically started (B pump immediately when AC power is available, and A, C, and D pumps approximately 10 seconds after AC power is available). RHR System valves in the LPCI flow path are automatically positioned to ensure the proper flow path for water from the suppression pool to inject into the recirculation loops. When the RPV pressure drops sufficiently, the LPCI flow to the RPV, via the corresponding recirculation loop, begins. The water then enters the reactor through the jet pumps. Full flow test lines are provided for the four LPCI pumps to route water from the suppression pool, to allow testing of the LPCI pumps without injecting water into the RPV. These test lines also provide suppression pool cooling capability, as described in LCO 3.6.2.3, "RHR Suppression Pool Cooling." (1)

selected

INSERT 2

INSERT 3

selected

selected

subsystem

each

and to

INSERT 4

The HPCI System (Ref. 3) consists of a steam driven turbine pump unit, piping, and valves to provide steam to the turbine, as well as piping and valves to transfer water from the suction source to the core via the feedwater system line, where the coolant is distributed within the RPV through the feedwater sparger. Suction piping for the system is provided from the CST and the suppression pool. Pump suction for HPCI is

s

1 **INSERT 1**

in approximately 15 seconds after

1 **INSERT 2**

The LPCI System is equipped with a loop select logic that determines which, if any, of the recirculation loops has been broken and selects the non-broken loop for injection. If neither loop is determined to be broken, a preselected loop is used for injection. The LPCI System cross-tie valve must be open to support OPERABILITY of both LPCI subsystems. Similarly, the LPCI swing bus, consisting of two motor control centers which are directly connected together, is required to be energized from the Division 1 power supply (normal source), with automatic transfer capability to the Division 2 power supply (backup source) to support both LPCI subsystems.

1 **INSERT 3**

(pumps A and B approximately 5 seconds after AC power is available and pumps C and D approximately 10 seconds after AC power is available)

1 **INSERT 4**

An intertie line is provided to connect the RHR shutdown cooling suction line with the two RHR shutdown cooling loop return lines to the associated recirculation loop. This line includes two RHR intertie return line isolation valves that are normally closed and a RHR intertie suction line isolation that is normally open. The purpose of this line is to reduce the potential for water hammer in the recirculation and RHR systems. The isolation valves are opened during a cooldown to establish recirculation flow through the RHR suction line and return lines, thereby ensuring a uniform cooldown of this piping. The RHR intertie loop return line isolation valves receive a closure signal on LPCI initiation. In the event of an inoperable RHR intertie loop return line isolation valve, there is a potential for some of the LPCI flow to be diverted to the broken loop during a LOCA. This may cause early transition boiling during a LOCA. The RHR intertie line flow is not permitted in MODE 1 to eliminate the need to compensate for the small change in jet pump drive flow and a reduction in core flow during a loss of coolant accident.

BASES

BACKGROUND (continued)

s normally aligned to the CST source to minimize injection of suppression pool water into the RPV. However, if the CST water supply is low, or if the suppression pool level is high, an automatic transfer to the suppression pool water source ensures a water supply for continuous operation of the HPCI System. The steam supply to the HPCI turbine is piped from a main steam line upstream of the associated inboard main steam isolation valve. (1)

water level in any CST

50 g

The HPCI System is designed to provide core cooling for a wide range of reactor pressures (162 psid to 1135 psid vessel to pump suction). Upon receipt of an initiation signal, the HPCI turbine stop valve and turbine control valve open simultaneously and the turbine accelerates to a specified speed. As the HPCI flow increases, the turbine governor valve is automatically adjusted to maintain design flow. Exhaust steam from the HPCI turbine is discharged to the suppression pool. A full flow test line is provided to route water from and to the CST to allow testing of the HPCI System during normal operation without injecting water into the RPV. (1) (1) (1)

20

steam supply

s

Condensate Service

The ECCS pumps are provided with minimum flow bypass lines, which discharge to the suppression pool. The valves in these lines automatically open to prevent pump damage due to overheating when other discharge line valves are closed. To ensure rapid delivery of water to the RPV and to minimize water hammer effects, all ECCS pump discharge lines are filled with water. The LPCI and CS System discharge lines are kept full of water using a "keep fill" system (jockey pump system). The HPCI System is normally aligned to the CST. The height of water in the CST is sufficient to maintain the piping full of water up to the first isolation valve. The relative height of the feedwater line connection for HPCI is such that the water in the feedwater lines keeps the remaining portion of the HPCI discharge line full of water. Therefore, HPCI does not require a "keep fill" system. (1) (1)

or remain open

s

closed

in the discharge piping

three eight

The ADS (Ref. 4) consists of 7 of the 11 S/RVs. It is designed to provide depressurization of the RCS during a small break LOCA if HPCI fails or is unable to maintain required water level in the RPV. ADS operation reduces the RPV pressure to within the operating pressure range of the low pressure ECCS subsystems (CS and LPCI), so that these subsystems can provide coolant inventory makeup. Each of the S/RVs used for automatic depressurization is equipped with one air accumulator and associated inlet check valves. The accumulator provides the pneumatic power to actuate the valves. (1)

INSERT 4A

banks

a safety related backup accumulator bank.

The ADS valves are also

INSERT 5

backup

1

INSERT 4A

The ADS valves are normally supplied by the Instrument Nitrogen System. This pneumatic supply will automatically transfer to the Instrument Air System on high or low Instrument Nitrogen System pressure. However, both of these pneumatic supplies are non-safety related and are not assumed to operate following an accident.

1

INSERT 5

The safety grade pneumatic supply to the three ADS valves are supplied by the Alternate Nitrogen System and the S/RV Accumulator bank. The Alternate Nitrogen System contains two independent trains (i.e., subsystems) of safety related replaceable gas cylinders that supply two of the three ADS valves (S/RVs A and C). One Alternate Nitrogen System train supplies one ADS valve and other non-ADS related pneumatic loads and the other Alternate Nitrogen System train supplies a different ADS valve and other non-ADS related pneumatic loads. One subsystem of the S/RV Accumulator Bank supplies the third ADS valve (S/RV D), and consists of a dedicated safety related backup accumulator bank and an associated inlet check valve.

BASES

APPLICABLE SAFETY ANALYSES

The ECCS performance is evaluated for the entire spectrum of break sizes for a postulated LOCA. The accidents for which ECCS operation is required are presented in References 5, 6 and 7. The required analyses and assumptions are defined in Reference 8. The results of these analyses are also described in Reference 9.

This LCO helps to ensure that the following acceptance criteria for the ECCS, established by 10 CFR 50.46 (Ref. 10), will be met following a LOCA, assuming the worst case single active component failure in the ECCS:

a. Maximum fuel element cladding temperature is ≤ 2200°F;

b. Maximum cladding oxidation is ≤ 0.17 times the total cladding thickness before oxidation;

c. Maximum hydrogen generation from a zirconium water reaction is ≤ 0.01 times the hypothetical amount that would be generated if all of the metal in the cladding surrounding the fuel, excluding the cladding surrounding the plenum volume, were to react;

d. The core is maintained in a coolable geometry; and

e. Adequate long term cooling capability is maintained.

The limiting single failures are discussed in Reference 11. For a large discharge pipe break LOCA, failure of the LPCI valve on the unbroken recirculation loop is considered the most severe failure. For a small break LOCA, HPCI failure is the most severe failure. One ADS valve failure is analyzed as a limiting single failure for events requiring ADS operation. The remaining OPERABLE ECCS subsystems provide the capability to adequately cool the core and prevent excessive fuel damage.

The ECCS satisfy Criterion 3 of 10 CFR 50.36(c)(2)(ii).

LCO

Each ECCS injection/spray subsystem and seven ADS valves are required to be OPERABLE. The ECCS injection/spray subsystems are defined as the two CS subsystems, the two LPCI subsystems, and one HPCI System. The low pressure ECCS injection/spray subsystems are defined as the two CS subsystems and the two LPCI subsystems.

With less than the required number of ECCS subsystems OPERABLE, the potential exists that during a limiting design basis LOCA concurrent with the worst case single failure, the limits specified in Reference 10 could be exceeded. All ECCS subsystems must therefore be OPERABLE to satisfy the single failure criterion required by Reference 10.

BASES

LCO (continued)

shutdown cooling supply isolation interlock

As noted, LPCI subsystems may be considered OPERABLE during alignment and operation for decay heat removal when below the actual RHR cut in permissive pressure in MODE 3, if capable of being manually realigned (remote or local) to the LPCI mode and not otherwise inoperable. Alignment and operation for decay heat removal includes when the required RHR pump is not operating or when the system is realigned from or to the RHR shutdown cooling mode. This allowance is necessary since the RHR System may be required to operate in the shutdown cooling mode to remove decay heat and sensible heat from the reactor. At these low pressures and decay heat levels, a reduced complement of ECCS subsystems should provide the required core cooling, thereby allowing operation of RHR shutdown cooling when necessary. 4

APPLICABILITY

All ECCS subsystems are required to be OPERABLE during MODES 1, 2, and 3, when there is considerable energy in the reactor core and core cooling would be required to prevent fuel damage in the event of a break in the primary system piping. In MODES 2 and 3, when reactor steam dome pressure is ≤ 150 psig, ADS and HPCI are not required to be OPERABLE because the low pressure ECCS subsystems can provide sufficient flow below this pressure. ECCS requirements for MODES 4 and 5 are specified in LCO 3.5.2, "ECCS - Shutdown."

ACTIONS

A Note prohibits the application of LCO 3.0.4.b to an inoperable HPCI subsystem 2. There is an increased risk associated with entering a MODE or other specified condition in the Applicability with an inoperable HPCI subsystem and the provisions of LCO 3.0.4.b, which allow entry into a MODE or other specified condition in the Applicability with the LCO not met after performance of a risk assessment addressing inoperable systems and components, should not be applied in this circumstance. 5

INSERT 6

B

A.1 4

INSERT 7

If any one low pressure ECCS injection/spray subsystem is inoperable, or if one LPCI pump in both LPCI subsystems is inoperable, the inoperable subsystem(s) must be restored to OPERABLE status within 7 days. In this condition, the remaining OPERABLE subsystems provide adequate core cooling during a LOCA. However, overall ECCS reliability is reduced, because a single failure in one of the remaining OPERABLE subsystems, concurrent with a LOCA, may result in the ECCS not being able to perform its intended safety function. The 7 day Completion Time 4 5

INSERT 8

4 **INSERT 6**

A.1

If one LPCI pump is inoperable, the inoperable pump must be restored to OPERABLE status within 30 days. In this condition, the remaining OPERABLE pumps provide adequate core cooling during a LOCA. However, overall ECCS reliability is reduced, because a single failure in one of the remaining OPERABLE LPCI subsystems, concurrent with a LOCA, may result in the LPCI subsystems not being able to perform their intended safety function. The 30 day Completion Time is based on a reliability study cited in Reference 11 that evaluated the impact on ECCS availability, assuming various components and subsystems were taken out of service. The results were used to calculate the average availability of ECCS equipment needed to mitigate the consequences of a LOCA as a function of allowable repair times (i.e., Completion Times).

4 **INSERT 7**

a LPCI subsystem is inoperable for reasons other than Condition A, or a CS

4 **INSERT 8**

low pressure injection/spray

BASES

ACTIONS (continued)

is based on a reliability study (Ref. 12) that evaluated the impact on ECCS availability, assuming various components and subsystems were taken out of service. The results were used to calculate the average availability of ECCS equipment needed to mitigate the consequences of a LOCA as a function of allowed outage times (i.e., Completion Times).

INSERT 9

B.1 and B.2

If the inoperable low pressure ECCS subsystem cannot be restored to OPERABLE status within the associated Completion Time, the plant must be brought to a MODE in which the LCO does not apply. To achieve this status, the plant must be brought to at least MODE 3 within 12 hours and to MODE 4 within 36 hours. The allowed Completion Times are reasonable, based on operating experience, to reach the required plant conditions from full power conditions in an orderly manner and without challenging plant systems.

INSERT 10

INSERT 11

C.1 and C.2

If the HPCI System is inoperable and the RCIC System is verified to be OPERABLE, the HPCI System must be restored to OPERABLE status within 14 days. In this condition, adequate core cooling is ensured by the OPERABILITY of the redundant and diverse low pressure ECCS injection/spray subsystems in conjunction with ADS. Also, the RCIC System will automatically provide makeup water at most reactor operating pressures. Verification of RCIC OPERABILITY immediately is therefore required when HPCI is inoperable. This may be performed as an administrative check by examining logs or other information to determine if RCIC is out of service for maintenance or other reasons. It does not mean to perform the Surveillances needed to demonstrate the OPERABILITY of the RCIC System. If the OPERABILITY of the RCIC System cannot be verified, however, Condition C must be immediately entered. If a single active component fails concurrent with a design basis LOCA, there is a potential, depending on the specific failure, that the minimum required ECCS equipment will not be available. A 14 day Completion Time is based on a reliability study cited in Reference 12 and has been found to be acceptable through operating experience.

4

INSERT 9

C.1

If one LPCI pump in each subsystem is inoperable, one inoperable LPCI pump must be restored to OPERABLE status within 7 days. In this condition, the remaining OPERABLE ECCS subsystems provide adequate core cooling during a LOCA. However, overall ECCS reliability is reduced because a single failure in one of the remaining OPERABLE ECCS subsystems, concurrent with a LOCA, may result in the ECCS not being able to perform its intended safety function. The 7 day Completion Time is based on a reliability study (Ref. 11) that evaluated the impact on ECCS availability, assuming various components and subsystems were taken out of service. The results were used to calculate the average availability of ECCS equipment needed to mitigate the consequences of a LOCA as a function of allowed outage times (i.e., Completion Times).

D.1

If two LPCI subsystems are inoperable for reasons other than Condition C or F, one inoperable subsystem must be restored to OPERABLE status within 72 hours. In this condition, the remaining OPERABLE CS subsystems provide adequate core cooling during a LOCA. However, overall ECCS reliability is reduced, because a single failure in one of the remaining CS subsystems, concurrent with a LOCA, may result in ECCS not being able to perform its intended safety function. The 72 hour Completion Time is based on a reliability study cited in Reference 11 that evaluated the impact on ECCS availability, assuming various components and subsystems were taken out of service. The results were used to calculate the average availability of ECCS equipment needed to mitigate the consequences of a LOCA as a function of allowable repair times (i.e., Completion Times).

4

INSERT 10

any Required Action and associated Completion Time of Condition A, B, C, or D is not met

4

INSERT 11

F.1

If two LPCI subsystems are inoperable due to open RHR intertie return line isolation valve(s), the RHR intertie line must be isolated within 18 hours. The line can be isolated by closing both RHR intertie return line isolation valves or by closing one RHR intertie return line isolation valve and the RHR intertie suction line isolation valve. The 18 hour Completion Time is reasonable, considered the low probability of a DBA occurring during this period.

G.1

If the Required Action and associated Completion Time of Condition F is not met, the plant must be brought to a MODE in which the RHR intertie return line isolation valves are not required to be closed. To achieve this status, the plant must be brought to at least MODE 2 within 6 hours. The allowed Completion Time is reasonable, based on operating experience, to reach the required plant conditions from full power conditions in an orderly manner and without challenging plant systems.

BASES

ACTIONS (continued)

D.1 and D.2 (I) (4)

If any one low pressure ECCS injection/spray subsystem, or one LPCI pump in both LPCI subsystems, is inoperable in addition to an inoperable HPCI System, the inoperable low pressure ECCS injection/spray subsystem (s) or the HPCI System must be restored to OPERABLE status within 72 hours. In this condition, adequate core cooling is ensured by the OPERABILITY of the ADS and the remaining low pressure ECCS subsystems. However, the overall ECCS reliability is significantly reduced because a single failure in one of the remaining OPERABLE subsystems concurrent with a design basis LOCA may result in the ECCS not being able to perform its intended safety function. Since both a high pressure system (HPCI) and a low pressure subsystem are inoperable, a more restrictive Completion Time of 72 hours is required to restore either the HPCI System or the low pressure ECCS injection/spray subsystem to OPERABLE status. This Completion Time is based on a reliability study cited in Reference 12 and has been found to be acceptable through operating experience. (4) (5) (4) (s) (11) (1)

E.1 (J) (4)

The LCO requires seven ADS valves to be OPERABLE in order to provide the ADS function. Reference 13 contains the results of an analysis that evaluated the effect of one ADS valve being out of service. Per this analysis, operation of only six ADS valves will provide the required depressurization. However, overall reliability of the ADS is reduced, because a single failure in the OPERABLE ADS valves could result in a reduction in depressurization capability. Therefore, operation is only allowed for a limited time. The 14 day Completion Time is based on a reliability study cited in Reference 12 and has been found to be acceptable through operating experience. (4) (12) (1) (1) (11) (1)

three

two

F.1 and F.2 (K) (4)

If any one low pressure ECCS injection/spray subsystem, or one LPCI pump in both LPCI subsystems, is inoperable in addition to one inoperable ADS valve, adequate core cooling is ensured by the OPERABILITY of HPCI and the remaining low pressure ECCS injection/spray subsystem. However, overall ECCS reliability is reduced because a single active component failure concurrent with a design basis (3)

in one of the remaining OPERABLE subsystems

BASES

ACTIONS (continued)

may

able to perform its intended safety function

LOCA could result in the minimum required ECCS equipment not being available. Since both a high pressure system (ADS) and a low pressure subsystem are inoperable, a more restrictive Completion Time of 72 hours is required to restore either the low pressure ECCS subsystem or the ADS valve to OPERABLE status. This Completion Time is based on a reliability study cited in Reference 12 and has been found to be acceptable through operating experience.

L

G.1 and G.2

J K H

If any Required Action and associated Completion Time of Condition C I D, E, or F is not met, or if two or more ADS valves are inoperable, the plant must be brought to a condition in which the LCO does not apply. To achieve this status, the plant must be brought to at least MODE 3 within 12 hours and reactor steam dome pressure reduced to ≤ 150 psig within 36 hours. The allowed Completion Times are reasonable, based on operating experience, to reach the required plant conditions from full power conditions in an orderly manner and without challenging plant systems.

M

H.1

M When multiple ECCS subsystems are inoperable, as stated in Condition H, the plant is in a condition outside of the accident analyses. Therefore, LCO 3.0.3 must be entered immediately.

SURVEILLANCE REQUIREMENTS

SR 3.5.1.1

The flow path piping has the potential to develop voids and pockets of entrained air. Maintaining the pump discharge lines of the HPCI System, CS System, and LPCI subsystems full of water ensures that the ECCS will perform properly, injecting its full capacity into the RCS upon demand. This will also prevent a water hammer following an ECCS initiation signal. One acceptable method of ensuring that the lines are full is to vent at the high points. The 31 day Frequency is based on the gradual nature of void buildup in the ECCS piping, the procedural controls governing system operation, and operating experience.

INSERT 11A

1

INSERT 11A

While the potential for developing voids in the HPCI System exists, the effects of a void have been analyzed and shown to be acceptable.

BASES

SURVEILLANCE REQUIREMENTS (continued)

SR 3.5.1.2

Verifying the correct alignment for manual, power operated, and automatic valves in the ECCS flow paths provides assurance that the proper flow paths will exist for ECCS operation. This SR does not apply to valves that are locked, sealed, or otherwise secured in position since these were verified to be in the correct position prior to locking, sealing, or securing. A valve that receives an initiation signal is allowed to be in a nonaccident position provided the valve will automatically reposition in the proper stroke time. This SR does not require any testing or valve manipulation; rather, it involves verification that those valves capable of potentially being mispositioned are in the correct position. This SR does not apply to valves that cannot be inadvertently misaligned, such as check valves. For the HPCI System, this SR also includes the steam flow path for the turbine and the flow controller position.

The 31 day Frequency of this SR was derived from the Inservice Testing Program requirements for performing valve testing at least once every 92 days. The Frequency of 31 days is further justified because the valves are operated under procedural control and because improper valve position would only affect a single subsystem. This Frequency has been shown to be acceptable through operating experience.

SR 3.5.1.3

within the analysis limits (S/RV Accumulator Bank header pressure ≥ 88.3 psig and Alternate Nitrogen System accumulator bank pressure ≥ 220 psig)

each

pneumatic

bank associated with

Verification every 31 days that ADS air supply header pressure is ≥ [90] psig ensures adequate air pressure for reliable ADS operation. The accumulator on each ADS valve provides pneumatic pressure for valve actuation. The design pneumatic supply pressure requirements for the accumulator are such that, following a failure of the pneumatic supply to the accumulator, at least two valve actuations can occur with the drywell at 70% of design pressure (Ref. 11). The ECCS safety analysis assumes only one actuation to achieve the depressurization required for operation of the low pressure ECCS. This minimum required pressure of ≥ [90] psig is provided by the ADS instrument air supply. The 31 day Frequency takes into consideration administrative controls over operation of the air system and alarms for low air pressure.

banks

over a ten hour period

4

6

1

five

10

6

BASES

SURVEILLANCE REQUIREMENTS (continued)

SR 3.5.1.4

intertie return line isolation

s are

Verification every 31 days that the RHR System cross tie valve is closed and power to its operator is disconnected ensures that each LPCI subsystem remains independent and a failure of the flow path in one subsystem will not affect the flow path of the other LPCI subsystem. Acceptable methods of removing power to the operator include de-energizing breaker control power or racking out or removing the breaker. If the RHR System cross tie valve is open or power has not been removed from the valve operator, both LPCI subsystems must be considered inoperable. The 31 day Frequency has been found acceptable, considering that these valves are under strict administrative controls that will ensure the valves continue to remain closed with either control or motive power removed.

4

will provide the required flow rate to the reactor pressure vessel.

1

1

INSERT 11B

4

SR 3.5.1.5

of correct breaker alignment to the LPCI swing

Verification every 31 days that each LPCI inverter output has a voltage of ≥ [570] V and ≤ [630] V while supplying its respective bus demonstrates that the AC electrical power is available to ensure proper operation of the associated LPCI inboard injection and minimum flow valves and the recirculation pump discharge valve. Each inverter must be OPERABLE for the associated LPCI subsystem to be OPERABLE. The 31 day Frequency has been found acceptable based on engineering judgment and operating experience.

4

normal

source is powering the swing bus and the backup AC electrical power source

s

1

INSERT 11C

SR 3.5.1.6

Cycling the recirculation pump discharge and bypass valves through one complete cycle of full travel demonstrates that the valves are mechanically OPERABLE and will close when required. Upon initiation of an automatic LPCI subsystem injection signal, these valves are required to be closed to ensure full LPCI subsystem flow injection in the reactor via the recirculation jet pumps. De-energizing the valve in the closed position will also ensure the proper flow path for the LPCI subsystem. Acceptable methods of de-energizing the valve include de-energizing breaker control power, racking out the breaker or removing the breaker.

6

4 **INSERT 11B**

The SR is modified by a Note stating that the SR is only required to be met in MODE 1. During MODE 1 operations with the RHR System intertie line isolation valves open, some of the LPCI flow may be diverted to the broken recirculation loop during a LOCA, potentially resulting in early transition boiling. In other MODES, the intertie line may be opened because the impact on the LOCA analyses is negligible.

1 **INSERT 11C**

If either the normal source is not powering the LPCI swing bus or the backup source is not available to the LPCI swing bus, one of the LPCI subsystems must be considered inoperable.

BASES

SURVEILLANCE REQUIREMENTS (continued)

The specified Frequency is once during reactor startup before THERMAL POWER is > 25% RTP. However, this SR is modified by a Note that states the Surveillance is only required to be performed if the last performance was more than 31 days ago. Therefore, implementation of this Note requires this test to be performed during reactor startup before exceeding 25% RTP. Verification during reactor startup prior to reaching > 25% RTP is an exception to the normal Inservice Testing Program generic valve cycling Frequency of 92 days, but is considered acceptable due to the demonstrated reliability of these valves. If the valve is inoperable and in the open position, the associated LPCI subsystem must be declared inoperable.

INSERT 12 → 4

1 → both → s → any recirculation pump discharge

SR 3.5.1.7, SR 3.5.1.8, and SR 3.5.1.9

The performance requirements of the low pressure ECCS pumps are determined through application of the 10 CFR 50, Appendix K criteria (Ref. 8). This periodic Surveillance is performed (in accordance with the ASME Code, Section XI, requirements for the ECCS pumps) to verify that the ECCS pumps will develop the flow rates required by the respective analyses. The low pressure ECCS pump flow rates ensure that adequate core cooling is provided to satisfy the acceptance criteria of Reference 10. The pump flow rates are verified against a system head equivalent to the RPV pressure expected during a LOCA. The total system pump outlet pressure is adequate to overcome the elevation head pressure between the pump suction and the vessel discharge, the piping friction losses, and RPV pressure present during a LOCA. These values may be established during preoperational testing.

7 → Operation and Maintenance (OM) → 1

9 → reactor to containment → INSERT 12A → 1

are → analytically → 1

The flow tests for the HPCI System are performed at two different pressure ranges such that system capability to provide rated flow is tested at both the higher and lower operating ranges of the system. Additionally, adequate steam flow must be passing through the main turbine or turbine bypass valves to continue to control reactor pressure when the HPCI System diverts steam flow. Reactor steam pressure must be ≥ 920 psig to perform SR 3.5.1.8 and ≥ 150 psig to perform SR 3.5.1.9. Adequate steam flow is represented by at least 1 25 turbine bypass valves open, or total steam flow ≥ 10^6 lb/hr. Therefore, sufficient time is allowed after adequate pressure and flow are achieved to perform these tests. Reactor startup is allowed prior to performing the low pressure Surveillance test because the reactor pressure is low and the

against a system head corresponding to reactor pressure → 4

INSERT 13 → 3

950 → one → 6

80% → 3

4

INSERT 12

The Frequency of this SR is in accordance with the Inservice Testing Program.

4

INSERT 12A

In addition, for LPCI the system head for the tested pump must include a head correction that corresponds to two LPCI pumps delivering 7,740 gpm.

3

INSERT 13

The required system head should overcome the RPV pressure and associated discharge line losses. Adequate reactor steam pressure must be available to perform the tests.

SURVEILLANCE REQUIREMENTS (continued)

time allowed to satisfactorily perform the Surveillance test is short. The reactor pressure is allowed to be increased to normal operating pressure since it is assumed that the low pressure test has been satisfactorily completed and there is no indication or reason to believe that HPCI is inoperable.

Therefore, SR 3.5.1.8 and SR 3.5.1.9 are modified by Notes that state the Surveillances are not required to be performed until 12 hours after the reactor steam pressure and flow are adequate to perform the test. The Frequency for SR 3.5.1.7 and SR 3.5.1.8 is in accordance with the Inservice Testing Program requirements. The 18 month Frequency for SR 3.5.1.9 is based on the need to perform the Surveillance under the conditions that apply just prior to or during a startup from a plant outage. Operating experience has shown that these components usually pass the SR when performed at the 18 month Frequency, which is based on the refueling cycle. Therefore, the Frequency was concluded to be acceptable from a reliability standpoint.

INSERT 14

SR 3.5.1.10

The ECCS subsystems are required to actuate automatically to perform their design functions. This Surveillance verifies that, with a required system initiation signal (actual or simulated), the automatic initiation logic of HPCI, CS, and LPCI will cause the systems or subsystems to operate as designed, including actuation of the system throughout its emergency operating sequence, automatic pump startup and actuation of all automatic valves to their required positions. This SR also ensures that the HPCI System will automatically restart on an RPV low water level (Level 2) signal received subsequent to an RPV high water level (Level 8) trip and that the suction is automatically transferred from the CST to the suppression pool. The LOGIC SYSTEM FUNCTIONAL TEST performed in LCO 3.3.5.1 overlaps this Surveillance to provide complete testing of the assumed safety function.

Reactor Vessel Water Level - High

Reactor Vessel Water Level - Low Low

INSERT 15

The 18 month Frequency is based on the need to perform the Surveillance under the conditions that apply during a plant outage and the potential for an unplanned transient if the Surveillance were performed with the reactor at power.

Operating experience has shown that these components usually pass the SR when performed at the 18 month Frequency, which is based on the refueling cycle. Therefore, the Frequency was concluded to be acceptable from a reliability standpoint.

3

INSERT 14

The 12 hours allowed for performing the flow test after the required pressure and flow are reached is sufficient to achieve stable conditions for testing and provides reasonable time to complete the SRs.

1

INSERT 15

on a Suppression Pool Water Level - High or Condensate Storage Tank Level - Low signal.

SURVEILLANCE REQUIREMENTS (continued)

This SR is modified by a Note that excludes vessel injection/spray during the Surveillance. Since all active components are testable and full flow can be demonstrated by recirculation through the test line, coolant injection into the RPV is not required during the Surveillance.

SR 3.5.1.11

The ADS designated S/RVs are required to actuate automatically upon receipt of specific initiation signals. A system functional test is performed to demonstrate that the mechanical portions of the ADS function (i.e., solenoids) operate as designed when initiated either by an actual or simulated initiation signal, causing proper actuation of all the required components. SR 3.5.1.12 and the LOGIC SYSTEM FUNCTIONAL TEST performed in LCO 3.3.5.1 overlap this Surveillance to provide complete testing of the assumed safety function.

The ~~18~~ 24 month Frequency is based on the need to perform the Surveillance under the conditions that apply during a plant outage and the potential for an unplanned transient if the Surveillance were performed with the reactor at power. Operating experience has shown that these components usually pass the SR when performed at the ~~18~~ 24 month Frequency, which is based on the refueling cycle. Therefore, the Frequency was concluded to be acceptable from a reliability standpoint. (4) (4)

This SR is modified by a Note that excludes valve actuation. ~~This~~ prevents an ~~RPV pressure~~ blowdown. since the valves are individually tested in accordance with SR 3.5.1.12 (3)

SR 3.5.1.12

A manual actuation of each ADS valve is performed to verify that the valve and solenoid are functioning properly and that no blockage exists in the S/RV discharge lines. This is demonstrated by the response of the turbine ~~control or~~ bypass valve~~or~~ by a change in the measured flow, or by any other method suitable to verify steam flow. Adequate reactor steam dome pressure ~~must be available to perform this test to avoid damaging~~ the valve. Also, adequate steam flow must be passing through the ~~main turbine or~~ turbine bypass valves to continue to control reactor pressure when the ADS valves divert steam flow upon opening. Sufficient time is therefore allowed after the required ~~pressure and~~ flow ~~are~~ is achieved to (s, ,) (1) (4) (1)

BASES

SURVEILLANCE REQUIREMENTS (continued)

perform this SR. Adequate pressure at which this SR is to be performed is [920 psig] (the pressure recommended by the valve manufacturer). Adequate steam flow is represented by at least 1 25% turbine bypass valves open or total steam flow ≥ 10^6 lb/hr. Reactor startup is allowed prior to performing this SR because valve OPERABILITY and the setpoints for overpressure protection are verified, per ASME requirements, prior to valve installation. Therefore, this SR is modified by a Note that states the Surveillance is not required to be performed until 12 hours after reactor steam pressure and flow are adequate to perform the test. The 12 hours allowed for manual actuation after the required pressure is reached is sufficient to achieve stable conditions and provides adequate time to complete the Surveillance. SR 3.5.1.11 and the LOGIC SYSTEM FUNCTIONAL TEST performed in LCO 3.3.5.1 overlap this Surveillance to provide complete testing of the assumed safety function.

The Frequency of 18 months on a STAGGERED TEST BASIS ensures that both solenoids for each ADS valve are alternately tested. The Frequency is based on the need to perform the Surveillance under the conditions that apply just prior to or during a startup from a plant outage. Operating experience has shown that these components usually pass the SR when performed at the 18 month Frequency, which is based on the refueling cycle. Therefore, the Frequency was concluded to be acceptable from a reliability standpoint. INSERT 16

REFERENCES

1. FSAR, Section [6.3.2.2.3].
2. FSAR, Section [6.3.2.2.4].
3. FSAR, Section [6.3.2.2.1].
4. FSAR, Section [6.3.2.2.2].
5. FSAR, Section [15.2.8].
6. FSAR, Section [15.6.4].
7. FSAR, Section [15.6.5].
8. 10 CFR 50, Appendix K.
9. FSAR, Section [6.3.3].

4

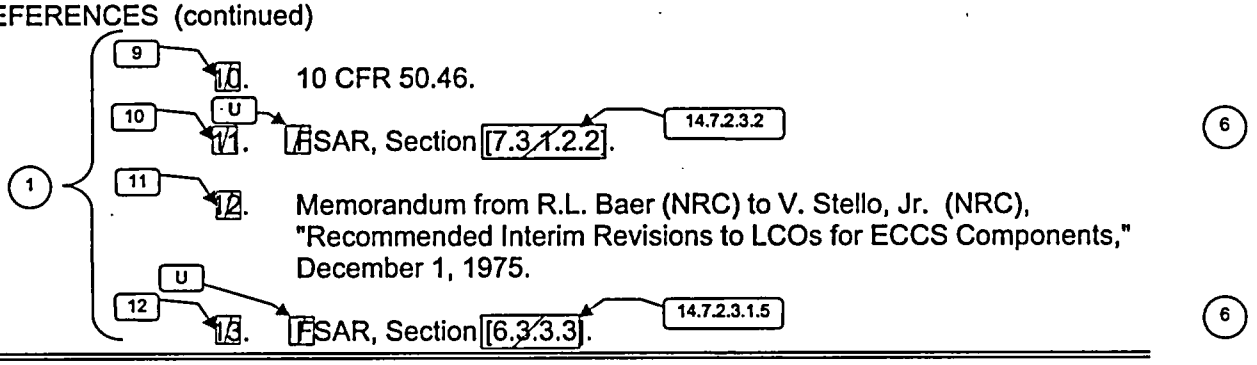
INSERT 16

SR 3.5.1.13

The LPCI System injection valves, recirculation pump discharge valves, recirculation pump suction valves, and the RHR discharge intertie line isolation valves are powered from the LPCI swing bus, which must be energized after a single failure, including loss of power from the normal source to the swing bus. Therefore, the automatic transfer capability from the normal power source to the backup power source must be verified to ensure the automatic capability to detect loss of normal power and initiate an automatic transfer to the swing bus backup power source. Verification of this capability every 24 months ensures that AC electrical power is available for proper operation of the associated LPCI injection valves, recirculation pump discharge valves, recirculation pump suction valves, and the RHR discharge intertie line isolation valves. The swing bus automatic transfer scheme must be OPERABLE for both LPCI subsystems to be OPERABLE. The Frequency of 24 months is based on the need to perform the Surveillance under the conditions that apply during a startup from a plant outage. Operating experience has shown that the components usually pass the SR when performed at the 24 month Frequency, which is based on the refueling cycle. Therefore, the Frequency was concluded to be acceptable from a reliability standpoint.

BASES

REFERENCES (continued)



JUSTIFICATION FOR DEVIATIONS
ITS 3.5.1 BASES, EMERGENCY CORE COOLING SYSTEM (ECCS) - OPERATING

1. Changes have been made (additions, deletions, and/or changes to the NUREG) to reflect the plant specific nomenclature, number, reference, system description, analysis description, or licensing basis description.

2. This discussion has been deleted since it discusses the RCIC System, which is not part of this LCO. RCIC is adequately described in ITS 3.5.3 Bases.

3. Editorial change made for enhanced clarity or to be consistent with similar statements in other places in the Bases.

4. Changes have been made to reflect those changes made to the Specification. The following requirements have been renumbered, where applicable, to reflect the changes.

5. Grammatical/typographical error corrected.

6. The brackets have been removed and the proper plant specific information/value has been deleted.

7. These punctuation corrections have been made consistent with the Writer's Guide for the Improved Technical Specifications, NEI 01-03, Section 5.1.3.

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Specific No Significant Hazards Considerations (NSHCs)

DETERMINATION OF NO SIGNIFICANT HAZARDS CONSIDERATIONS
ITS 3.5.1, EMERGENCY CORE COOLING SYSTEM (ECCS) - OPERATING

There are no specific NSHC discussions for this Specification.

ATTACHMENT 2

ITS 3.5.2, Emergency Core Cooling Systems (ECCS) - Shutdown

Current Technical Specification (CTS) Markup and Discussion of Changes (DOCs)

A.1

ITS

3.0 LIMITING CONDITIONS FOR OPERATION	4.0 SURVEILLANCE REQUIREMENTS
3.5.2 E. Cold Shutdown and Refueling Requirements	
Applicability 1. When irradiated fuel is in the reactor vessel and reactor water temperature is less than 212°F, [all] low pressure core and containment cooling subsystems may be inoperable provided no work is being done which has the potential for draining the reactor vessel except as allowed by specification 3.5.E.2 below.	M.2; [two] M.1 M.7; M.1 L.2
LCO 3.5.2 OPERABLE	
Add proposed SR 3.5.2.2, SR 3.5.2.3, SR 3.5.2.4, and SR 3.5.2.5	M.3
Applicability 2. When irradiated fuel is in the reactor vessel and the vessel head is removed, the suppression chamber may be drained completely and no more than one control rod drive housing or instrument thimble opened at any one time provided that the spent fuel pool gates are open and the fuel pool water level is maintained at a level of greater than or equal to 33 feet.	L.3; M.8
LCO 3.5.2	
Applicability	
Add proposed LCO 3.5.2 Note	L.6
Add proposed ACTION A	L.1
Add proposed ACTION B and Required Action C.1	A.2
Add proposed Required Action C.2 and ACTION D	M.1

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A.1

ITS

3.0 LIMITING CONDITIONS FOR OPERATION	4.0 SURVEILLANCE REQUIREMENTS
3.7 CONTAINMENT SYSTEMS	**4.7 CONTAINMENT SYSTEMS**
Applicability:	Applicability:
Applies to the operating status of the primary and secondary containment systems.	Applies to the primary and secondary containment integrity.
Objective:	Objective:
To assure the integrity of the primary and secondary containment systems.	To verify the integrity of the primary and secondary containment.
Specification:	Specification:
A. Primary Containment.	A. Primary Containment
1. Suppression Pool Volume and Temperature	1. Suppression Pool Volume and Temperature
When irradiated fuel is in the reactor vessel and either the reactor water temperature is greater than 212°F or work is being done which has the potential to drain the vessel, the following requirements shall be met (except as permitted by Specification 3.5.2.2):	a. The suppression chamber water temperature shall be checked once per day.
a. Water temperature during normal operating shall be ≤90°F.	b. Whenever there is indication of relief valve operation which adds heat to the suppression pool, the pool temperature shall be continually monitored and also observed and logged every 5 minutes until the heat addition is terminated.
b. Water temperature during test operation which adds heat to the suppression pool shall be ≤100°F and shall not be >90°F for more than 24 hours.	c. A visual inspection of the suppression chamber interior including water line regions and the interior painted surfaces above the water line shall be made at each refueling outage.
c. If the suppression chamber water temperature is >110°F, the reactor shall be scrammed immediately. Power operation shall not be resumed until the pool temperature is ≤90°F.	

See ITS 3.6.2.1 and ITS 3.6.2.2

See ITS 3.6.2.1 and ITS 3.6.2.2

Applicability

M.4

A.1

See ITS 3.6.2.1

See ITS 3.6.2.1

See ITS 3.6.1.1

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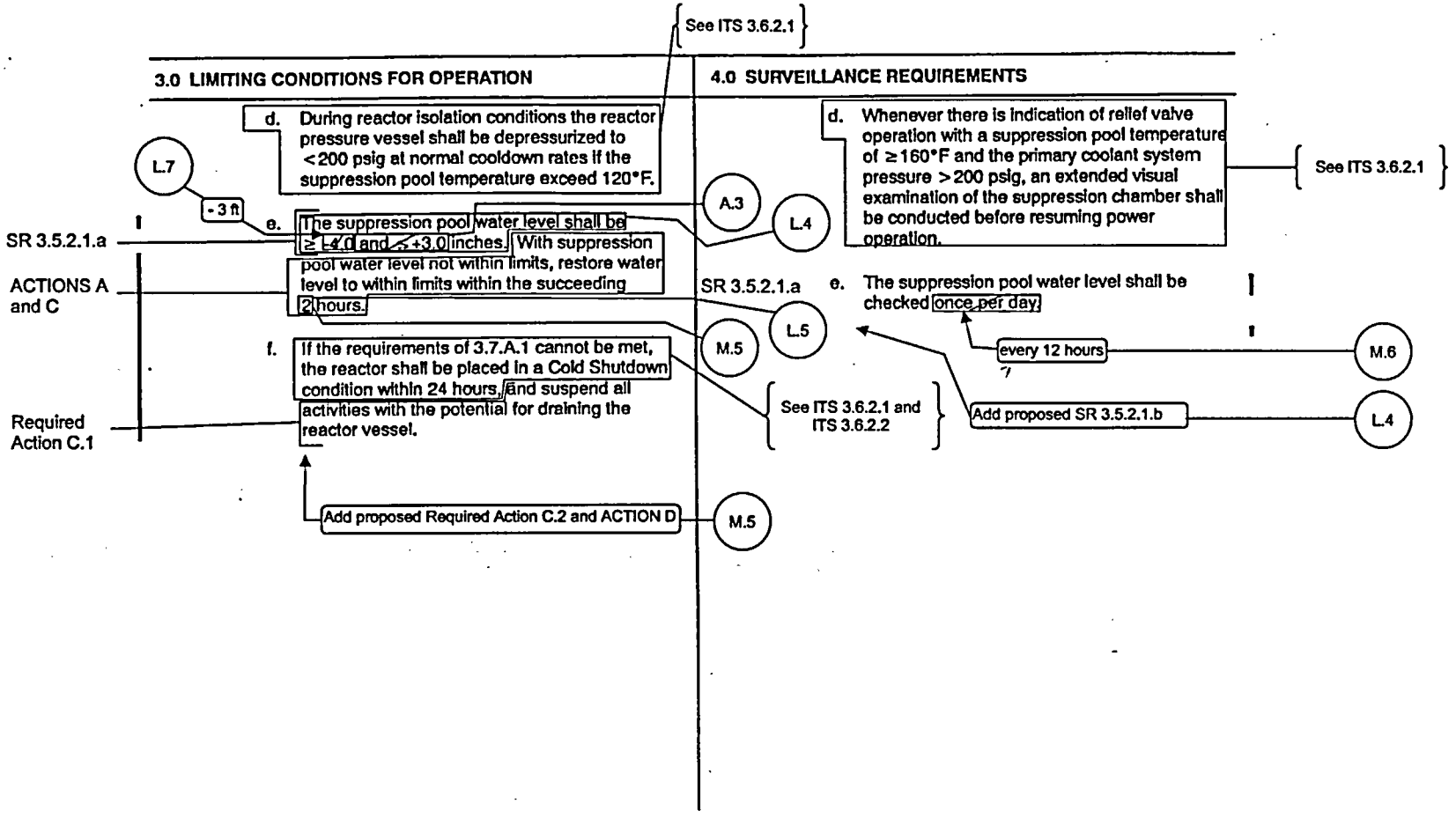
ITS

A.1

ITS



157 09/23/02
Amendment No. ~~30, 52, 55, 117,~~ 130

DISCUSSION OF CHANGES
ITS 3.5.2, EMERGENCY CORE COOLING SYSTEM (ECCS) - SHUTDOWN

ADMINISTRATIVE CHANGES

A.1 In the conversion of the Monticello Current Technical Specifications (CTS) to the plant specific Improved Technical Specifications (ITS), certain changes (wording preferences, editorial changes, reformatting, revised numbering, etc.) are made to obtain consistency with NUREG-1433, Rev. 3, "Standard Technical Specifications General Electric Plants, BWR/4" (ISTS).

These changes are designated as administrative changes and are acceptable because they do not result in technical changes to the CTS.

A.2 CTS 3.5.E.1 and 3.5.E.2, in part, require low pressure ECCS subsystems to be OPERABLE during OPDRVs. While no actions are specified if a low pressure ECCS subsystem becomes inoperable during OPDRVS, it is implicit that OPDRVs would have to be suspended. ITS 3.5.2 ACTION B and Required Action C.1, which cover the condition of one inoperable low pressure ECCS subsystem and two inoperable ECCS subsystems, respectively, require immediate action to be taken to suspend OPDRVs. This changes the CTS by clearly stating to suspend OPDRVS. Other changes to the implicit CTS actions are described in DOCs M.1 and L.1.

The purpose of the CTS requirements is to ensure OPDRVs do not take place with inoperable low pressure ECCS subsystems. This change is acceptable since the proposed ITS ACTIONS are consistent with the currently required implicit actions, and their addition is a presentation preference only. Therefore, this change is designated administrative because it does not result in any technical changes to the CTS.

A.3 CTS 3.7.A.1.e requires suppression pool water level to be $\geq$ - 4.0 and $\leq$ + 3.0 inches. ITS SR 3.5.2.1.a requires the suppression pool water level to be $\geq$ - 3 ft. This changes the CTS by not including the upper suppression pool water level limit during shutdown conditions. The change to the lower level limit is discussed in DOC L.7.

The purpose of CTS 3.7.A.1.e is to provide the appropriate suppression pool water level limits. The upper suppression pool water level limit is not included for shutdown conditions. The upper suppression pool limit is specified to ensure excessive clearing loads from S/RV discharges and excessive pool swell loads during a loss of coolant accident (LOCA) do not occur. A LOCA is not postulated during shutdown conditions therefore, the upper limit does not apply and is deleted. This change is designated as an administrative change and is acceptable because the upper suppression pool limit is not applicable during shutdown conditions.

MORE RESTRICTIVE CHANGES

M.1 CTS 3.5.E.1, in part, allows all low pressure ECCS to be inoperable when irradiated fuel is in the reactor vessel and reactor water temperature is less than 212°F, provided no work is being done that has the potential for draining the reactor vessel (OPDRV) except as allowed in Specification 3.5.E.2.

DISCUSSION OF CHANGES
ITS 3.5.2, EMERGENCY CORE COOLING SYSTEM (ECCS) - SHUTDOWN

ITS LCO 3.5.2 requires two low pressure ECCS injection/spray subsystems to be OPERABLE at all times while in MODE 4, and in MODE 5 except when the spent fuel storage pool gates are removed and water level is ≥ 21 ft 11 inches over the top of the reactor pressure vessel flange. In addition, ITS 3.5.2 includes actions to be taken when one or more low pressure ECCS subsystems are inoperable, even if OPDRVs are not being performed. ITS 3.5.2 Required Action C.2 requires one required low pressure ECCS subsystem to be restored to OPERABLE status in 4 hours if both required low pressure ECCS subsystems are inoperable. If this Required Action and associated Completion Time are not met (i.e., both required low pressure ECCS subsystems remain inoperable after the 4 hour time limit expires), then ITS 3.5.2 ACTION D requires immediate initiation of action to restore: a) secondary containment to OPERABLE status (ITS 3.5.2 Required Action D.1); b) one standby gas treatment (SGT) subsystem to OPERABLE status (ITS 3.5.2 Required Action D.2); and c) isolation capability in each required secondary containment penetration flow path not isolated (ITS 3.5.2 Required Action D.3). This changes the CTS by requiring ECCS low pressure subsystems be OPERABLE in the above MODES regardless of the status of the OPDRVs and provides compensatory actions if the requirements are not met.

The purpose of CTS 3.5.E.1 is to ensure ECCS is available when OPDRVs are in progress. This change adds the requirement to have at least two ECCS low pressure subsystems OPERABLE at all times while in MODE 4, and in MODE 5 except when the spent fuel storage pool gates are removed and water level is ≥ 21 ft 11 inches over the top of the reactor pressure vessel flange, regardless of the status of the OPDRVs. In ITS 3.5.2, OPERABILITY of the low pressure ECCS injection/spray subsystems is required to ensure adequate coolant inventory and sufficient heat removal capability for the irradiated fuel in the core in case of an inadvertent draindown of the vessel. This change is acceptable because it helps to ensure ECCS is available to ensure adequate coolant inventory and sufficient heat removal capability for the irradiated fuel in the core in case of an inadvertent draindown of the vessel, and provides actions to minimize any potential fission product release to the environment if the ECCS is not OPERABLE when an inadvertent draindown of the vessel occurs. This change is designated as more restrictive since the ECCS will now be required to be OPERABLE during more conditions than is required in the CTS.

M.2 CTS 3.5.E.1, in part, provides requirements for low pressure ECCS when there is irradiated fuel in the reactor vessel and reactor water temperature is less than 212°F (i.e., during Cold Shutdown and Refueling conditions). ITS 3.5.2 provides the requirements for the low pressure ECCS subsystems in MODE 4 and MODE 5. This changes the CTS by requiring low pressure ECCS requirements to be met at 212°F.

The purpose of CTS 3.5.E is to cover requirements for low pressure ECCS subsystems when the unit is in Cold Shutdown or Refueling conditions. The CTS definition for Cold Shutdown is with reactor water temperature at ≤ 212°F. CTS 3.5.A covers the OPERABILITY requirements for ECCS at reactor water temperatures greater than 212°F. Therefore, to ensure ECCS OPERABILITY requirements are covered for all reactor coolant temperatures, the requirements

DISCUSSION OF CHANGES
ITS 3.5.2, EMERGENCY CORE COOLING SYSTEM (ECCS) - SHUTDOWN

for Cold Shutdown has been changed to cover reactor coolant temperatures at 212°F, consistent with the definition of MODE 4 in ITS Table 1.1-1. This change is acceptable because it ensures ECCS will be available during all reactor coolant temperatures even at 212°F. This change is designated as more restrictive because the low pressure ECCS will be required to be OPERABLE at 212°F.

M.3 Currently, no Surveillances are provided in the CTS to verify OPERABILITY of the low pressure ECCS subsystems in MODES other than MODES 1, 2, and 3, except for the suppression pool water level requirements specified in CTS 4.7.A.1.e. ITS SR 3.5.2.2 requires verification, for each required ECCS injection/spray subsystem, the piping is filled with water from the pump discharge valve to the injection valve every 31 days. ITS SR 3.5.2.3 requires verification that each required ECCS injection/spray subsystem manual, power operated, and automatic valve in the flow path, that is not locked, sealed, or otherwise secured in position is in the correct position every 31 days. ITS SR 3.5.2.4 requires verification that each required low pressure ECCS pump develops the specified flow rate against a system head corresponding to the specified reactor to containment pressure in accordance with the Inservice testing Program. ITS SR 3.5.2.5 requires verification that each required ECCS injection/spray subsystem actuates on an actual or simulated automatic initiation signal every 24 months. This changes the CTS by adding these Surveillance Requirements to the Technical Specifications.

The purpose of ITS SR 3.5.2.2 is to help ensure the pump discharge lines of the required low pressure ECCS subsystems are full of water ensuring that the ECCS will perform properly, injecting its full capacity into the RCS upon demand. This will also prevent a water hammer following an ECCS initiation signal. The purpose of ITS SR 3.5.2.3 is to provide assurance that the proper flow paths will exist for ECCS operation. The purpose of ITS SR 3.5.2.4 is to ensure each required low pressure ECCS subsystem pump can provide the appropriate flow capacity, and ITS SR 3.5.2.5 ensures the required low pressure ECCS subsystems can function automatically. This change is acceptable because it provides additional assurance that the ECCS will be capable of performing its function. This change is designated as more restrictive because it adds SRs to the CTS.

M.4 CTS 3.7.A.1, in part, requires the suppression pool volume to be met while work is being done which has the potential to drain the vessel, except as permitted by Specification 3.5.E.2. ITS SR 3.5.2.1.a requires the suppression pool water level to be met at all times while in MODE 4, and in MODE 5 except when the spent fuel storage pool gates are removed and water level is ≥ 21 ft 11 inches over the top of the reactor pressure vessel flange. This changes the CTS by requiring the suppression pool requirements to be met in the above MODES regardless of the status of the OPDRVs.

The purpose of CTS 3.7.A.1 is to ensure ECCS is available when OPDRVs are in progress. This change adds the requirement to have the suppression pool volume requirements to be met at all times while in MODE 4, and in MODE 5 except when the spent fuel storage pool gates are removed and water level is

DISCUSSION OF CHANGES
ITS 3.5.2, EMERGENCY CORE COOLING SYSTEM (ECCS) - SHUTDOWN

≥ 21 ft 11 inches over the top of the reactor pressure vessel flange, regardless of the status of the OPDRVs. The change is made to ensure the suppression pool is available whenever the ECCS subsystems are required to be OPERABLE. ITS 3.5.2, OPERABILITY of the low pressure ECCS injection/spray subsystems is required to ensure adequate coolant inventory and sufficient heat removal capability for the irradiated fuel in the core in case of an inadvertent draindown of the vessel. The suppression pool volume requirements ensure there is sufficient water to support ECCS operations. This change is acceptable because it helps to ensure ECCS is available to ensure adequate coolant inventory and sufficient heat removal capability for the irradiated fuel in the core in case of an inadvertent draindown of the vessel. This change is designated as more restrictive since the suppression pool volume requirements will now be required to be met during more conditions than is required in the CTS.

M.5 When the suppression pool water limit is not met, CTS 3.7.A.1.e allows 2 hours to restore the level within limits before requiring entry in CTS 3.7.A.1.f. CTS 3.7.A.1.f requires the suspension of all OPDRVs. ITS 3.5.2 does not include an explicit condition for this condition however entry into ITS 3.5.2 ACTION C would be required if the condensate storage tank(s) are not available. ITS 3.5.2 ACTION C covers the condition for two required ECCS injection/spray subsystem inoperable, and requires the immediate initiation of action to suspend OPDRVs and requires one required ECCS injection/spray subsystem to be restored to OPERABLE status within 4 hours. If one ECCS injection/spray subsystem cannot be restored within 4 hours entry in ITS 3.5.2 ACTION D is required. ITS 3.5.2 ACTION D requires immediate initiation of action to restore: a) secondary containment to OPERABLE status (ITS 3.5.2 Required Action D.1); b) one standby gas treatment (SGT) subsystem to OPERABLE status (ITS 3.5.2 Required Action D.2); and c) isolation capability in each required secondary containment penetration flow path not isolated (ITS 3.5.2 Required Action D.3). This changes the CTS by requiring the immediate initiation of action to stop OPDRVs instead of allowing two hours when the suppression pool water level is not within limit, it adds a Required Action to restore one ECCS injection/spray subsystem to OPERABLE status within 4 hours when the suppression pool water level is not within limit, and adds the ACTIONS associated with the secondary containment. The addition, of the allowance to credit the condensate storage tank(s) as a source for ECCS is discussed in DOC L.4.

The purpose of CTS 3.7.A.1.e is to allow a short period of time to restore suppression pool water level to within limit prior to requiring the immediate suspension of OPDRVs. This change requires the immediate initiation of action to stop OPDRVs instead of allowing two hours when the suppression pool water level is not within limit, it adds a Required Action to restore one ECCS injection/spray subsystem to OPERABLE status within 4 hours when the suppression pool water level is not within limit, and adds the ACTIONS associated with the secondary containment. If the condensate storage tank(s) are available as an ECCS water source, the current allowance in CTS 3.7.A.1.e to restore the suppression pool water level to within limit within 2 hours is acceptable. In the ITS, if the suppression pool level is not within limit, however if the condensate storage tanks are within limit, entry into ITS 3.5.2 ACTION A would be required if OPDRVs are in progress and 4 hours will be allowed before requiring OPDRVs to be stopped. The allowance to credit the condensate

storage tanks as a water source for ECCS is discussed in DOC L.4. This allowance is acceptable because the ECCS has a reliable source of water. However, if the condensate storage tanks are not available, and the suppression pool level is below the specified limit, ECCS will not have a source of water available for injection into the reactor. This change is acceptable because it helps to ensure ECCS is available to ensure adequate coolant inventory and sufficient heat removal capability for the irradiated fuel in the core in case of an inadvertent draindown of the vessel, and provides actions to minimize any potential fission product release to the environment if the ECCS is not OPERABLE when an inadvertent draindown of the vessel occurs.

M.6 CTS 4.7.A.1.e requires the suppression pool water level limit to be verified "once per day." ITS SR 3.5.2.1 requires the same verification every 12 hours. This changes the CTS by increasing the Frequency from "once per day" to every "12 hours." The option to credit the condensate storage tank instead of the suppression pool is discussed in DOC L.4.

The purpose of CTS 4.7.A.1.e, in part, is to ensure there is sufficient water in the suppression pool to support ECCS operation. The Surveillance Frequency has been changed from the "once per day" to every "12 hours." During shutdown conditions there are many maintenance operations that occur that may affect suppression pool water level as well as the volume of water in the condensate storage tanks. Therefore, it is necessary to monitor the levels (suppression pool water level or condensate storage tank) more frequently. Therefore, this change is acceptable. This change is designated as more restrictive because it requires a Surveillance Requirement to be performed more frequently in the ITS than is required in the CTS.

M.7 CTS 3.5.E.1, in part, allows all low pressure ECCS to be inoperable provided no work is being done which has the potential for draining the reactor vessel (OPDRV), except as allowed in Specification 3.5.E.2. However, when OPDRVs are in progress it does not explicitly specify how many low pressure ECCS subsystems are required to be OPERABLE. One OPERABLE low pressure ECCS subsystem satisfies the requirements of CTS 3.5.E.1. ITS LCO 3.5.2 requires two low pressure ECCS injection/spray subsystems to be OPERABLE. This changes the CTS by increasing the number of low pressure ECCS subsystems that are required to be OPERABLE from one to two. A change to the Applicability of CTS 3.5.E.1 is discussed in DOC M.1.

The purpose of CTS 3.5.E.1 is to ensure ECCS is available when OPDRVs are in progress. This change increases the low pressure ECCS subsystems that are required to be OPERABLE from one to two. The ECCS performance is evaluated for the entire spectrum of break sizes for a postulated loss of coolant accident (LOCA). The long term cooling analysis following a design basis LOCA demonstrates that only one low pressure ECCS injection/spray subsystem (i.e., one pump) is required, post LOCA. Since, the break during a LOCA bounds any postulated inadvertent draindown event during shutdown conditions one low pressure ECCS subsystem is considered sufficient to maintain adequate reactor vessel water level in the event of an inadvertent vessel draindown. Therefore, while in MODES 4 and 5, one low pressure ECCS injection/spray subsystem (i.e., one low pressure ECCS pump) can maintain adequate reactor vessel water

DISCUSSION OF CHANGES
ITS 3.5.2, EMERGENCY CORE COOLING SYSTEM (ECCS) - SHUTDOWN

level. To provide redundancy, a minimum of two low pressure ECCS injection/spray subsystems is required to be OPERABLE in MODES 4 and 5. The change is acceptable because two low pressure ECCS subsystems provide sufficient redundancy during shutdown conditions. This change is designated as more restrictive since more low pressure ECCS subsystems will be required to be OPERABLE in the ITS than is required in the CTS.

M.8 CTS 3.5.E.2 does not require any ECCS to be OPERABLE as long as the spent fuel pool gates are open and the fuel pool water level is greater than or equal to 33 ft. ITS 3.5.2 includes the same allowances, but the water level must be maintained at $\geq$ 21 ft 11 inches over the top of the reactor pressure vessel flange. This changes the CTS by increasing the water level requirement by 4 ft (i.e., 21 ft 11 inches over the top of the reactor pressure vessel flange is equivalent to a water level of 37 ft in the spent fuel pool as long as the spent fuel pool gates are removed).

The purpose of the CTS 3.5.E.2 requirement is to allow all ECCS to be inoperable when there is an adequate supply of water over the core to provide sufficient coolant inventory to allow operator action to terminate the inventory loss prior to fuel uncovery in case of an inadvertent draindown. This change is acceptable because the increased water level requirements will ensure there is an adequate supply of water over the core. The proposed level of $\geq$ 21 ft 11 inches over the top of the reactor pressure vessel flange corresponds to 37 ft in the spent fuel pool (with the gates removed). This change to the water level requirement is made to ensure reactor vessel water level and spent fuel water level requirements during MODE 5 operations with the spent fuel pool gates removed are specified at the same equivalent water level elevation. As a result of applying the Alternative Source Term methodology to re-evaluate the fuel handling accident at Monticello the spent fuel pool water level requirements have been increased from 33 ft to 37 ft. This change has been proposed in a License Amendment Request, NMC letter L-MT-05-013, from Thomas J. Palmisano (NMC) to USNRC, dated April 12, 2005. This change is designated as more restrictive since the water level requirement has been increased by 4 ft.

RELOCATED SPECIFICATIONS

None

REMOVED DETAIL CHANGES

None

LESS RESTRICTIVE CHANGES

L.1 *(Category 4 - Relaxation of Required Action)* CTS 3.5.E.1 and 3.5.E.2 require low pressure ECCS subsystems to be OPERABLE during OPDRVs. While no actions are specified if a low pressure ECCS subsystem becomes inoperable during OPDRVS, it is implicit that OPDRVs would have to be suspended.

DISCUSSION OF CHANGES
ITS 3.5.2, EMERGENCY CORE COOLING SYSTEM (ECCS) - SHUTDOWN

. ITS 3.5.2 ACTION A allows one required low pressure ECCS subsystem to be inoperable for up to 4 hours (i.e., it requires restoration of the inoperable low pressure ECCS subsystem within 4 hours), prior to requiring OPDRVs to be suspended. This changes the CTS by allowing operation to continue for up to 4 hours with an inoperable low pressure ECCS subsystem prior to requiring the suspension of OPDRVs.

The purpose of the CTS 3.5.E.1 and 3.5.E.2 is to ensure the required ECCS injection/spray subsystems are OPERABLE during OPDRVs, and if not, suspend OPDRVs. This change is acceptable because the Required Actions are used to establish remedial measures that must be taken in response to the degraded conditions in order to minimize risk associated with continued operation while providing time to repair inoperable features. The Required Actions are consistent with safe operation under the specified Condition, considering the OPERABLE status of the redundant systems or features. This includes the capacity and capability of remaining systems or features, a reasonable time for repairs or replacement, and the low probability of a DBA occurring during the repair period. The ITS 3.5.2 ACTION A provides a short period (4 hours) of time to restore one inoperable low pressure ECCS subsystem to OPERABLE status. If ITS 3.5.2 ACTION A is not met, ITS 3.5.2 ACTION B requires the unit to initiate action immediately to suspend OPDRVS. The requirement to stop OPDRVs is consistent with CTS 3.5.E.1 and 3.5.E.2 since no OPDRVS are allowed when any low pressure ECCS subsystem is inoperable. This change is considered acceptable because only a short time is provided to restore a low pressure ECCS injection/spray subsystem to OPERABLE status. This change is designated as less restrictive because less stringent Required Actions are being applied in the ITS than were applied in the CTS.

L.2 *(Category 1 – Relaxation of LCO Requirements)* CTS 3.5.E.1, in part, requires all containment cooling subsystems to be OPERABLE during OPDRVs except as allowed by CTS 3.5.E.2. When the vessel head is removed, the spent fuel pool gates are open, and the fuel pool water level is maintained at a level of greater than or equal to 33 ft, CTS 3.5.E.2 allows the suppression chamber water level to be drained, if no more than one control rod drive housing or instrument thimble is opened. Thus, CTS 3.5.E.2 implies that when these conditions are not met in MODE 5, all containment cooling subsystems must be OPERABLE. The ITS does not require containment cooling subsystems to be OPERABLE in MODES other than MODES 1, 2, and 3. This changes the CTS by eliminating all requirements to have any containment cooling subsystems OPERABLE in these conditions.

The purpose of CTS 3.5.E (as stated in the CTS Bases) is to assure that sufficient core cooling equipment is available when needed during MODES 4 and 5 operations. However, the containment cooling systems do not perform this function; ECCS performs this function. This change is acceptable because the LCO requirements continue to ensure that the structures, systems, and components are maintained consistent with the safety analyses. The definition of OPERABLE-OPERABILITY in ITS Section 1.1 will ensure all support systems are available to support the required low pressure ECCS subsystems. In addition, the proposed Surveillance Requirements in ITS 3.5.2 will help ensure the low pressure ECCS subsystems are OPERABLE to provide sufficient core

cooling when necessary. This change is designated as less restrictive because less stringent LCO requirements are being applied in the ITS than were applied in the CTS.

L.3 *(Category 1 – Relaxation of LCO Requirements)* CTS 3.5.E.1, in part, requires all low pressure ECCS subsystems to be OPERABLE during OPDRVs except as allowed in CTS 3.5.E.2. When irradiated fuel is in the vessel and the vessel head is removed (i.e., MODE 5), the spent fuel pool gates are open, and the fuel pool water level is maintained at a level of greater than or equal to 33 ft, CTS 3.5.E.2 allows the suppression chamber water level to be drained, provided that no more than one control rod drive housing or instrument thimble is opened. This effectively provides an allowance that all low pressure ECCS subsystems are allowed to be inoperable during these two specific types of OPDRVs (one control rod drive housing or instrument thimble is opened). ITS 3.5.2 will allow all low pressure ECCS subsystems to be inoperable for any type of OPDRV, provided the same requirements concerning spent fuel pool gates and water level are met. This changes the CTS by allowing any type of OPDRV during MODE 5 operations, not just the two listed in CTS 3.5.E.2, provided the spent fuel gates are removed and water level is within the limit.

The purpose of CTS 3.5.E is to assure that sufficient core cooling equipment is available when needed during MODE 4 and 5 operations. This change is acceptable because the LCO requirements continue to ensure that the structures, systems, and components are maintained consistent with the safety analyses. This change allows any type of OPDRV without requiring OPERABLE low pressure ECCS subsystems when there is sufficient water above the core. ECCS subsystems (including the allowance to have the suppression pool water level drained) are not required to be OPERABLE during MODE 5 with the spent fuel storage pool gates removed and the water level maintained ≥ 21 ft 11 inches above the reactor pressure vessel flange because the water inventory provides sufficient coolant to allow operator action to terminate the inventory loss prior to fuel uncovery in case of an inadvertent draindown. It also ensures that sufficient water is available for core cooling. This change is designated as less restrictive because less stringent LCO requirements are being applied in the ITS than were applied in the CTS.

L.4 *(Category 1 – Relaxation of LCO Requirements)* CTS 3.7.A.1.e, requires the suppression pool water level to be within limit and CTS 4.7.A.1.e requires the verification that the suppression pool water level is within limit. CTS 3.7.A.1.e also only allows 2 hours to restore the suppression pool level to within limits before requiring the suspension of all OPDRVS. ITS SR 3.5.2.1.a requires the same verification, however an option is provided to allow the condensate storage tank(s) water level to be met instead of the suppression pool level. However, only one required ECCS injection/spray subsystem may take credit for this option during OPDRVs. If the suppression pool level is not within limit, but with the condensate storage tank water level within the prescribed limits, ITS 3.5.2 ACTION A must be entered and 4 hours is allowed prior to requiring the initiation of action to suspend OPDRVS (ITS 3.5.2 ACTION B). This changes the CTS by providing an option to allow the condensate storage tank(s) to be the water source for the required ECCS subsystems. Changes to the Required Actions are discussed in DOC L.5.

DISCUSSION OF CHANGES
ITS 3.5.2, EMERGENCY CORE COOLING SYSTEM (ECCS) - SHUTDOWN

The purpose of CTS 4.7.A.1.e, in part, is to ensure there is sufficient water in the suppression pool to support ECCS operation. This change is acceptable because the LCO requirements continue to ensure that the structures, systems, and components are maintained consistent with the safety analyses. This change is acceptable because the condensate storage tank(s) provide a reliable source for the ECCS injection/spray subsystems during shutdown conditions. However, as noted, only one required low pressure ECCS injection spray subsystem may take credit for the condensate storage tank operation during OPDRVs. During OPDRVs, the volume in the condensate storage tank(s) may not provide adequate makeup if the reactor pressure vessel was completely drained. Therefore, only one low pressure ECCS injection/spray subsystem is allowed to use the condensate storage tank(s). This change is designated as less restrictive because less stringent LCO requirements are being applied in the ITS than were applied in the CTS.

L.5 *(Category 3 – Relaxation of Completion Time)* CTS 3.7.A.1.e requires the suppression pool water level to be within limit and CTS 4.7.A.1.e requires the verification that the suppression pool water level is within limit. CTS 3.7.A.1.e also only allows 2 hours to restore the suppression pool level to within limits before requiring the suspension of all OPDRVS. ITS SR 3.5.2.1.a requires the same verification, however an option is provided to allow the condensate storage tank(s) water level to be met instead of the suppression pool level. However, only one required ECCS injection/spray subsystem may take credit for this option during OPDRVs. If the suppression pool level is not within limit, but with condensate storage tank water level within prescribed limits, ITS 3.5.2 ACTION A must be entered and 4 hours is allowed prior to requiring the initiation of action to suspend OPDRVS (ITS 3.5.2 ACTION B). This changes the CTS by extending the time to stop OPDRVs from 2 hours to 4 hours as long as the condensate storage tank water level is within the prescribed limits.

The purpose of CTS 4.7.A.1.e, in part, is to only allow a short period of time to restore suppression pool level before suspending OPDRVs. This change is acceptable because the Completion Time is consistent with safe operation under the specified Condition, considering the OPERABLE status of the redundant systems or features. This includes the capacity and capability of remaining systems or features, a reasonable time for repairs or replacement, and the low probability of a DBA occurring during the allowed Completion Time. This changes the CTS by extending the time to stop OPDRVs from 2 hours to 4 hours as long as the condensate storage tank(s) are available to support ECCS operation. If the condensate storage tank(s) are available as an ECCS water source and the suppression pool level is not within limit entry into ITS 3.5.2 ACTION A would be required if OPDRVs are in progress and 4 hours will be allowed before requiring OPDRVs to be stopped. This change is acceptable because the ECCS has a reliable source of water (i.e., the condensate storage tank(s) and there is low probability of a vessel draindown event. This change is designated as less restrictive because additional time is allowed to place the unit outside the LCO Applicability.

L.6 *(Category 1 – Relaxation of LCO Requirements)* ITS LCO 3.5.2 includes a Note that states one low pressure coolant injection (LPCI) subsystem may be considered OPERABLE during alignment and operation for decay heat removal if

capable of being manually realigned and not otherwise inoperable. CTS 3.5.E does not include this explicit allowance. This changes the CTS by adding this explicit allowance.

The purpose of the LCO 3.5.2 Note is to allow the RHR shutdown cooling subsystem to be placed in service so that the unit can commence a shutdown to remove decay heat and sensible heat from the reactor and not declare the LPCI subsystems inoperable. This change adds an explicit allowance that allows one RHR shutdown cooling subsystem to be placed in service if capable of being manually realigned and not otherwise inoperable. When taking advantage of this allowance the LPCI subsystem does not have to be declared inoperable and the Actions are not required to be entered. This allowance will permit operations to focus attention on maintaining the unit in a safe condition and eliminate the need to declare the LPCI subsystem inoperable and enter an action and monitor the time in this condition. This change is acceptable since when the unit is in MODE 4 or MODE 5 the steam pressure and decay heat levels are low enough so that a reduced complement of ECCS subsystems should provide the required core cooling. In addition, to be able to utilize this allowance the RHR System will have the capability to be manually transferred to the LPCI mode if there is a need for this operation. This change is designated as less restrictive because one RHR shutdown cooling subsystem may be placed in service if capable of being manually realigned and not otherwise inoperable without declaring the LPCI subsystem inoperable.

L.7 *(Category 1 – Relaxation of LCO Requirements)* CTS 3.7.A.1.e requires the suppression pool water level to be $\geq$ -4.0 and $\leq$ + 3.0 inches. ITS SR 3.5.2.1.a requires the suppression pool water level to be $\geq$ - 3 ft. This changes the CTS by modifying the lower limit from $\geq$ - 4.0 inches to $\geq$ - 3 ft. The change to the upper suppression pool limit is discussed in DOC A.3.

The purpose of CTS 4.7.A.1.e, in part, is to ensure there is sufficient water in the suppression pool to support ECCS operation during activities with the potential for draining the reactor vessel. The current minimum value, $\geq$ - 4.0 inches, also ensures a sufficient amount of water is available to adequately condense the steam from the S/RV quenchers, main vents, and HPCI and RCIC turbine exhaust lines. However, these issues are only a concern in MODES 1, 2, and 3; not in MODES 4 and 5. With the suppression pool water level $\geq$ - 3.0 ft, the required ECCS subsystems are considered OPERABLE because the suppression pool provides adequate water level for net positive suction head, recirculation volume, and vortex prevention. With the suppression pool water level $\geq$ - 3.0 ft, the required ECCS subsystems will have $\geq$ 50,000 gallons of water available to support operations. Assuming there is no recirculation of the suppression pool water, an RHR pump would be able to operate for over 10 minutes before the pipe inlet is uncovered. This provides time for the operators to stop the draindown event. Furthermore, during a draindown event within the primary containment, the water would recirculate to the suppression pool so that the ECCS subsystems would have a continuous supply of water. Other sources of makeup water are available to replenish the suppression pool water supply or to supply water to the reactor vessel. This change is acceptable because the ECCS subsystems will be able to maintain an adequate reactor vessel water level in the event of an inadvertent vessel draindown. This change is designated

DISCUSSION OF CHANGES
ITS 3.5.2, EMERGENCY CORE COOLING SYSTEM (ECCS) - SHUTDOWN

as less restrictive because less stringent LCO requirements are being applied in the ITS than were applied in the CTS.

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Improved Standard Technical Specifications (ISTS) Markup and Justification for Deviations (JFDs)

CTS

3.5 EMERGENCY CORE COOLING SYSTEM (ECCS) AND REACTOR CORE ISOLATION COOLING SYSTEM (RCIC)

3.5.E.1, 3.5.E.2

3.5.2 ECCS - Shutdown

3.5.E.1, 3.5.E.2

LCO 3.5.2 Two low pressure ECCS injection/spray subsystems shall be OPERABLE.

DOC A.2

----------NOTE----------
One LPCI subsystem may be considered OPERABLE during alignment and operation for decay heat removal if capable of being manually realigned and not otherwise inoperable.

3.5.E.1, 3.5.E.2, 3.7.A.1

APPLICABILITY: MODE 4,
MODE 5, except with the spent fuel storage pool gates removed and water level ≥ [23 ft] over the top of the reactor pressure vessel flange. (1)

21 ft 11 inches

ACTIONS

	CONDITION	REQUIRED ACTION	COMPLETION TIME
3.7.A.1.e, DOC L.2	A. One required ECCS injection/spray subsystem inoperable.	A.1 Restore required ECCS injection/spray subsystem to OPERABLE status.	4 hours
3.7.A.1.f, DOC A.3	B. Required Action and associated Completion Time of Condition A not met.	B.1 Initiate action to suspend operations with a potential for draining the reactor vessel (OPDRVs).	Immediately
3.7.A.1.e, DOC A.3	C. Two required ECCS injection/spray subsystems inoperable.	C.1 Initiate action to suspend OPDRVs. AND	Immediately

CTS

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME	
DOC M.1, DOC M.5	C.2 Restore one required ECCS injection/spray subsystem to OPERABLE status.	4 hours	(2)
DOC M.1, DOC M.5 D. Required Action C.2 and associated Completion Time not met.	D.1 Initiate action to restore [secondary] containment to OPERABLE status.	Immediately	(1)
	AND		
	D.2 [Initiate action to restore one standby gas treatment subsystem to OPERABLE status.	Immediately]	(1)
	AND		
	D.3 Initiate action to restore isolation capability in each required [secondary] containment penetration flow path not isolated.	Immediately	(1)

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY	
SR 3.5.2.1	Verify, for each required low pressure coolant injection (LPCI) subsystem, the suppression pool water level is ≥ [12 ft 2 inches].	12 hours	(3)

CTS

SURVEILLANCE REQUIREMENTS (continued)

	SURVEILLANCE	FREQUENCY	
3.7.A.1.e, 4.7.A.1.e, DOC L.4	SR 3.5.2.2 (1) Verify, for each required ~~core spray (CS)~~ ECCS injection/spray subsystem, the:	12 hours	3
	a. Suppression pool water level is ≥ ~~12 ft 2 inches~~ -3 ft or		4 : 1
	b. ----------NOTE---------- Only one required ~~CS~~ ECCS injection/spray subsystem may take credit for this option during OPDRVs. ----------		3
	Condensate storage tank ~~water~~ (s) level is ≥ ~~12 ft~~ 7 ft for one tank operation and ≥ 4 ft for two tank operation		1
DOC M.3	SR 3.5.2.3 (2) Verify, for each required ECCS injection/spray subsystem, the piping is filled with water from the pump discharge valve to the injection valve.	31 days	3
DOC M.3	SR 3.5.2.4 (3) Verify each required ECCS injection/spray subsystem manual, power operated, and automatic valve in the flow path, that is not locked, sealed, or otherwise secured in position, is in the correct position.	31 days	3
DOC M.3	SR 3.5.2.5 (4) Verify each required ECCS pump develops the specified flow rate against a system head corresponding to the specified reactor pressure.	In accordance with the Inservice Testing Program ~~or 92 days~~	3 1

System	Flow Rate	No. of Pumps	System Head Corresponding to a Reactor Pressure of (to containment / to Containment)
CS	≥ ~~4250~~ 2,800 gpm	1	≥ ~~113~~ 130 psig
LPCI	≥ ~~7700~~ 3,870 gpm	1	≥ 20 psig

1

CTS SURVEILLANCE REQUIREMENTS (continued)

SURVEILLANCE	FREQUENCY
DOC M.3 SR 3.5.2.6 [5] ----------NOTE---------- Vessel injection/spray may be excluded. ---------- Verify each required ECCS injection/spray subsystem actuates on an actual or simulated automatic initiation signal.	[24] [18] months (3) (1)

JUSTIFICATION FOR DEVIATIONS
ITS 3.5.2, EMERGENCY CORE COOLING SYSTEM (ECCS) - SHUTDOWN

1. The brackets have been removed and the proper plant specific information/value has been provided.

2. The word "required" has been added consistent with its use throughout the ITS (not all ECCS subsystems are required to be OPERABLE in MODES 4 and 5).

3. The requirements for suppression pool water level and condensate storage tank levels are applicable to both CS and LPCI Systems (i.e., both CS and LPCI Systems have a suction flow path from the CSTs and the Suppression Pool). Therefore, ISTS SR 3.5.2.1 is deleted and the requirement to verify suppression pool water level for the LPCI subsystem is addressed in ISTS 3.5.2.2 (ITS 3.5.2.1). Subsequent SRs are renumbered, as required.

4. These punctuation corrections have been made consistent with the Writer's Guide for the Improved Standard Technical Specifications, NEI 01-03, Section 5.1.3.

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Improved Standard Technical Specifications (ISTS) Bases Markup and Justification for Deviations (JFDs)

B 3.5 EMERGENCY CORE COOLING SYSTEM (ECCS) AND REACTOR CORE ISOLATION COOLING (RCIC) SYSTEM

B 3.5.2 ECCS - Shutdown

BASES

BACKGROUND

A description of the Core Spray (CS) System and the low pressure coolant injection (LPCI) mode of the Residual Heat Removal (RHR) System is provided in the Bases for LCO 3.5.1, "ECCS - Operating."

APPLICABLE SAFETY ANALYSES

The ECCS performance is evaluated for the entire spectrum of break sizes for a postulated loss of coolant accident (LOCA). The long term cooling analysis following a design basis LOCA (Ref. 1) demonstrates that only one low pressure ECCS injection/spray subsystem is required, post LOCA, to maintain adequate reactor vessel water level in the event of an inadvertent vessel draindown. It is reasonable to assume, based on engineering judgement, that while in MODES 4 and 5, one low pressure ECCS injection/spray subsystem can maintain adequate reactor vessel water level. To provide redundancy, a minimum of two low pressure ECCS injection/spray subsystems are required to be OPERABLE in MODES 4 and 5. (2)

The low pressure ECCS subsystems satisfy Criterion 3 of 10 CFR 50.36(c)(2)(ii).

LCO

Two low pressure ECCS injection/spray subsystems are required to be OPERABLE. The low pressure ECCS injection/spray subsystems consist of two CS subsystems and two LPCI subsystems. Each CS subsystem consists of one motor driven pump, piping, and valves to transfer water from the suppression pool or condensate storage tank (CST) to the reactor pressure vessel (RPV). Each LPCI subsystem consists of one motor driven pump, piping, and valves to transfer water from the suppression pool to the RPV. Only a single LPCI pump is required per subsystem because of the larger injection capacity in relation to a CS subsystem. In MODES 4 and 5, the RHR System cross tie valve is not required to be closed. (1) (1)

one or two
s
or from one or two CSTs
In addition,
similar
-
open

As noted, one LPCI subsystem may be considered OPERABLE during alignment and operation for decay heat removal if capable of being manually realigned (remote or local) to the LPCI mode and is not otherwise inoperable. Alignment and operation for decay heat removal includes when the required RHR pump is not operating or when the system is realigned from or to the RHR shutdown cooling mode. This

BASES

LCO (continued)

allowance is necessary since the RHR System may be required to operate in the shutdown cooling mode to remove decay heat and sensible heat from the reactor. Because of low pressure and low temperature conditions in MODES 4 and 5, sufficient time will be available to manually align and initiate LPCI subsystem operation to provide core cooling prior to postulated fuel uncovery.

APPLICABILITY

OPERABILITY of the low pressure ECCS injection/spray subsystems is required in MODES 4 and 5 to ensure adequate coolant inventory and sufficient heat removal capability for the irradiated fuel in the core in case of an inadvertent draindown of the vessel. Requirements for ECCS OPERABILITY during MODES 1, 2, and 3 are discussed in the Applicability section of the Bases for LCO 3.5.1. ECCS subsystems are not required to be OPERABLE during MODE 5 with the spent fuel storage pool gates removed and the water level maintained at ≥ ~~23~~ 21 ft 11 inches above the RPV flange. This provides sufficient coolant inventory to allow operator action to terminate the inventory loss prior to fuel uncovery in case of an inadvertent draindown. (3)

The Automatic Depressurization System is not required to be OPERABLE during MODES 4 and 5 because the RPV pressure is ≤ 150 psig, and the CS System and the LPCI subsystems can provide core cooling without any depressurization of the primary system.

The High Pressure Coolant Injection System is not required to be OPERABLE during MODES 4 and 5 since the low pressure ECCS injection/spray subsystems can provide sufficient flow to the vessel.

ACTIONS

A.1 and B.1

If any one required low pressure ECCS injection/spray subsystem is inoperable, the inoperable subsystem must be restored to OPERABLE status in 4 hours. In this Condition, the remaining OPERABLE subsystem can provide sufficient vessel flooding capability to recover from an inadvertent vessel draindown. However, overall system reliability is reduced because a single failure in the remaining OPERABLE subsystem concurrent with a vessel draindown could result in the ECCS not being able to perform its intended function. The 4 hour Completion Time for restoring the required low pressure ECCS injection/spray subsystem to OPERABLE status is based on engineering judgment that considered the remaining available subsystem and the low probability of a vessel draindown event.

BASES

ACTIONS (continued)

With the inoperable subsystem not restored to OPERABLE status in the required Completion Time, action must be immediately initiated to suspend operations with a potential for draining the reactor vessel (OPDRVs) to minimize the probability of a vessel draindown and the subsequent potential for fission product release. Actions must continue until OPDRVs are suspended.

C.1, C.2, D.1, D.2, and D.3

With both of the required ECCS injection/spray subsystems inoperable, all coolant inventory makeup capability may be unavailable. Therefore, actions must immediately be initiated to suspend OPDRVs to minimize the probability of a vessel draindown and the subsequent potential for fission product release. Actions must continue until OPDRVs are suspended. One ECCS injection/spray subsystem must also be restored to OPERABLE status within 4 hours.

If at least one low pressure ECCS injection/spray subsystem is not restored to OPERABLE status within the 4 hour Completion Time, additional actions are required to minimize any potential fission product release to the environment. This includes ensuring secondary containment is OPERABLE; one standby gas treatment subsystem is OPERABLE; and secondary containment isolation capability (i.e., one isolation valve and associated instrumentation are OPERABLE or other acceptable administrative controls to assure isolation capability) in each associated penetration flow path not isolated that is assumed to be isolated to mitigate radioactivity releases. OPERABILITY may be verified by an administrative check, or by examining logs or other information, to determine whether the components are out of service for maintenance or other reasons. It is not necessary to perform the Surveillances needed to demonstrate the OPERABILITY of the components. If, however, any required component is inoperable, then it must be restored to OPERABLE status. In this case, the Surveillance may need to be performed to restore the component to OPERABLE status. Actions must continue until all required components are OPERABLE.

secondary containment

is available

INSERT 1

2

The 4 hour Completion Time to restore at least one low pressure ECCS injection/spray subsystem to OPERABLE status ensures that prompt action will be taken to provide the required cooling capacity or to initiate actions to place the plant in a condition that minimizes any potential fission product release to the environment.

2

INSERT 1

These administrative controls consist of stationing a dedicated operator, who is in continuous communication with the control room, at the controls of the isolation device. In this way, the penetration can be rapidly isolated when a need for secondary containment isolation is indicated.

Insert Page B 3.5.2-3

{ All changes are "3" unless otherwise noted }

BASES

SURVEILLANCE REQUIREMENTS

SR 3.5.2.1 and SR 3.5.2.2

The minimum water level of [12 ft 2 inches] required for the suppression pool is periodically verified to ensure that the suppression pool will provide adequate net positive suction head (NPSH) for the CS System and LPCI subsystem pumps, recirculation volume, and vortex prevention. With the suppression pool water level less than the required limit, all ECCS injection/spray subsystems are inoperable unless they are aligned to an OPERABLE CST.

When suppression pool level is < [12 ft 2 inches], the CS System is considered OPERABLE only if it can take suction from the CST, and the CST water level is sufficient to provide the required NPSH for the CS pump. Therefore, a verification that either the suppression pool water level is ≥ [12 ft 2 inches] or that CS is aligned to take suction from the CST and the CST contains ≥ [150,000] gallons of water, equivalent to 12 ft, ensures that the CS System can supply at least [150,000] gallons of makeup water to the RPV. The CS suction is uncovered at the [100,000] gallon level. However, as noted, only one required CS subsystem may take credit for the CST option during OPDRVs. During OPDRVs, the volume in the CST may not provide adequate makeup if the RPV were completely drained. Therefore, only one CS subsystem is allowed to use the CST. This ensures the other required ECCS subsystem has adequate makeup volume.

The 12 hour Frequency of these SRs was developed considering operating experience related to suppression pool water level and CST water level variations and instrument drift during the applicable MODES. Furthermore, the 12 hour Frequency is considered adequate in view of other indications available in the control room, including alarms, to alert the operator to an abnormal suppression pool or CST water level condition.

SR 3.5.2.3, SR 3.5.2.5, and SR 3.5.2.6

The Bases provided for SR 3.5.1.1, SR 3.5.1.7, and SR 3.5.1.10 are applicable to SR 3.5.2.3, SR 3.5.2.5, and SR 3.5.2.6, respectively.

1

INSERT 2

and vortex prevention

3

INSERT 3

the required low pressure ECCS injection/spray subsystems are

4

INSERT 4

4 ft in both CSTs when they are crosstied (normal configuration) and 7 ft in one CST when they are not crosstied

3

INSERT 5

required low pressure ECCS injection/spray subsystems

1

INSERT 6

low pressure ECCS injection/spray

BASES

SURVEILLANCE REQUIREMENTS (continued)

SR 3.5.2.4 (3) (3)

Verifying the correct alignment for manual, power operated, and automatic valves in the ECCS flow paths provides assurance that the proper flow paths will exist for ECCS operation. This SR does not apply to valves that are locked, sealed, or otherwise secured in position, since these valves were verified to be in the correct position prior to locking, sealing, or securing. A valve that receives an initiation signal is allowed to be in a nonaccident position provided the valve will automatically reposition in the proper stroke time. This SR does not require any testing or valve manipulation; rather, it involves verification that those valves capable of potentially being mispositioned are in the correct position. This SR does not apply to valves that cannot be inadvertently misaligned, such as check valves. The 31 day Frequency is appropriate because the valves are operated under procedural control and the probability of their being mispositioned during this time period is low.

REFERENCES (U) 1. FSAR, Section 6.3.2 (14.7.2.3.6) (1) (4)

JUSTIFICATION FOR DEVIATIONS
ITS 3.5.2 BASES, EMERGENCY CORE COOLING SYSTEM (ECCS) - SHUTDOWN

1. Changes have been made (additions, deletions, and/or changes to the NUREG) to reflect the plant specific nomenclature, number, reference, system description, analysis description, or licensing basis description.

2. Editorial change made for enhanced clarity or to be consistent with similar statements in other places in the Bases.

3. Changes have been made to reflect those changes made to the Specification. The following requirements have been renumbered, where applicable, to reflect the changes.

4. The brackets have been removed and the proper plant specific information/value has been provided.

Specific No Significant Hazards Considerations (NSHCs)

DETERMINATION OF NO SIGNIFICANT HAZARDS CONSIDERATIONS
ITS 3.5.2, EMERGENCY CORE COOLING SYSTEM (ECCS) - SHUTDOWN

There are no specific NSHC discussions for this Specification.

ATTACHMENT 3

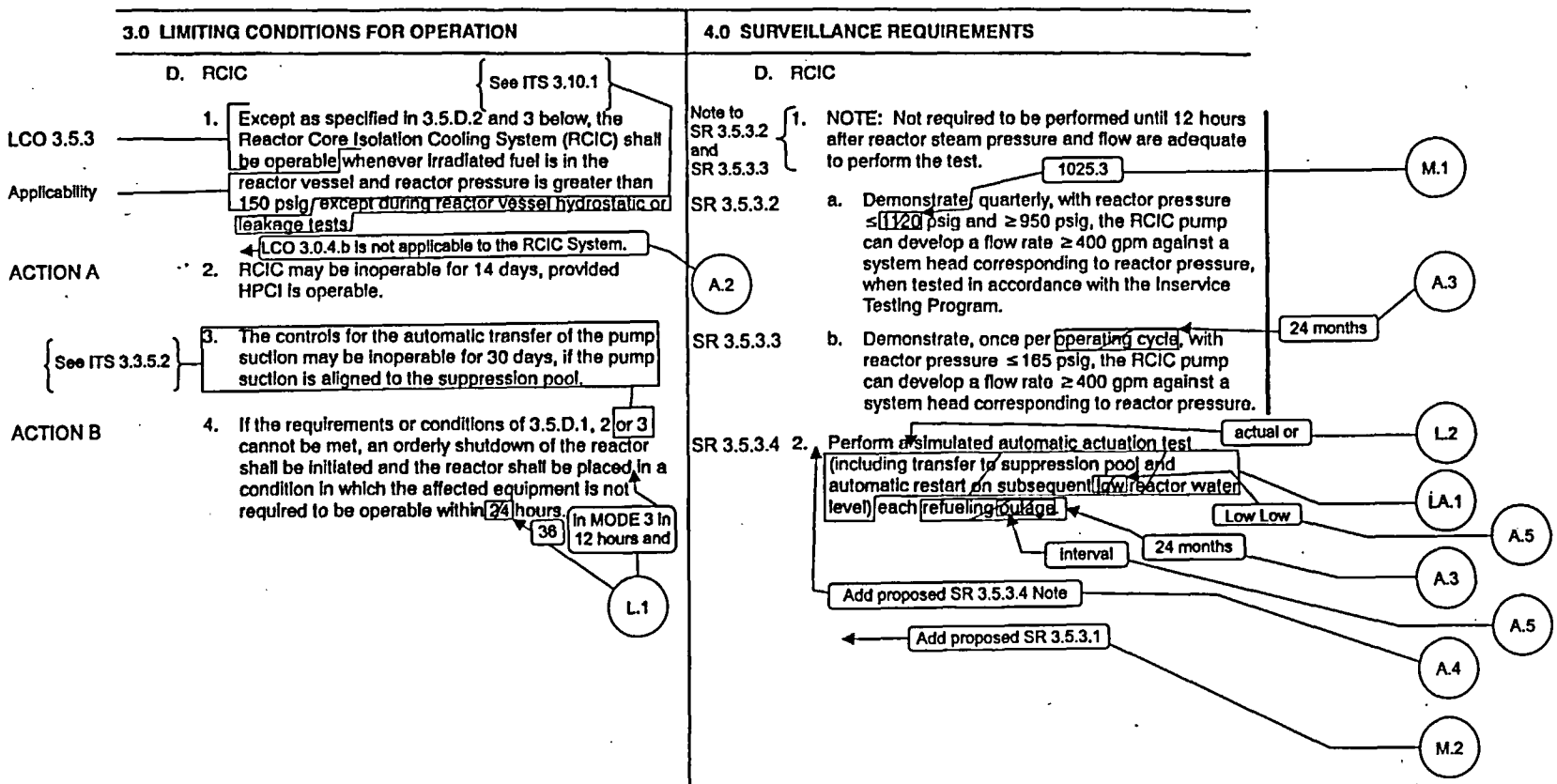
ITS 3.5.3, Reactor Core Isolation Cooling (RCIC) System

Current Technical Specification (CTS) Markup and Discussion of Changes (DOCs)

A.1

ITS

ITS


3.0 LIMITING CONDITIONS FOR OPERATION
4.0 SURVEILLANCE REQUIREMENTS
D. RCIC
See ITS 3.10.1
LCO 3.5.3
1. Except as specified in 3.5.D.2 and 3 below, the Reactor Core Isolation Cooling System (RCIC) shall be operable whenever irradiated fuel is in the reactor vessel and reactor pressure is greater than 150 psig, except during reactor vessel hydrostatic or leakage tests.
Applicability
LCO 3.0.4.b is not applicable to the RCIC System.
ACTION A
2. RCIC may be inoperable for 14 days, provided HPCI is operable.
A.2
See ITS 3.3.5.2
3. The controls for the automatic transfer of the pump suction may be inoperable for 30 days, if the pump suction is aligned to the suppression pool.
ACTION B
4. If the requirements or conditions of 3.5.D.1, 2 or 3 cannot be met, an orderly shutdown of the reactor shall be initiated and the reactor shall be placed in a condition in which the affected equipment is not required to be operable within 24 hours. 36
In MODE 3 in 12 hours and
L.1
D. RCIC
Note to SR 3.5.3.2 and SR 3.5.3.3
1. NOTE: Not required to be performed until 12 hours after reactor steam pressure and flow are adequate to perform the test.
1025.3
M.1
SR 3.5.3.2
a. Demonstrate, quarterly, with reactor pressure ≤ 1120 psig and ≥ 950 psig, the RCIC pump can develop a flow rate ≥ 400 gpm against a system head corresponding to reactor pressure, when tested in accordance with the Inservice Testing Program.
A.3
SR 3.5.3.3
b. Demonstrate, once per operating cycle, with reactor pressure ≤ 165 psig, the RCIC pump can develop a flow rate ≥ 400 gpm against a system head corresponding to reactor pressure.
24 months
SR 3.5.3.4
2. Perform a simulated automatic actuation test (including transfer to suppression pool and automatic restart on subsequent low reactor water level) each refueling outage
actual or
L.2
LA.1
Low Low
A.5
interval
24 months
A.3
Add proposed SR 3.5.3.4 Note
A.5
Add proposed SR 3.5.3.1
A.4
M.2

DISCUSSION OF CHANGES
ITS 3.5.3, REACTOR CORE ISOLATION COOLING (RCIC) SYSTEM

ADMINISTRATIVE CHANGES

A.1 In the conversion of the Monticello Current Technical Specifications (CTS) to the plant specific Improved Technical Specifications (ITS), certain changes (wording preferences, editorial changes, reformatting, revised numbering, etc.) are made to obtain consistency with NUREG-1433, Rev. 3, "Standard Technical Specifications General Electric Plants, BWR/4" (ISTS).

These changes are designated as administrative changes and are acceptable because they do not result in technical changes to the CTS.

A.2 The ITS 3.5.3 ACTIONS include a Note that states LCO 3.0.4.b is not applicable to RCIC. The CTS does not include this Note. This changes the CTS by including the ACTION Note.

The purpose of the ITS 3.5.3 ACTIONS Note is to prohibit entry into the Applicability of LCO 3.5.3 with an inoperable RCIC System. Currently, entry into a MODE or other specified condition in the Applicability is not allowed when the RCIC System is inoperable. ITS LCO 3.0.4 has been added in accordance with the Discussion of Changes for ITS Section 3.0 DOC L.1. This LCO allows entry into a MODE or other specified condition in the Applicability under certain conditions when a Technical Specification required component is inoperable. ITS LCO 3.0.4.b allows entry into a MODE or other specified condition in the Applicability of a Specification if a risk assessment is performed that determines it is acceptable to enter the Applicability, and appropriate risk management actions are established. The addition of this restriction (LCO 3.0.4.b is not applicable) is acceptable because there is an increased risk associated with entering a MODE or other specified condition in the Applicability with an inoperable RCIC System, and therefore the provisions of LCO 3.0.4.b should not be applied in this circumstance. The change is acceptable because the CTS 3.5.D does not currently allow this option. This change is considered administrative because it does not result in technical changes to the CTS.

A.3 CTS 4.5.D.1.b requires the low pressure RCIC pump flow test to be performed once per operating cycle. CTS 4.5.D.2 requires the performance of an automatic actuation test of the RCIC System each refueling interval. ITS SR 3.5.3.3 and SR 3.5.3.4 require similar tests every "24 months." This changes the CTS by changing the Frequencies from once per "operating cycle" and each "refueling interval" to "24 months."

This change is acceptable because the current "operating cycle" and "refueling interval" is "24 months." In letter L-MT-04-036, from Thomas J. Palmisano (NMC) to the USNRC, dated June 30, 2004, NMC has proposed to extend the fuel cycle from 18 months to 24 months and at the same time has performed an evaluation in accordance with Generic Letter 91-04 to extend the unit Surveillance Requirements from 18 months to 24 months. CTS 4.5.D.1.b and 4.5.D.2 were included in this evaluation. This change is designated as administrative because it does not result in any technical changes to the CTS.

A.4 CTS 4.5.D.2 requires the performance of a simulated automatic actuation test of the RCIC System. ITS SR 3.5.3.4 requires the performance of a similar test

DISCUSSION OF CHANGES
ITS 3.5.3, REACTOR CORE ISOLATION COOLING (RCIC) SYSTEM

however, a Note has been included that states "Vessel injection may be excluded." This changes the CTS by providing a clarification Note that excludes vessel injection for the RCIC System.

The purpose of CTS 4.5.D.2 is to ensure that all active RCIC System components operate correctly upon receipt of an actuation signal. This change provides a clarification Note that does not modify the testing requirements. CTS 4.5.D.2 states it is a "simulated" test; it does not have a statement such as "Vessel injection is required." ITS SR 3.5.3.4 verifies that, with a required system initiation signal, the automatic initiation logic of RCIC will cause the system to operate as designed, including actuation of the system throughout its emergency operating sequence, automatic pump startup and actuation of all automatic valves to their required positions. However, vessel injection may be excluded from the test. This is acceptable since all active components are testable and because full flow may be demonstrated by recirculation through the test line. RCIC flow verification is performed in accordance with SR 3.5.3.2 and SR 3.5.3.3. This change is considered administrative because it does not result in technical changes to the CTS.

A.5 This change to CTS 4.5.D.2 is provided in the Monticello ITS consistent with the Technical Specifications Change Request submitted to the USNRC for approval in NMC letter L-MT-04-036, from Thomas J. Palmisano (NMC) to USNRC, dated June 30, 2004. As such, this change is administrative.

MORE RESTRICTIVE CHANGES

M.1 CTS 4.5.D.1.a requires the quarterly RCIC pump flow test to be performed at a reactor pressure of $\leq$ 1120 psig and $\geq$ 950 psig. ITS SR 3.5.3.2 requires the same test to be performed at a reactor steam dome pressure of $\leq$ 1025.3 psig and $\geq$ 950 psig. This changes the CTS by reducing the upper pressure limit from 1120 psig to 1025.3 psig.

The purpose of CTS 4.5.D.1.a is to ensure the RCIC System can supply the required flow rate at a high pressure condition. This change reduces the upper pressure limit for the high pressure quarterly RCIC test. While the RCIC System is designed to operate at pressures as high as 1120 psig, this test is normally performed during MODE 1 operation, and if the reactor steam dome pressure were increased to 1120 psig the reactor would scram (i.e., the reactor pressure scram Allowable Value is 1120 psig). This change is acceptable because the proposed range is consistent with normal unit operating steam dome pressures and the proposed maximum allowed reactor steam dome pressure limit allowed in ITS LCO 3.4.10. This change is designated as more restrictive because it reduces the upper pressure limit from 1120 psig to 1025.3 psig.

M.2 ITS SR 3.5.3.1 requires verification that each RCIC System manual, power operated, and automatic valve in the flow path, that is not locked, sealed, or otherwise secured in position is in the correct position every 31 days. This Surveillance is not in the CTS. This changes the CTS by adding a new Surveillance Requirement to the Technical Specifications.

DISCUSSION OF CHANGES
ITS 3.5.3, REACTOR CORE ISOLATION COOLING (RCIC) SYSTEM

The purpose of ITS SR 3.5.3.1 is to provide assurance that the proper flow paths will exist for RCIC System operation. This change is acceptable because it provides additional assurance that the RCIC System will be capable of performing its function. This change is designated as more restrictive because it adds a Surveillance Requirement to the CTS.

RELOCATED SPECIFICATIONS

None

REMOVED DETAIL CHANGES

LA.1 *(Type 3 – Removing Procedural Details for Meeting TS Requirements or Reporting Requirements)* CTS 4.5.D.2 requires the performance of a simulated automatic actuation test of the RCIC System that includes RCIC transfer to the suppression pool and automatic restart on subsequent low reactor water level. ITS SR 3.5.3.4 requires the verification that RCIC actuates on an actual or simulated automatic initiation signal. This changes the CTS by moving the detail that the test verification must include "RCIC transfer to the suppression pool and automatic restart on subsequent low reactor water level" to the ITS Bases. The change to allow an actual signal is discussed in DOC L.2.

The removal of these details for performing Surveillance Requirements from the Technical Specifications is acceptable because this type of information is not necessary to be included in the Technical Specifications to provide adequate protection of public health and safety. The ITS still retains the requirement to verify that the RCIC System actuates on an actual or simulated automatic initiation signal. Also, this change is acceptable because the removed information will be adequately controlled in the ITS Bases. Changes to the Bases are controlled by the Technical Specification Bases Control Program in Chapter 5 of the ITS. This program provides for the evaluation of changes to ensure the Bases are properly controlled. This change is designated as a less restrictive removal of detail change because information relating to procedural details for meeting TS requirements is being removed from the Technical Specifications.

LESS RESTRICTIVE CHANGES

L.1 *(Category 3 – Relaxation of Completion Time)* If the RCIC System is not restored within 14 days, or the RCIC System and HPCI System are concurrently inoperable, CTS 3.5.D.4 requires an orderly shutdown of the reactor to be initiated and the reactor shall be placed in a condition in which the affected equipment is not required to be OPERABLE within 24 hours. ITS 3.5.3 ACTION B requires the reactor to be in MODE 3 in 12 hours and to reduce reactor steam dome pressure to $\leq$ 150 psig within 36 hours. This changes the CTS by adding a requirement to be in MODE 3 in 12 hours and by extending the time the unit must be out of the Applicability of the Specification from 24 hours to 36 hours.

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DISCUSSION OF CHANGES
ITS 3.5.3, REACTOR CORE ISOLATION COOLING (RCIC) SYSTEM

The purpose of CTS 3.5.D.4 is to place the unit outside of the Applicability of the inoperable system within a reasonable amount of time. This change is acceptable because the Completion Time is consistent with safe operation under the specified Condition, considering the OPERABLE status of the redundant systems or features. This includes the capacity and capability of remaining systems or features, a reasonable time for repairs or replacement, and the low probability of a transient occurring during the allowed Completion Time. This change is also acceptable because it requires the unit to be in an intermediate condition (MODE 3) sooner than is currently required. This portion of the change reduces the amount of time the unit would be allowed to continue to operate in MODES 1 and 2 once the condition is identified. In addition, the time allowed for reactor cooldown to $\leq$ 150 psig is extended from 24 hours to 36 hours. The allowed Completion Times are reasonable, based on operating experience, to reach the required unit conditions from full power conditions in an orderly manner and without challenging unit systems. This change is designated as less restrictive because additional time is allowed to place the unit outside the Applicability of the RCIC System than is allowed in the CTS.

L.2 *(Category 6 – Relaxation Of Surveillance Requirement Acceptance Criteria)* CTS 4.5.D.2 requires the performance of a simulated automatic actuation test of the RCIC System. ITS SR 3.5.3.4 requires the verification that the RCIC System actuates on an actual or simulated automatic initiation signal. This changes the CTS by explicitly allowing the use of either an actual or simulated signal for the test.

The purpose of CTS 4.5.D.2 is to ensure that the RCIC components operate correctly upon receipt of an actuation signal. This change is acceptable because it has been determined that the relaxed Surveillance Requirement acceptance criteria are not necessary for verification that the equipment used to meet the LCO can perform its required functions. Equipment cannot discriminate between an "actual," "simulated," or "test" signal and, therefore, the results of the testing are unaffected by the type of signal used to initiate the test. This change allows taking credit for an unplanned actuation if sufficient information is collected to satisfy the Surveillance test requirements. The change also continues to allow a simulated signal to be used, if necessary. This change is designated as less restrictive because less stringent Surveillance Requirements are being applied in the ITS than were applied in the CTS.

Improved Standard Technical Specifications (ISTS) Markup and Justification for Deviations (JFDs)

CTS

3.5 EMERGENCY CORE COOLING SYSTEM (ECCS) AND REACTOR CORE ISOLATION COOLING SYSTEM (RCIC)

3.5.D 3.5.3 RCIC System

3.5.D.1 LCO 3.5.3 The RCIC System shall be OPERABLE.

3.5.D.1 APPLICABILITY: MODE 1,
MODES 2 and 3 with reactor steam dome pressure > [150] psig. (1)

ACTIONS

DOC A.2 NOTE
LCO 3.0.4.b is not applicable to the RCIC System. (2)

CONDITION	REQUIRED ACTION		COMPLETION TIME
3.5.D.2 A. RCIC System inoperable.	A.1	Verify by administrative means High Pressure Coolant Injection System is OPERABLE.	Immediately
	AND		
	A.2	Restore RCIC System to OPERABLE status.	14 days
3.5.D.4 B. Required Action and associated Completion Time not met.	B.1	Be in MODE 3.	12 hours
	AND		
	B.2	Reduce reactor steam dome pressure to ≤ [150] psig.	36 hours (1)

CTS

SURVEILLANCE REQUIREMENTS

	SURVEILLANCE		FREQUENCY	
	SR 3.5.3.1	Verify the RCIC System piping is filled with water from the pump discharge valve to the injection valve.	31 days	4
DOC M.2	SR 3.5.3.2 (1)	Verify each RCIC System manual, power operated, and automatic valve in the flow path, that is not locked, sealed, or otherwise secured in position, is in the correct position.	31 days	4
4.5.D.1, 4.5.D.1.a	SR 3.5.3.3 (2)	----------NOTE---------- Not required to be performed until 12 hours after reactor steam pressure and flow are adequate to perform the test. ----------	In accordance with the Inservice Testing Program (3)	4
		Verify, with [reactor pressure] ≤ [1020] (1025.3) psig and ≥ [920] (950) psig, the RCIC pump can develop a flow rate ≥ [400] gpm [against a system head corresponding to reactor pressure].	92 days	1
4.5.D.1, 4.5.D.1.b	SR 3.5.3.4 (3)	----------NOTE---------- Not required to be performed until 12 hours after reactor steam pressure and flow are adequate to perform the test. ----------		4
		Verify, with [reactor pressure] ≤ [165] psig, the RCIC pump can develop a flow rate ≥ [400] gpm [against a system head corresponding to reactor pressure].	[18] (24) months	1
4.5.D.2	SR 3.5.3.5 (4)	----------NOTE---------- Vessel injection may be excluded. ----------		4
		Verify the RCIC System actuates on an actual or simulated automatic initiation signal.	[18] (24) months	1

JUSTIFICATION FOR DEVIATIONS
ITS 3.5.3, REACTOR CORE ISOLATION COOLING (RCIC) SYSTEM

1. The brackets have been removed and the proper plant specific information/value has been provided.

2. Typographical/grammatical error corrected.

3. The Frequency of ISTS SR 3.5.3.3 (ITS SR 3.5.3.3), the RCIC high pressure flow test, has been changed from "92 days" to "In accordance with the Inservice Testing Program." While CTS 4.5.D.1.a uses the term "quarterly," it also uses the term "in accordance with the Inservice Testing Program." Since the two Frequencies are the same, the Frequency in ITS SR 3.5.3.3 has been stated as "In accordance with the Inservice Testing Program."

4. ISTS SR 3.5.3.1 requires a verification that the RCIC System piping is filled with water from the pump discharge valve to the injection valve every 31 days. The ISTS SR 3.5.3.1 Bases states that an acceptable method of ensuring the line is full is to vent at the high points. At Monticello, there is no high point vent on the discharge piping of the RCIC System. There are no known documented cases of water hammer events on RCIC System initiation at Monticello. Furthermore, Monticello monitors the discharge piping temperature between the two injection valves. An increase in temperature would alert the Operations staff that there is a potential of a leaking discharge isolation valve, which could result in a water vapor void. Therefore, this SR, which is not in the Monticello CTS, has not been adopted. Subsequent SRs have been renumbered.

Improved Standard Technical Specifications (ISTS) Bases Markup and Justification for Deviations (JFDs)

B 3.5 EMERGENCY CORE COOLING SYSTEM (ECCS) AND REACTOR CORE ISOLATION COOLING (RCIC) SYSTEM

B 3.5.3 RCIC System

BASES

BACKGROUND

The RCIC System is not part of the ECCS; however, the RCIC System is included with the ECCS section because of their similar functions.

The RCIC System is designed to operate either automatically or manually following reactor pressure vessel (RPV) isolation accompanied by a loss of coolant flow from the feedwater system to provide adequate core cooling and control of the RPV water level. Under these conditions, the High Pressure Coolant Injection (HPCI) and RCIC systems perform similar functions. The RCIC System design requirements ensure that the criteria of Reference 1 are satisfied.

The RCIC System (Ref. 2) consists of a steam driven turbine pump unit, piping, and valves to provide steam to the turbine, as well as piping and valves to transfer water from the suction source to the core via the feedwater system line, where the coolant is distributed within the RPV through the feedwater sparger. Suction piping is provided from the condensate storage tank (CST) and the suppression pool. Pump suction is normally aligned to the CST to minimize injection of suppression pool water into the RPV. However, if the CST water supply is low, or the suppression pool level is high, an automatic transfer to the suppression pool water source ensures a water supply for continuous operation of the RCIC System. The steam supply to the turbine is piped from a main steam line upstream of the associated inboard main steam line isolation valve.

The RCIC System is designed to provide core cooling for a wide range of reactor pressures [165 psig to 1155 psig]. Upon receipt of an initiation signal, the RCIC turbine accelerates to a specified speed. As the RCIC flow increases, the turbine control valve is automatically adjusted to maintain design flow. Exhaust steam from the RCIC turbine is discharged to the suppression pool. A full flow test line is provided to route water from and to the CST to allow testing of the RCIC System during normal operation without injecting water into the RPV.

BASES

BACKGROUND (continued)

The RCIC pump is provided with a minimum flow bypass line, which discharges to the suppression pool. The valve in this line automatically opens to prevent pump damage due to overheating when other discharge line valves are closed. To ensure rapid delivery of water to the RPV and to minimize water hammer effects, the RCIC System discharge piping is kept full of water. The RCIC System is normally aligned to the CST. The height of water in the CST is sufficient to maintain the piping full of water up to the first isolation valve in the discharge piping. The relative height of the feedwater line connection for RCIC is such that the water in the feedwater lines keeps the remaining portion of the RCIC discharge line full of water. Therefore, RCIC does not require a "keep fill" system.

APPLICABLE SAFETY ANALYSES	The function of the RCIC System is to respond to transient events by providing makeup coolant to the reactor. The RCIC System is not an Engineered Safety Feature System and no credit is taken in the safety analyses for RCIC System operation. The RCIC System satisfies Criterion 4 of 10 CFR 50.36(c)(2)(ii).
LCO	The OPERABILITY of the RCIC System provides adequate core cooling such that actuation of any of the low pressure ECCS subsystems is not required in the event of RPV isolation accompanied by a loss of feedwater flow. The RCIC System has sufficient capacity for maintaining RPV inventory during an isolation event.
APPLICABILITY	The RCIC System is required to be OPERABLE during MODE 1, and MODES 2 and 3 with reactor steam dome pressure > 150 psig, since RCIC is the primary non-ECCS water source for core cooling when the reactor is isolated and pressurized. In MODES 2 and 3 with reactor steam dome pressure ≤ 150 psig, and in MODES 4 and 5, RCIC is not required to be OPERABLE since the low pressure ECCS injection/spray subsystems can provide sufficient flow to the RPV.
ACTIONS	A Note prohibits the application of LCO 3.0.4.b to an inoperable RCIC System. There is an increased risk associated with entering a MODE or other specified condition in the Applicability with an inoperable RCIC System and the provisions of LCO 3.0.4.b, which allow entry into a MODE or other specified condition in the Applicability with the LCO not met after performance of a risk assessment addressing inoperable systems and components, should not be applied in this circumstance.

BASES

ACTIONS (continued)

A.1 and A.2

immediately

If the RCIC System is inoperable during MODE 1, or MODE 2 or 3 with reactor steam dome pressure > [150] psig, and the HPCI System is verified to be OPERABLE, the RCIC System must be restored to OPERABLE status within 14 days. In this condition, loss of the RCIC System will not affect the overall plant capability to provide makeup inventory at high reactor pressure since the HPCI System is the only high pressure system assumed to function during a loss of coolant accident (LOCA). OPERABILITY of HPCI is therefore verified immediately when the RCIC System is inoperable. This may be performed as an administrative check, by examining logs or other information, to determine if HPCI is out of service for maintenance or other reasons. It does not mean it is necessary to perform the Surveillances needed to demonstrate the OPERABILITY of the HPCI System. If the OPERABILITY of the HPCI System cannot be verified, however, Condition B must be immediately entered. For transients and certain abnormal events with no LOCA, RCIC (as opposed to HPCI) is the preferred source of makeup coolant because of its relatively small capacity, which allows easier control of the RPV water level. Therefore, a limited time is allowed to restore the inoperable RCIC to OPERABLE status.

The 14 day Completion Time is based on a reliability study (Ref. [2]) that evaluated the impact on ECCS availability, assuming various components and subsystems were taken out of service. The results were used to calculate the average availability of ECCS equipment needed to mitigate the consequences of a LOCA as a function of allowed outage times (AOTs). Because of similar functions of HPCI and RCIC, the AOTs (i.e., Completion Times) determined for HPCI are also applied to RCIC.

B.1 and B.2

If the RCIC System cannot be restored to OPERABLE status within the associated Completion Time, or if the HPCI System is simultaneously inoperable, the plant must be brought to a condition in which the LCO does not apply. To achieve this status, the plant must be brought to at least MODE 3 within 12 hours and reactor steam dome pressure reduced to ≤ [150] psig within 36 hours. The allowed Completion Times are reasonable, based on operating experience, to reach the required plant conditions from full power conditions in an orderly manner and without challenging plant systems.

BASES

SURVEILLANCE REQUIREMENTS

SR 3.5.3.1

The flow path piping has the potential to develop voids and pockets of entrained air. Maintaining the pump discharge line of the RCIC System full of water ensures that the system will perform properly, injecting its full capacity into the Reactor Coolant System upon demand. This will also prevent a water hammer following an initiation signal. One acceptable method of ensuring the line is full is to vent at the high points. The 31 day Frequency is based on the gradual nature of void buildup in the RCIC piping, the procedural controls governing system operation, and operating experience. (5)

SR 3.5.3.2 (1) (5)

Verifying the correct alignment for manual, power operated, and automatic valves in the RCIC flow path provides assurance that the proper flow path will exist for RCIC operation. This SR does not apply to valves that are locked, sealed, or otherwise secured in position since these valves were verified to be in the correct position prior to locking, sealing, or securing. A valve that receives an initiation signal is allowed to be in a nonaccident position provided the valve will automatically reposition in the proper stroke time. This SR does not require any testing or valve manipulation; rather, it involves verification that those valves capable of potentially being mispositioned are in the correct position. This SR does not apply to valves that cannot be inadvertently misaligned, such as check valves. For the RCIC System, this SR also includes the steam flow path for the turbine and the flow controller position.

The 31 day Frequency of this SR was derived from the Inservice Testing Program requirements for performing valve testing at least once every 92 days. The Frequency of 31 days is further justified because the valves are operated under procedural control and because improper valve position would affect only the RCIC System. This Frequency has been shown to be acceptable through operating experience.

SR 3.5.3.3 (2) and SR 3.5.3.4 (3) (5)

The RCIC pump flow rates ensure that the system can maintain reactor coolant inventory during pressurized conditions with the RPV isolated. The flow tests for the RCIC System are performed at two different pressure ranges such that system capability to provide rated flow is tested both at the higher and lower operating ranges of the system. Additionally, adequate steam flow must be passing through the main (4) (1)

against a system head corresponding to reactor pressure

Adequate reactor steam pressure must be available to perform these tests. (3)

The required system head should overcome the RPV pressure and associated discharge line losses. (1)

BASES

SURVEILLANCE REQUIREMENTS (continued)

turbine or turbine bypass valves to continue to control reactor pressure when the RCIC System diverts steam flow. Reactor steam pressure must be ≥ [920] psig to perform SR 3.5.3.3 and ≥ [150] psig to perform SR 3.5.3.4. Adequate steam flow is represented by at least 1/25 turbine bypass valves open or total steam flow ≥ 10^6 lb/hr. Therefore, sufficient time is allowed after adequate pressure and flow are achieved to perform these SRs. Reactor startup is allowed prior to performing the low pressure Surveillance because the reactor pressure is low and the time allowed to satisfactorily perform the Surveillance is short. The reactor pressure is allowed to be increased to normal operating pressure since it is assumed that the low pressure Surveillance has been satisfactorily completed and there is no indication or reason to believe that RCIC is inoperable. Therefore, these SRs are modified by Notes that state the Surveillances are not required to be performed until 12 hours after the reactor steam pressure and flow are adequate to perform the test. INSERT 1

A 92 day Frequency for SR 3.5.3.3 is consistent with the Inservice Testing Program requirements. The 18 month Frequency for SR 3.5.3.4 is based on the need to perform the Surveillance under conditions that apply just prior to or during a startup from a plant outage. Operating experience has shown that these components usually pass the SR when performed at the 18 month Frequency, which is based on the refueling cycle. Therefore, the Frequency was concluded to be acceptable from a reliability standpoint.

SR 3.5.3.5

The RCIC System is required to actuate automatically in order to verify its design function satisfactorily. This Surveillance verifies that, with a required system initiation signal (actual or simulated), the automatic initiation logic of the RCIC System will cause the system to operate as designed, including actuation of the system throughout its emergency operating sequence, that is, automatic pump startup and actuation of all automatic valves to their required positions. This test also ensures the RCIC System will automatically restart on an RPV low water level (Level 2) signal received subsequent to an RPV high water level (Level 8) trip and that the suction is automatically transferred from the CST to the suppression pool. The LOGIC SYSTEM FUNCTIONAL TEST performed in LCO 3.3.5.2 overlaps this Surveillance to provide complete testing of the assumed safety function. INSERT 2 INSERT 3 INSERT 4

3 **INSERT 1**

The 12 hours allowed for performing the flow test after the required pressure and flow are reached is sufficient to achieve stable conditions for testing and provides reasonable time to complete the SRs.

3 **INSERT 2**

Reactor Vessel Water Level - Low Low

3 **INSERT 3**

Reactor Vessel Water Level - High

1 **INSERT 4**

on a Condensate Storage Tank Level - Low signal

BASES

SURVEILLANCE REQUIREMENTS (continued)

The 18 month Frequency is based on the need to perform the Surveillance under the conditions that apply during a plant outage and the potential for an unplanned transient if the Surveillance were performed with the reactor at power. Operating experience has shown that these components usually pass the SR when performed at the 18 month Frequency, which is based on the refueling cycle. Therefore, the Frequency was concluded to be acceptable from a reliability standpoint.

This SR is modified by a Note that excludes vessel injection during the Surveillance. Since all active components are testable and full flow can be demonstrated by recirculation through the test line, coolant injection into the RPV is not required during the Surveillance.

REFERENCES

1. 10 CFR 50, Appendix A, GDC 33.
2. FSAR, Section 5.5.6.
8. Memorandum from R.L. Baer (NRC) to V. Stello, Jr. (NRC), "Recommended Interim Revisions to LCOs for ECCS Components," December 1, 1975.

JUSTIFICATION FOR DEVIATIONS
ITS 3.5.3 BASES, REACTOR CORE ISOLATION COOLING (RCIC) SYSTEM

1. Changes have been made (additions, deletions, and/or changes to the NUREG) to reflect the plant specific nomenclature, number, reference, system description, analysis description, or licensing basis description.

2. The brackets have been removed and the proper plant specific information/value has been provided.

3. Editorial change made for enhanced clarity or to be consistent with similar statements in other places in the Bases.

4. Changes have been made to reflect the Specification.

5. Changes have been made to reflect those changes made to the Specification. The following requirements have been renumbered, where applicable, to reflect the changes.

6. Typographical/grammatical error corrected.

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Specific No Significant Hazards Considerations (NSHCs)

DETERMINATION OF NO SIGNIFICANT HAZARDS CONSIDERATIONS
ITS 3.5.3, REACTOR CORE ISOLATION COOLING (RCIC) SYSTEM

There are no specific NSHC discussions for this Specification.

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