NSHD Category	Change Number 3.4-	Discussion of Change
	80	Not used.
M	81	CTS 3.1.D.2.a. In accordance with the guidance of NUREG-1431, verification that the limits of Figure TS.3.1-3 (ITS Figure 3.4.17-1) are met shall be performed every 4 hours. Since CTS do not specify a time frequency, this is a more restrictive change. This change is acceptable since it will assure that the limits are met on a timely basis and it does not introduce any unsafe plant operating conditions.
L	82	CTS 3.1.C.3 and Table 4.1-2B, Item 4a. CTS RCS specific activity limits when the RCS temperature is below 500°F and above cold shutdown have not been retained. The purpose of Specification 3.4.17 is to limit SGTR releases to a small fraction of 10CFR100 limits. This change is acceptable because below 500°F the release of radioactivity in the event of a SGTR is unlikely since the saturation pressure of the reactor coolant is below the lift pressure settings of the main stream safety valves. Since this change would not retain CTS requirements it is less restrictive on plant operations. This change is consistent with the guidance of NUREG-1431.

NSHD Category	Change Number 3.4-	Discussion of Change
A	83	CTS 3.3.A.3 and 3.3.A.4. For clarity and to be consistent with the guidance of NUREG-1431, "MODE 4, MODE 5 when the SG primary system manways and pressurizer manway are closed and secured in position, and MODE 6 when the reactor vessel head is on and the SG primary system manways and pressurizer manway are closed and secured in position." have been included in the description of when this specification is applicable. This is an administrative change since the plant is by definition in MODE 4 when the RCS temperature meets the criteria for the OPPS enable temperature.
M	84	CTS Table 4.1-1C, Item 25. For consistency with NUREG-1431, the functional test of the low temperature overpressure protection system will be performed monthly when the RCS temperature is below the LTOP enable temperature. Since CTS require this test each refueling outage, this is a more restrictive requirement. This change will provide additional assurance that the LTOP system will perform as required and is consistent with the surveillance interval for instrumentation providing similar plant protection.
M	85	Table 4.1-1C, Note 38. CTS do not specify a time frame within which this SR must be in compliance. Since ITS includes a time limit of 12 hours, this is a more restrictive change. This change conforms to the guidance of NUREG-1431 and is acceptable because it assures that the plant is maintained in a safe condition.

NSHD Category	Change Number 3.4-	Discussion of Change
L	86	CTS 4.6.C and Table 4.1-2A, Item 7. In accordance with GL 91-04, the surveillance interval for PORV functional testing and emergency pressurizer heater power supply are increased to 24 months to accommodate planned future extended reactor fuel cycles. Since this testing will occur less frequently, this is a less restrictive change. PORV functional tests were reviewed for a five year period and no problems were identified. Therefore it was concluded that an increased surveillance interval would have a minimal effect on plant safety. The emergency pressurizer heater power supply is currently tested prior to each refueling outage so that if a problem is identified it could be corrected during the ensuing outage. Review of testing experience on the emergency power supply did not identify any problems. Therefore it was concluded that an increased surveillance interval would have a minimal effect on plant safety.
L	87	CTS 4.3. This proposed change would revise the allowable PIV leakage of 1.0 gpm to 0.5 gpm per inch of nominal valve size up to 5 gpm maximum. This change is acceptable since the CTS 1.0 gpm limit imposes an unjustified limitation on larger valves. The restrictive limit, when applied to the larger valve, would require a repair effort when the relative degradation of the valve does not warrant the cost or exposure. A leakage limit based on valve size is more apt to provide meaningful information with respect to the mechanical condition of the valve, and is considered superior. This change is consistent with the guidance of NUREG-1431.

NSHD Category	Change Number 3.4-	Discussion of Change
L	88	CTS Table 4.1-2B, Item 1. The surveillance interval for RCS gross activity determination would be increased to once per week by this change in conformance with the guidance of NUREG-1431. This change is acceptable because fuel failures are most likely to occur during startup and fast power changes and not during steady state power operation during which the majority of sampling is performed. Gross fuel failures will also result in letdown radiation alarms and possibly containment radiation alarms providing additional operator indication.
	89	Not used.
	90	Not used.

NSHD Category	Change Number 3.4-	Discussion of Change
L	91	CTS Table 4.1-2B, Item 4a. The CTS requirement to sample once per 4 hours when specific activity exceeds 100 □ µCi/gram has not been included. In accordance with ITS 3.4.17 Action B, whenever this limit is not met, the plant is required to be in MODE 3 with T_{ave} < 500°F within 6 hours. Thus the requirement for sampling in 4 hours serves no useful purpose and is unnecessary. Since this change will require less sampling this change is less restrictive. This change is consistent with the guidance of NUREG-1431.
	92	Not used.
	93	Not used.
LR	94	CTS Table 4.1-2B, Items 5 and 6, and Note 2. The purpose of Specification 3.4.17, RCS Specific Activity is to limit the offsite radioactivity dose consequences from a SGTR to a small fraction of 10CFR100. This change will relocate Items 5 and 6, RCS Radiochemistry and RCS Tritium activity, from CTS Table TS.4.1-2B to the TRM since these items are not significant in limiting SGTR offsite dose and therefore should not be in TS. This is less restrictive since the TRM is under licensee control. However this change is acceptable since the TRM is under the controls of 10CFR50.59. This change conforms the PI ITS to the guidance of NUREG-1431.

NSHD Category	Change Number 3.4-	Discussion of Change
	95	Not used.
LR	96	CTS Table 4.1-2B, Item 8 and Note 4. RCS boron concentration measurement at power was not included in the ITS since RCS Chemistry does not meet the NRC Policy Statement for TS Screening Criteria and is not required to be addressed within the TS. This requirement is relocated to the TRM. While this is a less restrictive change since the TRM is under licensee control, this change is acceptable because the TRM is under the controls of 10CFR50.59. This change is consistent with the guidance of NUREG-1431.
LR	97	CTS 4.3. For consistency with NUREG-1431, the list of valves and the test methodology have been relocated to the Bases. This detailed information is not required in the TS to run the plant in a safe manner. Since ITS Bases (under the Bases Control Program in Section 5.5 of the ITS) is licensee controlled, relocation of CTS requirements to the Bases is a less restrictive change.
LR	98	CTS 4.6.C. The methodology for performing this surveillance has been relocated to the Bases. This detailed information is not required in the TS to run the plant in a safe manner. Since ITS Bases (under the Bases Control Program in Section 5.5 of the ITS) is licensee controlled, relocation of CTS requirements to the Bases is a less restrictive change.

NSHD Category	Change Number 3.4-	Discussion of Change
A	99	CTS 4.3. CTS require this SR to be performed prior to resuming power after each refueling. Since the NUREG-1431 format requires SR Frequency statement in months, this is revised to every 24 months. Since this change does not materially change the testing of these valves, this is an administrative change.
A	100	CTS 3.10.J. CTS 3.10.J states, "Compliance with c. is demonstrated by verifying that the parameter is within its limit after each refueling cycle." The parameter being referenced is the Reactor Coolant Flow which is referred to in the ITS as the RCS total flow rate. In addition, "c" states, "Reactor Coolant Flow $\geq$ the value specified in the CORE OPERATING LIMITS REPORT." These statements have been editorially changed to be more consistent with the wording of the STS SR 3.4.1.4 as follows, "Verify RCS total flow rate is within the limit specified in COLR." The CTS requires that the Frequency for this SR as "after each refueling". This Frequency has been changed to "24 months" in the ITS which is still consistent with the CTS. This change is considered to be an Administrative change since only editorial changes were made and no parameter, technical or operational changes made.

NSHD Category	Change Number 3.4-	Discussion of Change
LR	101	CTS 3.10.J. The CTS requires that an engineering evaluation be performed to determine the effects of the out-of-limit condition on the structural integrity of the RCS. This information is being relocated to the ITS Bases 3.4.3, Action A.1 and A.2 section. Therefore, besides restoring the RCS pressure and temperature to within limits, a determination will be made if the RCS is acceptable for continued operation. This is accomplished through an evaluation. The evaluation must verify the RCPB integrity remains acceptable and must be completed before continued operation. Several methods can be used, including an engineering evaluation, comparison with pre-analyzed transients in the stress analyses, new analyses, or inspection of the components. Relocating this CTS information to the Bases retains the CTS and provides additional guidance for performing this determination as required in Required Action A.2.
A	102	CTS 3.1.A.1.c.(1). The CTS states "...whenever the reactor coolant system average temperature is below 350 ^{0}F, except during REFUELING .. ." This has been changed to state in Mode 4 which is consistent with the Mode definition changes made in ITS 1.0. In MODE 4 the reactor temperature is 350 ^{0}F > T_{avg} > 200 ^{0}F. This is considered to be an Administrative change since the temperature limits stated in the CTS are the same as Mode 4. This change is consistent with NUREG-1431.

NSHD Category	Change Number 3.4-	Discussion of Change
A	103	CTS 3.1.A.1.c.(1). The CTS states "... whenever the reactor coolant system average temperature is below 350 ^{0}F, except during REFUELING .. ." This has been changed to state in Mode 5 with RCS loops filled which is consistent with the Mode definition changes made in ITS 1.0. In MODE 5 the reactor temperature is $\leq$ 200 ^{0}F. This is considered to be an Administrative change since the temperature limits stated in the CTS are the same as Mode 5. This change is consistent with NUREG-1431.
A	104	CTS 3.1.A.1.c (2). Both the CTS and ITS require two loops (methods) of decay heat removal be OPERABLE when the reactor is in MODE 4. The CTS states that with only one OPERABLE method of removing decay heat, initiate prompt action to restore two OPERABLE methods of removing decay heat. This requirement has been editorially changed to be consistent with NUREG 1431 by stating, one required loop inoperable, immediately initiate action to restore a second loop OPERABLE. The actions are the same in both the CTS and ITS in that when one loop (method) of decay heat removal is inoperable, then the second loop (method) must immediately (promptly) be restored to OPERABLE. Since the Required Actions and associated Completion Times are the same and no technical changes or operating practices were changed, this is considered to be an Administrative change.

NSHD Category	Change Number 3.4-	Discussion of Change
A	105	CTS 3.1.A.1.c (2). The CTS states that if one method of decay heat removal is inoperable and if the only remaining operable method is an RHR loop, be in Cold Shutdown within 24 hours. The ITS editorially changes this requirement such that when one required loop is inoperable, Required Action A.2 requires that the unit be placed in MODE 5 within 24 hours only if the required RHR loop is OPERABLE. The Actions and Completion Times in both the CTS and ITS are the same, no technical or operational changes have been made to this requirement, therefore this is an Administrative change.

NSHD Category	Change Number 3.4-	Discussion of Change
A	106	CTS 3.1.A.1.c (3). The CTS requires that with no methods of removing decay heat, suspend all operations involving a reduction in boron concentration of the RCS and initiate prompt action to restore one loop OPERABLE method of removing decay heat. This requirement has been editorially changed to be consistent with NUREG 1431 by stating that two required loops inoperable or required loop not in operation, suspend operations that would cause introduction into RCS coolant with boron concentration less than required to meet SDM of LCO 3.1.1 and immediately initiate action to restore one loop OPERABLE and in operation. Both the CTS and the ITS require the same actions and associated Completion Times. Both the CTS and ITS require two loops (methods) of decay heat removal. This specific action is for when both loops (methods) of decay heat removal are inoperable. In both cases, the primary action is to suspend actions that might reduce RCS coolant boron concentration. The ITS is more specific by referring to SDM as stated in LCO 3.1.1 whereas the CTS does not specifically refer to the TS LCO but the required actions and intent are the same as the ITS. The Completion Times in both the CTS and ITS are the same. In addition, both the CTS and ITS require that a loop (method) of decay heat removal be restored to OPERABLE status. The CTS requires prompt action whereas the ITS uses the phrase immediate action. Both terms mean the same at PI. Based on the above, this is considered to be an Administrative change since no technical or operational changes are being made to the CTS.

NSHD Category	Change Number 3.4-	Discussion of Change
A	107	CTS 3.1.A.1.c.(1). The CTS requires that two methods for decay heat removal be OPERABLE with one in operation. The CTS further states that acceptable methods for removing decay heat are at least one reactor coolant pump (RCP) and its associated steam generator (SG), or residual heat removal (RHR) loop including a pump and its associated heat exchanger. As stated in DOC LR3.4-24, the RCS loop consists of the RCP and associated SG. In addition, the RHR loop consists of the RHR pump and associated heat exchanger. Therefore, the ITS uses the RHR loop and RCP loop instead of all the associated components. Even though the components are not specifically mentioned in the LCO, they are included in the definitions of loop. The CTS also states that two acceptable methods of decay heat removal are needed and provide those acceptable methods. The intent is that any of the two methods identified are acceptable. This has been changed in the ITS to state that two loops consisting of any combination of the RHR loops or RCS loops are the acceptable methods. This is only an editorial change in that the both the CTS and ITS allow the use of the same decay heat removal system or a combination of the two to meet the LCO requirements. Therefore, this is considered to be an Administrative change.

NSHD Category	Change Number 3.4-	Discussion of Change
	108	Not used.

NSHD Category	Change Number 3.4-	Discussion of Change
L	109	CTS 3.1.A.2.b(1). CTS 3.1.A.2.b(1) requires two RCS pressurizer safety valves (PSVs) to be operable when the RCS temperature is > 350°F. This change will require two RCS PSVs to be operable whenever both RCS cold leg temperatures are greater than the OPPS enable temperature specified in the PTLR. This change is consistent with the guidance of NUREG-1431 and will provide additional overpressure protection when the RCS is between 350°F and the OPPS enable temperature. Per the ITS, in the event that an inoperable PSV cannot be restored to OPERABLE status within 15 minutes or if both PSVs are inoperable, the unit must be placed in MODE 3 within 6 hours and in MODE 4 with any RCS cold leg temperatures ≤ the OPPS enable temperature specified in the PTLR in 24 hours. The CTS requires the plant to be below 350 degrees F within 12 hours. Increasing the Completion Time from 12 hours to 24 hours is considered to be a less restrictive change. 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. With any RCS cold leg temperatures at or below the OPPS enable temperature specified in the PTLR, overpressure protection is provided by the LTOP function. This Completion Time change is consistent with the guidance of NUREG-1431 as modified by approved traveler TSTF-352, Revision 1. These changes are acceptable because they will not cause any unsafe plant operating or testing conditions.

NSHD Category	Change Number 3.4-	Discussion of Change
A	110	CTS 3.1.A.2.c (1) (b) 4. CTS and ITS LCO 3.4.11, Condition C both require that with one block valve inoperable, place its associated PORV in manual control within 1 hour and restore the block valve to OPERABLE status within 72 hours. The ITS provides additional clarification by adding a Note stating that the Required Actions C.1 and C.2 do not apply if sole reason for the block valves being declared inoperable is as a result of power being removed to comply with other Required Actions. In this event, the Required Actions for inoperable PORV(s) are adequate to address the conditions. Even though not specifically stated, the intent and required operational practices stated in the ITS are the same as the CTS. Since there are no operational or technical changes associated, this is considered to be an Administrative change. Making an editorial change to the CTS by specifically adding the Note for clarification also supports this change as Administrative.
A	111	CTS 3.1.A.2.c (1) (b) 5. CTS and ITS LCO 3.4.11, Condition F both require that with both block valves inoperable, restore one block valve to OPERABLE status within 2 hours. The ITS provides additional clarification by adding a Note stating that the Required Action F.1 does not apply if sole reason for the block valves being declared inoperable is as a result of power being removed to comply with other Required Actions. In this event, the Required Actions for inoperable PORV(s) are adequate to address the conditions. Even though not specifically stated, the intent and required operational practices stated in the ITS are the same as the CTS. Since there are no operational or technical changes associated, this is considered to be an Administrative change. Making an editorial change to the CTS by specifically adding the Note for clarification also supports this change as Administrative.

NSHD Category	Change Number 3.4-	Discussion of Change
A	112	CTS Table 4.1-2A Item 9. CTS Item 9 requires that the Primary System Leakage be evaluated daily. A Note has been added stating that this evaluation is not required to be performed until 12 hours after establishment of steady state operation. The RCS water inventory balance must be met with the reactor at steady state operating condition (stable temperature, power level, equilibrium xenon, pressurizer and makeup tank levels, makeup and letdown, and RCP seal injection and return flows). Therefore, this SR Note does not require the performance of this SR until 12 hours after establishing steady state operation. The 12 hour allowance provides sufficient time to collect and process all necessary data after stable plant conditions are established. Performance of this SR at steady state conditions is standard PI operating practice and consistent with the intent of the CTS. Since this SR Note only provides clarification for CTS requirements, this change is considered to be an Administrative change.
A	113	CTS Table 4.1-2A, Item 6. CTS requires that the Pressurizer PORV Block Valves be functionally tested every 92 days. The ITS adds a note stating that this test only be required to be performed in Modes 1 and 2. This Note allows entry into Mode and operation in Mode 3 prior to performing the SR. This allows the test to be performed under operating temperatures and pressures. This is considered to be an Administrative change since this is consistent with current operating practices and the intent of the CTS. In addition, no technical nor operational changes are made as a result of this Note.

NSHD Category	Change Number 3.4-	Discussion of Change
A	114	CTS Table 4.1-2A, Item 7. CTS requires that the PORVs be functionally tested every 18 months. The ITS adds a note stating that this test only be required to be performed in Modes 1 and 2. This Note allows entry into Mode and operation in Mode 3 prior to performing the SR. This allows the test to be performed under operating temperatures and pressures. This is considered to be an Administrative change since this is consistent with current operating practices and the intent of the CTS. In addition, no technical nor operational changes are made as a result of this Note.
	115	Not used.
	116	Not used.
M	117	CTS Table 4.1-2.B, Note 1. Note 1 states that a sample is to be taken after a minimum of 2 EFPD and 20 days of POWER OPERATION have elapsed since reactor was last subcritical for 48 hours or longer. The ITS Note states that the SR is not required to be performed until 31 days after a minimum of 2 EFPD and 20 days of MODE 1 operation have elapsed since the reactor was last subcritical for $\geq$ 48 hours. The CTS does not have specific time limit of 31 days to perform the SR, therefore making this a more restrictive change. The 31 days is acceptable since it further ensures that the radioactive materials are at equilibrium so the analysis for E is representative and not skewed by a crud burst or other similar abnormal event.

NSHD Category	Change Number 3.4-	Discussion of Change
L	118	CTS 3.1.A.1.b(3)(a). The CTS requires that with both reactor coolant pumps inoperable or not in operation, immediately "de-energize all control rod drive mechanisms, and ... ." ISTS LCO 3.4.5, Required Action D.1 requires that if two RCS loops are inoperable or required RCS loops are not in operation, immediately place the control rod drive system in a condition incapable of rod withdrawal. This is considered to be a Less Restrictive change since the CTS only allows for de-energization of the control rod drive system, whereas, the ISTS allows for various methods of making the control rod drive system incapable of rod withdrawal. The overall intent, assuring that control rods can not be withdrawn and thereby increase any potential heat input to the reactor coolant is maintained. Since the revised Actions still assure rod withdrawal is precluded, details of specifically stating de-energization of the control rod drive system is not necessary nor required to provide adequate protection of the public health and safety. The requirement that the control rods are inserted and are not capable of being withdrawn is also maintained. This change allows alternate options to preclude rod withdrawal. These options are necessary to allow testing. This Less Restrictive change provides several options to assure that the control rods are not capable to withdraw. This change is consistent with the guidance provided by NUREG-1431 and TSTF-87, Rev. 2.
	119	Not used.

NSHD Category	Change Number 3.4-	Discussion of Change
A	120	CTS 3.1.A.1.c (2). Both the CTS and ITS require two loops (methods) of decay heat removal be OPERABLE when the reactor is in MODE 5. The CTS states that with only one OPERABLE method of removing decay heat, initiate prompt action to restore two OPERABLE methods of removing decay heat. Although not specifically stated, the methods for decay heat removal can be a combination of two RHR loops or a RHR loop and a SG. This is also true in the ITS. The CTS requirement has been editorially changed to be consistent with NUREG 1431 by stating, one required loop inoperable and one RHR loop OPERABLE, immediately initiate action to restore a second loop to OPERABLE status. The actions are the same in both the CTS and ITS in that when one loop (method) of decay heat removal is inoperable, then the second loop (method) must immediately (promptly) be restored to OPERABLE. Another option of restoring adequate decay heat removal is ensuring that the SGs secondary side water level is adequate so they are capable of decay heat removal. The only difference between the CTS and ITS is that the ITS specifically identifies the methods for ensuring decay heat removal, whereas the CTS is not as specific even though it has the same intent. Since the Required Actions and associated Completion Times are the same and no technical changes or operating practices were changed, this is considered to be an Administrative change.

NSHD Category	Change Number 3.4-	Discussion of Change
A	121	CTS 3.1.A.1.c (2). Both the CTS and ITS require two loops (methods) of decay heat removal be OPERABLE when the reactor is in MODE 5. The CTS states that with only one OPERABLE method of removing decay heat, initiate prompt action to restore two OPERABLE methods of removing decay heat. Although not specifically stated, the methods for decay heat removal can be a combination of two RHR loops or a RHR loop and a SG. This is also true in the ITS. The CTS requirement has been editorially changed to be consistent with NUREG 1431 by stating, one or more SGs not capable of decay heat removal and one RHR loop OPERABLE, immediately initiate action to restore a second loop to OPERABLE status or initiate action to restore the required SG capable to remove decay heat. The actions are the same in both the CTS and ITS in that when one loop (method) of decay heat removal is inoperable, than the second loop (method) must immediately (promptly) be restored to OPERABLE. Another option of restoring adequate decay heat removal is ensuring that the SGs secondary side water level is adequate so it is capable of decay heat removal. The only difference between the CTS and ITS is that the ITS specifically identifies the methods for ensuring decay heat removal, whereas the CTS is not as specific even though it has the same intent. Since the Required Actions and associated Completion Times are the same and no technical changes or operating practices were changed, this is considered to be an Administrative change.

NSHD Category	Change Number 3.4-	Discussion of Change
A	122	CTS 3.1.A.1.c (3). The CTS requires that with no methods of removing decay heat, suspend all operations involving a reduction in boron concentration of the RCS and initiate prompt action to restore one loop OPERABLE method of removing decay heat. This requirement has been editorially changed to be consistent with NUREG 1431 by stating that two required loops inoperable or required loop not in operation, suspend operations that would cause introduction into RCS coolant with boron concentration less than required to meet SDM of LCO 3.1.1 and immediately initiate action to restore one loop OPERABLE and in operation. Both the CTS and the ITS require the same actions and associated Completion Times. Both the CTS and ITS require two loops (methods) of decay heat removal. This specific action is for when both loops (methods) of decay heat removal are inoperable. In both cases, the primary action is to suspend actions that might reduce RCS coolant boron concentration. The ITS is more specific by referring to SDM as stated in LCO 3.1.1 whereas the CTS does not specifically refer to the TS LCO but the required actions and intent are the same as the ITS. The Completion Times in both the CTS and ITS are the same. In addition, both the CTS and ITS require that a loop (method) of decay heat removal be restored to OPERABLE status. The CTS requires prompt action whereas the ITS uses the phrase immediate action. Both terms mean the same at PI. Based on the above, this is considered to be an Administrative change since no technical or operational changes are being made to the CTS.

NSHD Category	Change Number 3.4-	Discussion of Change
M	123	CTS 3.1.A.2.c (1) (b) 5. The CTS requires that with both block valves inoperable, within one hour either restore the block valve to OPERABLE or place the PORVs in manual control. The ITS requires that the block valves be restored to OPERABLE and does not provide an alternate option of placing the PORVs in manual. This option has been deleted from the CTS. Although in the CTS, due to the short Completion Time of placing the PORVs in manual in addition to restoring the block valve to OPERABLE status within the next hour, placing the PORVs in manual is not a commonly utilized action. Since the ITS does not include this option, deleting additional flexibility is a More Restrictive change. Deleting the action of placing the PORVs in manual control when both block valves are inoperable, does not reduce the safety or operation of the plant since the ultimate action is to either restore the block valve to OPERABLE status within the next hour (2 hours total) or initiate a reactor shutdown. In addition, if a block valve cannot be restored to OPERABLE within 2 hours the plant will be required to be in MODE 3 in 6 hours and MODE 4 in 12 hours. When the plant is shutting down, the PORVs will be needed for Temperature Over Pressure Protection. Therefore, the PORVs should not be placed in manual. The CTS Completion Time of a total of 2 hours to restore an inoperable block valve, when both are inoperable, is consistent with NUREG-1431.

NSHD Category	Change Number 3.4-	Discussion of Change
A	124	CTS Table 4.1-2.B Item 3. The CTS requires that the RCS Radiochemistry and E determination test be preformed once per 6 months when the reactor is at power. This is also annotated with a footnote that states, "Sample to be taken after a minimum of 2 EFPD and 20 days of POWER OPERATION have elapsed since reactor was last subcritical for 48 hours or longer." The ITS has editorially revised the CTS SR and associated footnote to state, "Determine E from a sample taken in MODE 1 after a minimum of 2 effective full power days and 20 days of MODE 1 operation have elapsed since the reactor was last subcritical for $\geq$ 48 hours." The only changes made are that the ITS combines the CTS SR and footnote, and the CTS refers to POWER OPERATIONS vs. MODE 1 in the ITS. The CTS definition of POWER OPERATIONS is the same as MODE 1. The CTS definition of POWER OPERATIONS was revised to be consistent with MODES as documented in ITS markup of Section 1.0. Since this change is purely editorial and no technical or operational changes were made, this change is considered to be an Administrative change.
A	125	CTS Table 4.1-2.B, Item 2. The CTS requires the RCS Isotopic Analysis for DOSE EQUIVALENT I-131 Concentration test be performed once every 14 days when the reactor is at power. The ITS requires the same test to be performed at the same Frequency. However, the ITS in conformance with the ISTS contains a note that states that the SR is only required to be performed in MODE 1. This change is considered to be an Administrative change since the only change made is editorial and in presentation. The CTS has a requirement of when the reactor is at power whereas the ITS contains the same requirement but it is in a note. The CTS definition of power operation is essentially equivalent to MODE 1 in the ITS. In addition, this change does not make any technical or operational changes and is therefore considered an Administrative change.

NSHD Category	Change Number 3.4-	Discussion of Change
L	126	CTS 3.1.A.1.c.(1). The CTS requires two methods for removing decay heat with one of the methods in operation. The CTS further states that acceptable methods for removing decay heat are at least one reactor coolant pump (RCP) and its associated steam generator (SG) or a residual heat removal loop including its associated heat exchanger. DOCs A3.4-107 and LR3.4-24 document what constitutes a RCS loop or RHR loop. No other discussion on this will be discussed in this DOC. The CTS states that a RCP and its associated SG are an acceptable method whereas the ITS only requries the SG to be OPERABLE if the RHR is not used as the second method of decay heat removal. If the SG is the second method of decay heat removal, its associated RCP is not needed to be OPERABLE in order for the SG to perform its decay heat removal function. Therefore, the ITS does not require the RCP to be OPERABLE for this LCO making this a less restrictive change. This change is acceptable since the one RHR loop that is OPERABLE and in operation provides forced circulation to perform the safety functions of the reactor coolant under Mode 5, loops filled condition. An additional RHR loop is required to be OPERABLE to provide redundancy. However, if the standby RHR loop is not OPERABLE, an acceptable alternate method is a SG. The SG could be used to remove decay heat via natural circulation. This change is consistent with NUREG-1431.

NSHD Category	Change Number 3.4-	Discussion of Change
A	127	CTS3.3.A.3 (b). The CTS requires that only one SI pump may be capable of injecting into the RCS whenever the RCS temperature is less than the OPPS enable temperature specified in the PTLR except that both SI pumps may be run for up to one hour while conducting the integrated SI test** when either of the following conditions is met: (b) the reactor vessel head is removed. This statement is not being incorporated into the ITS since it is no longer applicable. In the conversion process from the CTS to the ITS, the MODES and Conditions of Applicability have been changed. The ITS provides two LCOs for the LTOP function. LCO 3.4.12 is with the MODE of Applicability in MODE 4 when any RCS cold leg temperture is greater than the SI pump disable temperature specified in the PTLR. The second LCO is 3.4.13 with the MODE of Applicability in MODE 4 when any RCS cold leg temperture is less than or equat to the SI pump disable temperature specified in the PTLR, MODE 5 when the SG primary system manways and pressurizer manway are closed and secured in position, and MODE 6 when the reactor vessel head is on and the SG primary system manways and pressurizer manway are closed and secured in position. Based on the redefinition of the MODES and conditions of Applicability in the ITS, the CTS requirement is not applicable. The CTS requirement of requiring the reactor vessel head to be removed would take the reactor out of the MODE of Applicability and therefore, ITS 3.4.12 and 3.4.13 would not be applicable nor would their subject LCO notes. Based on the above, the CTS requirement for reactor head removal is not incorporated into the ITS.

/EILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.4.1.1	Verify pressurizer pressure is greater than or equal to the limit specified in the COLR ~~≥ [2200] psig~~.	12 hours TA3.4-109
SR 3.4.1.2	Verify RCS average temperature is less than or equal to the limit specified in the COLR ~~≤ [581] °F~~.	12 hours TA3.4-109
~~SR 3.4.1.3~~	~~Verify RCS total flow rate is ≥ [284,000] gpm.~~	~~12 hours~~ CL3.4-103
SR 3.4.1.34	~~NOTE~~ ~~Not required to be performed until 24 hours after ≥ [90]% RTP.~~ Verify ~~by precision heat balance that~~ RCS total flow rate is within the limit specified in the COLR ~~≥ [284,000] gpm~~.	~~[2418]~~ months CL3.4-104 R-9 PA3.4-106 CL3.4-107 CL3.4-102 R-2

3.4 REACTOR COOLANT SYSTEM (RCS)

3.4.5 RCS Loops – MODE 3

LCO 3.4.5 ~~[~~Two~~]~~ RCS loops shall be OPERABLE, and either: CL3.4-113

a. ~~[~~Two~~]~~ RCS loops shall be in operation when the Rod Control System is capable of rod withdrawal; or

b. One RCS loop shall be in operation when the Rod Control System is not capable of rod withdrawal.

----------NOTE----------
Both~~All~~ reactor coolant pumps may be de-energized for ≤ 12 hours to perform preplanned work activities ~~per 8 hour period~~ provided: CL3.4-114 CL3.4-117 TA3.4-115 R-9

a. No operations are permitted that would cause introduction into~~reduction of~~ the RCS, coolant with boron concentration less than required to meet the SDM of LCO 3.1.1; and

b. Core outlet temperature is maintained at least 10°F below saturation temperature.

APPLICABILITY: MODE 3.

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. One ~~required~~ RCS loop inoperable.	A.1 Restore inoperable~~required~~ RCS loop to OPERABLE status.	72 hours CL3.4-113

SURVEILLANCE REQUIREMENTS (continued)

	SURVEILLANCE	FREQUENCY
SR 3.4.5.2	Verify required steam generator capable of removing decay heat. ~~secondary side water levels are ≥ [17]% for required RCS loops.~~	12 hours CL3.4-121 R-9
SR 3.4.5.3	----------NOTE---------- Not required to be performed until 24 hours after a required pump is not in operation. ---------- Verify correct breaker alignment and indicated power are available to each~~the~~ required pump ~~that is not in operation~~.	TA3.4-125 7 days R-1

3.4 REACTOR COOLANT SYSTEM (RCS)

3.4.6 RCS Loops – MODE 4

LCO 3.4.6 Two loops consisting of any combination of RCS loops and residual heat removal (RHR) loops shall be OPERABLE, and one loop shall be in operation.

----------NOTES---------- PA3.4-120

1. All reactor coolant pumps (RCPs) and RHR pumps may be de-energized for ≤ 1 hour per 8 hour period provided: R-9

   a. No operations are permitted that would cause introduction into~~reduction of~~ the RCS, coolant with boron concentration less than required to meet the SDM of LCO 3.1.1; and TA3.4-115

   b. Core outlet temperature is maintained at least 10°F below saturation temperature.

2. No RCP shall be started with any RCS cold leg temperature ≤ the Over Pressure Protection System (OPPS) enable temperature specified in the PTLR~~[275]°F~~ unless: TA3.4-119

   a. T~~t~~he secondary side water temperature of each steam generator (SG) is ≤ ~~[~~50~~]~~°F above each of the RCS cold leg temperatures; or~~.~~

   b. There is a steam or gas bubble in the pressurizer. CL3.4-123

APPLICABILITY: MODE 4.

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. One required ~~RCS~~ loop inoperable. ~~AND~~ ~~Two RHR loops inoperable.~~	A.1 Initiate action to restore a second loop to OPERABLE status. AND A.2 -------NOTE------ Only required if RHR loop is OPERABLE. Be in MODE 5.	Immediately TA3.4-330 24 hours
~~B. One required RHR loop inoperable.~~ ~~AND~~ ~~Two required RCS loops inoperable.~~	~~B.1 Be in MODE 5.~~	TA3.4-330 ~~24 hours~~

R-9

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
~~C~~B. Both~~Required RCS or RHR~~ loops inoperable. OR ~~No RCS or RHR~~Required loop not in operation.	~~C~~B.1 Suspend~~ all~~ operations that would cause introduction into the~~involving a reduction of~~ RCS, coolant with boron concentration less than required to meet SDM of LCO 3.1.1. AND ~~C~~B.2 Initiate action to restore one loop to OPERABLE status and operation.	Immediately TA3.4-115 TA3.4-330 Immediately CL3.4-113

R-9

ACTIONS (continued)

SURVEILLANCE REQUIREMENTS

	SURVEILLANCE	FREQUENCY
SR 3.4.6.1	Verify ~~one~~ required RHR or RCS loop is in operation.	12 hours TA3.4-330 R-9
SR 3.4.6.2	Verify required SG capable of removing decay heat~~secondary side water levels are ≥ [17]% for required RCS loops~~.	12 hours CL3.4-121
SR 3.4.6.3	----------NOTE---------- Not required to be performed until 24 hours after a required pump is not in operation. ---------- Verify correct breaker alignment and indicated power are available to each~~the~~ required pump ~~that is not in operation~~.	R-9 TA3.4-125 7 days

3.4 REACTOR COOLANT SYSTEM (RCS)

3.4.7 RCS Loops – MODE 5, Loops Filled

LCO 3.4.7 One residual heat removal (RHR) loop shall be OPERABLE and in operation, and either:

a. One additional RHR loop shall be OPERABLE; or

b. ~~The secondary side water level of at least [two]~~ One steam generators ~~(SGs)~~ shall be capable of removing decay heat ~~≥ [17]%~~. CL3.4-126 CL3.4-121

---NOTES---

1. The RHR pump of the loop in operation may be de-energized for ≤ 1 hour per 8 hour period provided: R-9

   a. No operations are permitted that would cause introduction into ~~reduction of~~ the RCS, coolant with boron concentration less than required to meet the SDM of LCO 3.1.1; and TA3.4-115

   b. Core outlet temperature is maintained at least 10°F below saturation temperature.

2. One required RHR loop may be inoperable for ~~≤up to~~ 2 hours for surveillance testing provided that the other RHR loop is OPERABLE and in operation. PA3.4-127

3. No reactor coolant pump shall be started with one or more RCS cold leg temperatures ≤ the Over Pressure Protection System (OPPS) enable temperature specified in the PTLR ~~[275]°F~~ unless: TA3.4-119

   a. ~~T~~the secondary side water temperature of each SG is ≤ [50]°F above each of the RCS cold leg temperatures; ~~or~~.

   b. There is a steam or gas bubble in the pressurizer. CL3.4-123

4. Both~~All~~ RHR loops may be removed from operation during planned heatup to MODE 4 when at least one RCS loop is in operation. CL3.4-128

APPLICABILITY: MODE 5 with RCS loops filled.

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. One required RHR loop inoperable. AND One RHR loop OPERABLE ~~Required SGs secondary side water levels not within limits~~.	A.1 Initiate action to restore a second RHR loop to OPERABLE status. OR A.2 Initiate action to restore required SG capable to remove decay heat~~secondary side water levels to within limits~~.	Immediately TA3.4-330 CL3.4-113 Immediately CL3.4-121
B. One or more SGs not capable of decay heat removal. AND One RHR loop OPERABLE.	B.1 Initiate action to restore a second RHR loop to OPERABLE status. OR B.2 Initiate action to restore required SG capable to remove decay heat.	Immediately TA3.4-330 Immediately CL3.4-121

R-9

CONDITION	REQUIRED ACTION	COMPLETION TIME
~~B~~C. No ~~R~~required RHR loops ~~inoperable~~ OPERABLE. ~~O~~AND ~~No~~Required RHR loop not in operation.	~~B~~C.1 Suspend ~~all~~ operations that would cause introduction into the~~involving a reduction of~~ RCS, coolant with boron concentration less than required to meet SDM of LCO 3.1.1. AND ~~B~~C.2 Initiate action to restore one RHR loop to OPERABLE status and operation.	CL3.4-128 Imm ediately TA3.4-115 TA3.4-330 Immediately R-9

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.4.7.1	Verify required ~~one~~ RHR loop is in operation.	12 hours TA3.4-330
SR 3.4.7.2	Verify ~~SG secondary side water level is ≥ [17]% in~~ required SG~~s~~ capable of removing decay heat.	CL3.4-121 12 hours
		(continued) R-9
SR 3.4.7.3	----------NOTE---------- Not required to be performed until 24 hours after a required pump is not in operation. ---------- Verify correct breaker alignment and indicated power are available to each~~the~~ required RHR pump ~~that is not in operation~~.	TA3.4-125 7 days

3.4 REACTOR COOLANT SYSTEM (RCS)

3.4.8 RCS Loops – MODE 5, Loops Not Filled

LCO 3.4.8 Two residual heat removal (RHR) loops shall be OPERABLE and one RHR loop shall be in operation.

---NOTES---

1. All RHR pumps may be de-energized for ≤ 1 hour per 8 hour period ~~15 minutes when switching from one loop to another~~ provided: CL3.4-131 R-9

   ~~a~~b. No operations are permitted that would cause introduction into~~a reduction of~~ the RCS, coolant with boron concentration less than required to meet the SDM of LCO 3.1.1;~~and~~ TA3.4-115

   ~~b~~a. ~~[~~The core outlet temperature is maintained > 10°F below saturation temperature; and.~~]~~

   c. No draining operations to further reduce the RCS water volume are permitted.

2. One RHR loop may be inoperable for ≤ 2 hours for surveillance testing provided that the other RHR loop is OPERABLE and in operation.

APPLICABILITY: MODE 5 with RCS loops not filled.

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. One required RHR loop inoperable.	A.1 Initiate action to restore RHR loop to OPERABLE status.	Immediately TA3.4-330 R-9

ACTIONS CONDITION (continued)	REQUIRED ACTION	COMPLETION TIME
		(continued)
B. No ~~R~~required RHR loops ~~inoperable~~ OPERABLE. OR ~~No~~Required RHR loop not in operation.	B.1 Suspend ~~all~~ operations that would cause introduction into the ~~involving reduction in~~ RCS, coolant with boron concentration less than required to meet SDM of LCO 3.1.1. AND ----------NOTE---------- A Safety Injection pump may be run as required to maintain adequate core cooling and RCS inventory. ---------- B.2 Initiate action to restore one RHR loop to OPERABLE status and operation.	Immediately CL3.4-128 TA3.4-115 TA3.4-330 CL3.4-132 Immediately

R-9

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.4.8.1	Verify ~~one~~required RHR loop is in operation.	12 hours TA3.4-330 R-9
SR 3.4.8.2	----------NOTE---------- Not required to be performed until 24 hours after a required pump is not in operation. ---------- Verify correct breaker alignment and indicated power are available to each~~the~~ required RHR pump ~~that is not in operation~~.	TA3.4-125 7 days

CONDITION	REQUIRED ACTION	COMPLETION TIME
B. Required Action and associated Completion Time not met. OR Both~~Two or more~~ pressurizer safety valves inoperable.	B.1 Be in MODE 3. AND B.2 Be in MODE 4 with any RCS cold leg temperatures ≤ the OPPS enable temperature specified in the PTLR ~~[275] °F~~.	6 hours ~~24~~12 hours TA3.4-139 CL3.4-142 TA3.4-119

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.4.10.1	Verify each pressurizer safety valve is OPERABLE in accordance with the Inservice Testing Program. Following testing, lift settings shall be within 1% (2460 to 2510 psig).	PA3.4-143 In accordance with the Inservice Testing Program R-9

R-9

3.4 REACTOR COOLANT SYSTEM (RCS)

3.4.12 Low Temperature Overpressure Protection (LTOP) ~~System~~ - Reactor Coolant System Cold Leg Temperature (RCSCLT) > Safety Injection (SI) Pump Disable Temperature

CL3.4-162

R-9

LCO 3.4.12 ~~An~~ LTOP ~~System~~ shall be provided ~~OPERABLE~~ with:

a) a maximum of ~~[~~one~~]~~ ~~[high pressure injection~~ SI ~~(HPI)]~~ pump ~~[and one charging pump]~~ capable of injecting into the RCS;

CL3.4-163

b) ~~and~~ the emergency core cooling system (ECCS) accumulators isolated;

c) an OPERABLE Over Pressure Protection System (OPPS); and ~~either a or b below.~~

~~a. Two RCS relief valves, as follows:~~

~~1.~~d) t~~T~~wo OPERABLE pressurizer power operated relief valves (PORVs) with lift settings within the limits specified in the PTLR.~~, or~~

~~[2. Two residual heat removal (RHR) suction relief valves with setpoints ≥ [436.5] psig and ≤ [463.5] psig, or]~~

~~[3. One PORV with a lift setting within the limits specified in the PTLR and one RHR suction relief valve with a setpoint ≥ [436.5] psig and ≤ [463.5] psig].~~

~~b. The RCS depressurized and an RCS vent of ≥ [2.07] square inches.~~

----------NOTES----------

1. Both SI pumps may be run for ≤ 1 hour while conducting SI system testing providing there is a steam or gas bubble in the pressurizer and at least one isolation valve between the SI pump and the RCS is shut.

CL3.4-164

2. ECCS accumulator may be unisolated when ECCS accumulator pressure is less than the maximum RCS pressure for the existing RCS cold leg temperature allowed by the P/T limit curves provided in the PTLR

TA3.4-166 R-9

APPLICABILITY: MODE 4 when any~~all~~ RCS cold leg temperature is ≤ the OPPS enable temperature specified in the PTLR~~[275] °F,~~ and > the SI pump disable temperature specified in the PTLR.

TA3.4-165

TA3.4-119

~~MODE 5,~~

~~MODE 6 when the reactor vessel head is on.~~

CL3.4-167

~~NOTE~~

~~Accumulator isolation is only required when accumulator pressure is greater than or equal to the maximum RCS pressure for the existing RCS cold leg temperature allowed by the P/T limit curves provided in the PTLR.~~

TA3.4-166

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. Two ~~or more~~ SI~~[HPI]~~ pumps capable of injecting into the RCS.	A.1 Initiate action to verify a maximum of ~~[~~one~~]~~ SI~~[HPI]~~ pump is capable of injecting into the RCS.	Immediately PA3.4-159 CL3.4-163

R-9

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
~~B. Two or more charging pumps capable of injecting into the RCS.~~	~~B.1 -------NOTE--------~~ ~~Two charging pumps may be capable of injecting into the RCS during pump swap operation for ≤ 15 minutes.~~ ~~----------~~ ~~Initiate action to verify a maximum of [one] charging pump is capable of injecting into the RCS.~~	~~Immediately~~ CL3.4-163
B~~C~~. An ECCS accumulator not isolated when the ECCS accumulator pressure is greater than or equal to the maximum RCS pressure for existing cold leg temperature allowed in the PTLR.	B~~C~~.1 Isolate affected ECCS accumulator.	1 hour CL3.4-163

R-9

(continued)

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ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
~~C~~D. Required Action and associated Completion Time of Condition B~~[C]~~ not met.	~~C~~D.1 Increase RCS cold leg temperature to > the OPPS enable temperature specified in the PTLR~~[275] °F~~.	12 hours TA3.4-119
	OR	
	~~C~~D.2 Depressurize affected ECCS accumulator to less than the maximum RCS pressure for existing cold leg temperature allowed in the PTLR.	12 hours CL3.4-163
~~D~~E. One required PORV~~RCS relief valve~~ inoperable ~~in MODE 4~~.	~~D~~E.1 Restore required PORV~~RCS relief valve~~ to OPERABLE status.	7 days CL3.4-163
~~F. One required RCS relief valve inoperable in MODE 5 or 6.~~	~~F.1 Restore required RCS relief valve to OPERABLE status.~~	~~24 hours~~ CL3.4-167

(continued)

ACTIONS CONDITION (continued)	REQUIRED ACTION	COMPLETION TIME
EG. Two ~~required~~ PORVs ~~RCS relief valves~~ inoperable. OR Required Action and associated Completion Time of Condition A, C, or ~~[B,]~~ D~~, E, or F~~ not met. OR OPPS ~~LTOP System~~ inoperable ~~for any reason other than Condition A, [B,] C, D, E, or F~~.	EG.1 Be in MODE 5. AND E.2 Depressurize RCS and establish RCS vent of ≥ 3~~[2.07]~~ square inches.	8 hours PA3.4-168 CL3.4-169 128 hours TA3.4-139

R-9

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.4.12.1	Verify a maximum of ~~[one]~~ SI ~~[HPI]~~ pump is capable of injecting into the RCS.	CL3.4-163 12 hours
~~SR 3.4.12.2~~	~~Verify a maximum of one charging pump is capable of injecting into the RCS.~~	~~CL3.4-163~~ ~~12 hours~~

R-9

SURVEILLANCE REQUIREMENTS (continued)

SURVEILLANCE		FREQUENCY
SR 3.4.12.23	----------NOTE---------- Only required to be performed when ECCS accumulator pressure is greater than or equal to the maximum RCS pressure for the existing RCS cold leg temperature allowed in the PTLR. ---------- Verify each ECCS accumulator is isolated.	X3.4-171 Once within 12 hours and every 12 hours thereafter
~~SR 3.4.12.4~~	~~Verify RHR suction valve is open for each required RHR suction relief valve.~~	~~12 hours~~ CL3.4-163
~~SR 3.4.12.5~~	~~----------NOTE---------- Only required to be performed when complying with LCO 3.4.12.b. ---------- Verify RCS vent ≥ [2.07] square inches open.~~	~~12~~ CL3.4-163 ~~hours for unlocked open vent valve(s)~~ ~~AND~~ ~~31 days for locked open vent valve(s)~~

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SURVEILLANCE REQUIREMENTS (continued)

SURVEILLANCE		FREQUENCY
SR 3.4.12.~~36~~	Verify PORV block valve is open for each required PORV.	72 hours
~~SR 3.4.12.7~~	~~Verify associated RHR suction isolation valve is locked open with operator power removed for each required RHR suction relief valve.~~	CL3.4-163 ~~31 days~~
SR 3.4.12.~~48~~	----------NOTE---------- Not required to be performed~~met~~ until 12 hours after decreasing RCS cold leg temperature to ≤ the OPPS enable temperature specified in the PTLR~~[275] °F~~. ---------- Perform a COT on OPPS~~each required PORV, excluding actuation~~.	TA3.4-157 TA3.4-119 31 days CL3.4-162
SR 3.4.12.59	Perform CHANNEL CALIBRATION for each OPPS ~~required PORV~~ actuation channel.	CL3.4-107 R-2 24~~[~~ ~~18]~~ months CL3.4-162

(continued)

R-9

3.4 REACTOR COOLANT SYSTEM (RCS)

CL3.4-172

3.4.13 Low Temperature Overpressure Protection (LTOP)- Reactor Coolant System Cold Leg Temperature (RCSCLT) ≤ Safety Injection (SI) Pump Disable Temperature

R-9

LCO 3.4.13 LTOP shall be provided with: 1) no SI Pumps capable of injecting into the RCS; 2) the emergency core cooling system (ECCS) accumulators isolated; and 3) one of the following pressure relief capabilities:

a. An Over Pressure Protection System (OPPS) shall be OPERABLE with two pressurizer power operated relief valves (PORVs) with lift settings within the limits specified in the PTLR, or

b. The RCS depressurized and an RCS vent of ≥ 3 square inches.

----------NOTES----------

1. Both SI pumps may be run for ≤ 1 hour while conducting SI system testing provided there is a steam or gas bubble in the pressurizer, the reactor vessel head is on, and at least one isolation valve between the SI pump and the RCS is shut.

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2. During reduced inventory conditions an SI pump may be run as required to maintain adequate core cooling and RCS inventory.

3. ECCS accumulator may be unisolated when ECCS accumulator pressure is less than the maximum RCS pressure for the existing RCS cold leg temperature allowed by the P/T limit curves provided in the PTLR.

R-9

APPLICABILITY: MODE 4 when any RCS cold leg temperature is ≤ the SI pump disable temperature specified in the PTLR,

R-9

MODE 5 when the steam generator (SG) primary system manways and pressurizer manway are closed and secured in position,
MODE 6 when the reactor vessel head is on and the SG primary system manways and pressurizer manway are closed and secured in position.

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. One or both SI pump(s) capable of injecting into the RCS.	A.1 Initiate action to verify no SI pump is capable of injecting into the RCS.	Immediately
B. An ECCS accumulator not isolated when the ECCS accumulator pressure is greater than or equal to the maximum RCS pressure for existing cold leg temperature allowed in the PTLR.	B.1 Isolate affected ECCS accumulator.	1 hour

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R-9

(continued)

R-9

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
C. Required Action and associated Completion Time of Condition B not met.	C.1 Increase RCS cold leg temperature to > the OPPS enable temperature specified in the PTLR. OR C.2 Depressurize affected ECCS accumulator to less than the maximum RCS pressure for existing cold leg temperature allowed in the PTLR.	12 hours 12 hours
D. ------NOTE------ Only applicable in LCO 3.4.13.a ---------- One required PORV inoperable.	D.1 Restore required PORV to OPERABLE status.	24 hours

(continued)

R-9

~~ACTIONS (continued)~~ CONDITION	REQUIRED ACTION	COMPLETION TIME
E. Two PORVs inoperable for LCO 3.4.13.a. OR Required Action and associated Completion Time of Condition A, C, or D not met. OR OPPS inoperable.	E.1 Depressurize RCS and establish RCS vent of ≥ 3 square inches.	8 hours

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.4.13.1	Verify no SI pumps are capable of injecting into the RCS.	12 hours
SR 3.4.13.2	----------NOTE---------- Only required to be performed when ECCS accumulator pressure is greater than or equal to the maximum RCS pressure for the existing RCS cold leg temperature allowed in the PTLR. ---------- Verify each ECCS accumulator is isolated.	Once within 12 hours and every 12 hours thereafter

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SURVEILLANCE REQUIREMENTS (continued)

SURVEILLANCE		FREQUENCY
SR 3.4.13.3	----------NOTE---------- Only required to be performed when complying with LCO 3.4.13.b. ---------- Verify required RCS vent ≥ 3 square inches open.	12 hours for unlocked open vent valve(s) AND 31 days for other vent path(s)
SR 3.4.13.4	Verify PORV block valve is open for each required PORV.	72 hours
SR 3.4.13.5	----------NOTE---------- 1. Not required to be performed until 12 hours after decreasing RCS cold leg temperature to ≤ the OPPS enable temperature specified in the PTLR. 2. Only required to be performed when complying with LCO 3.4.13.a. ---------- Perform a COT on OPPS.	31 days

R-9

R-9

SURVEILLANCE REQUIREMENTS (continued)

SURVEILLANCE		FREQUENCY
SR 3.4.13.6	Perform CHANNEL CALIBRATION for OPPS actuation channel.	24 months

SURVEILLANCE		FREQUENCY
SR 3.4.143.1	----------NOTE---------- Not required to be performed ~~in MODE 3 or 4~~ until 12 hours after establishment of steady state operation. ---------- Verify RCS operational leakage within limits by performance of~~Perform~~ RCS water inventory balance.	~~-----NOTE------~~ ~~Only require~~ TA3.4-176 ~~d to be performed during steady stat~~ e TA3.4-177 ~~oper ation~~ ~~----~~ CL3.4-331 ~~72~~ 24 hours
SR 3.4.143.2	Verify steam generator tube integrity is in accordance with the Steam Generator ~~Tube Surveillance~~ Program.	In accorda PA3.4-179 nce with the Steam Generator ~~Tube Surveillance~~ Program

R-9

3.4 REACTOR COOLANT SYSTEM (RCS)

3.4.17~~6~~ RCS Specific Activity

LCO 3.4.17~~6~~ The specific activity of the reactor coolant shall be within limits.

R-9

APPLICABILITY: MODES 1 and 2,
MODE 3 with RCS average temperature (T_{avg}) ≥ 500°F.

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. DOSE EQUIVALENT I-131 > 1.0 μCi/gm.	----------Note---------- LCO 3.0.4 is not applicable. ----------	
	A.1 Verify DOSE EQUIVALENT I-131 within the acceptable region of Figure 3.4.17~~6~~-1.	Once per 4 hours
	AND	
	A.2 Restore DOSE EQUIVALENT I-131 to within limit.	48 hours

R-9

ACTIONS CONDITION (continued)	REQUIRED ACTION	COMPLETION TIME
B. Gross specific activity of the reactor coolant not within limit.	~~B.1 Perform SR 3.4.16.2.~~ ~~AND~~ B.~~1~~2 Be in MODE 3 with T_{avg} < 500°F.	~~4 hours~~ TA3.4-201 6 hours
C. Required Action and associated Completion Time of Condition A not met. OR DOSE EQUIVALENT I-131 in the unacceptable region of Figure 3.4.17~~6~~-1.	C.1 Be in MODE 3 with T_{avg} < 500°F.	6 hours R-9

(continued)

SURVEILLANCE REQUIREMENTS

SURVEILLANCE	FREQUENCY
SR 3.4.17~~6~~.1 Verify reactor coolant gross specific activity ≤ 100/$\bar{E}$ μCi/gm.	7 days

SURVEILLANCE REQUIREMENTS (continued)

SURVEILLANCE	FREQUENCY
SR 3.4.17~~6~~.2 ----------NOTE---------- Only required to be performed in MODE 1. ---------- Verify reactor coolant DOSE EQUIVALENT I-131 specific activity $\leq$ 1.0 μCi/gm.	14 days AND Between 2 and 6 hours after a THERMAL POWER change of $\geq$ 15% RTP within a 1 hour period

(continued)

SR 3.4.17~~6~~.3 ----------NOTE---------- Not required to be performed until 31 days after a minimum of 2 effective full power days and 20 days of MODE 1 operation have elapsed since the reactor was last subcritical for $\geq$ 48 hours. ---------- Determine $\bar{E}$ from a sample taken in MODE 1 after a minimum of 2 effective full power days and 20 days of MODE 1 operation have elapsed since the reactor was last subcritical for $\geq$ 48 hours.	184 days

R-9

PA3.4-101 PA3.4-211

to be calibrated and verifies the actual RCS flow rate is greater than or equal to the minimum required RCS flow rate. This verification may be performed via a precision calorimetric heat balance or other means.

The Frequency of 24~~[18]~~ months reflects the importance of verifying flow after a refueling outage when the core has been altered, which may have caused an alteration of flow resistance.

~~This SR is modified by a Note that allows entry into MODE 1, without having performed the SR, and placement of the unit in the best condition for performing the SR. The Note states that the SR is not required to be performed until 24 hours after $\geq$ [90%] RTP. This exception is appropriate since the heat balance requires the plant to be at~~

CL3.4-104

BASES

SURVEILLANCE REQUIREMENTS

SR 3.4.1.34 (continued)

~~a minimum of [90%] RTP to obtain the stated RCS flow accuracies. The Surveillance shall be performed within 24 hours after reaching [90%] RTP.~~

R-9

REFERENCES

1. ~~UFSAR~~, Section 14~~[15]~~.

BASES

ACTIONS

A.1 and A.2 (continued)

required to determine if RCS operation can continue. The evaluation must verify the RCPB integrity remains acceptable and must be completed before continuing operation. Several methods may be used, including an engineering evaluation to determine effects of the out-of-limit condition on the structural integrity of the RCS, a comparison with pre-analyzed transients in the stress analyses, new analyses, or inspection of the components. CL3.4-329 R-9

ASME Code, Section XI, Appendix E ~~(Ref. 7)~~, may be used to support the evaluation. However, its use is restricted to evaluation of the vessel beltline.

The 72 hour Completion Time is reasonable to accomplish the evaluation. The evaluation for a mild violation is possible within this time, but more severe violations may require special, event specific stress analyses or inspections. A favorable evaluation must be completed before continuing to operate.

Condition A is modified by a Note requiring Required Action A.2 to be completed whenever the Condition is entered. The Note emphasizes the need to perform the evaluation of the effects of the excursion outside the allowable limits. Restoration alone per Required Action A.1 is insufficient because higher than analyzed stresses may have occurred and may have affected the RCPB integrity.

B.1 and B.2

If a Required Action and associated Completion Time of Condition A are not met, the plant must be placed in a lower MODE because either the RCS remained in an unacceptable P/T region for an extended period of increased stress or a

(continued)

LCO

The purpose of this LCO is to require that bothat least [two] RCS loops be OPERABLE. In MODE 3 with the RTBs in the closed position and Rod Control System capable of rod withdrawal, both[two] RCS loops must be in operation. [Two] RCS loops are required to be in operation in MODE 3 with theRTBs closed and Rod Control System capable of rod withdrawal due to the postulation of a power excursion because of an inadvertent control rod withdrawal. The required number of RCS loops in operation ensures that the transient analysis acceptanceSafety Limit criteria will be met for all of the postulated accidents.

WhenWith the RTBs in the open position, or the CRDMs de-energized, the Rod Control System is not capable of rod withdrawal; therefore, only one RCS loop in operation is necessary to ensure removal of decay heat from the core and homogenous boron concentration throughout the RCS. An additional RCS loop is required to be OPERABLE to ensure redundant capability for decay heat removal that safety analyses limits are met. TA3.4-118 CL3.4-227

The Note permits bothall RCPs to be de-energized for ≤ 12 hours per 8 hour period to perform preplanned work activities. CL3.4-117 R-9

OneThe purpose of the Note is to allow performance of tests that are designed to validate various accident analyses values. One of these tests is validation of the pump coastdown curve used as input to a number of accident analyses including a loss of flow accident. This test wasis generally performed in MODE 3 during the initial startup testing program, and would normallyas such should only be performed once. If, however, changes are made to the RCS that would cause a change to the flow characteristics of the RCS, the input PA3.4-228

LCO (continued)

values of the coastdown curve must be revalidated by conducting the test again. Another test performed during

(continued)

PA3.4-211

~~concentration~~ distribution ~~throughout the RCS cannot be ensured~~ when in natural circulation (Ref. 1); and

b. Core outlet temperature is maintained at least 10°F below saturation temperature, so that no vapor bubble may form and possibly cause a natural circulation flow obstruction.

An OPERABLE RCS loop consists of one OPERABLE RCP and one OPERABLE SG ~~in accordance with the Steam Generator Tube Surveillance Program,~~ which is capable of removing decay heat as ~~has the minimum water level~~ specified in SR 3.4.5.2. An RCP is OPERABLE if it is capable of being powered and is able to provide forced flow if required.

PA3.4-232

CL3.4-121

R-9

APPLICABILITY In MODE 3, this LCO ensures forced circulation of the reactor coolant to remove decay heat from the core and to provide proper boron mixing. The most stringent condition of the LCO, that is, two RCS loops OPERABLE and two RCS loops in operation, applies to MODE 3 with the Rod Control System capable of rod withdrawal ~~RTBs in the closed position~~. The least stringent condition, that is, two RCS loops OPERABLE and one RCS loop in operation, applies to MODE 3 with the Rod Control System not capable of rod withdrawal ~~RTBs open~~.

TA3.4-118

APPLICABILITY (continued)

Operation in other MODES is covered by:

LCO 3.4.4, "RCS Loops – MODES 1 and 2";
LCO 3.4.6, "RCS Loops – MODE 4";
LCO 3.4.7, "RCS Loops – MODE 5, Loops Filled";
LCO 3.4.8, "RCS Loops – MODE 5, Loops Not Filled";
LCO 3.9.5, "Residual Heat Removal (RHR) and Coolant Circulation – High Water Level" (MODE 6); and
LCO 3.9.6, "Residual Heat Removal (RHR) and Coolant Circulation – Low Water Level" (MODE 6).

(continued)

~~withdrawal~~Suspending the introduction of coolant into the RCS with boron concentration less than required to meet the minimum SDM of LCO 3.1.1 is required to assure continued safe operation. With coolant added without forced circulation, unmixed coolant could be introduced to the core; however, coolant added with boron concentration meeting the minimum SDM maintains acceptable margin to subcritical operations. The immediate Completion Time reflects the importance of maintaining operation for heat removal. The action to restore must be continued until one loop is restored to OPERABLE status and operation.

SURVEILLANCE REQUIREMENTS

SR 3.4.5.1

This SR requires verification every 12 hours that the required loops are in operation. Verification may include~~s~~ flow rate, temperature, or~~and~~ pump status monitoring, which helps ensure that forced flow is providing heat removal. The Frequency of 12 hours is sufficient considering other indications and alarms available to the operator in the control room to monitor RCS loop performance.

SR 3.4.5.2

SR 3.4.5.2 requires verification that the SG has the capability to remove decay heat. The ability to remove decay heat requires the ability to pressurize and control pressure in the RCS, sufficient secondary side water level in the SG relied on for decay heat removal, and an available supply of feedwater (Ref. 2). ~~of SG OPERABILITY. SG OPERABILITY is verified by ensuring that the secondary side narrow range water level is ≥ [17]% for required RCS loops. If the SG secondary side narrow range water level is < [17]%,~~The ability of the SG to provide an adequate heat sink for decay heat removal further ensures that the SG tubes remain covered. ~~may become~~

CL3.4-121

R-9

(continued)

~~uncovered and the associated loop may not be capable of providing the heat sink for removal of the decay heat.~~ The 12 hour Frequency is considered adequate in view of the other indications available in the control room to alert the operator to a loss of the SG to remove decay heat ~~level~~.

R-9

SR 3.4.5.3

Verification that each~~the~~ required RCP~~s~~ ~~are~~is OPERABLE ensures that ~~safety analyses limits are met. The requirement also ensures that~~ an additional RCP can be placed in operation, if needed, to maintain decay heat removal and reactor coolant circulation. Verification is performed by verifying proper breaker alignment and power availability to each~~the~~ required RCP~~s~~. Alternatively, verification that a pump is in operation also verifies proper breaker alignment and power availability.

TA3.4-125

CL3.4-227

This SR is modified by a Note that states the SR is not required to be performed until 24 hours after a pump is not in operation.

TA3.4-125

REFERENCES

1. License Amendment Request Dated November 19, 1999. ~~None.~~ (Approved by License Amendment 152/143, July 14, 2000.)

CL3.4-117

2. NRC Information Notice 95-35, "Degraded Ability of Steam Generators to Remove Decay Heat by Natural Circulation."

CL3.4-121

R-9

BASES

APPLICABLE SAFETY ANALYSES

In MODE 4, RCS circulation ~~is considered in the determination of~~ increases the time available for mitigation of ~~an~~the accidental boron dilution event. The RCS and RHR loops provide this circulation. CL3.4-237

RCS Loops – MODE 4 ~~have been identified in the NRC Policy Statement as important contributors to risk reduction~~satisfies Criterion 4 of 10 CFR 50.36(c)(2)(ii).

LCO

The purpose of this LCO is to require that at least two loops be OPERABLE in MODE 4 and that one of these loops be in operation. The LCO allows the two loops that are required to be OPERABLE to consist of any combination of RCS loops and RHR loops. Any one loop in operation provides enough flow to remove the decay heat from the core with forced circulation. An additional loop is required to be OPERABLE to provide redundancy for heat removal.

LCO (continued)

Note 1 permits all RCPs or RHR pumps to be de-energized for ≤ 1 hour per 8 hour period. The purpose of the Note is to permit tests that are designed to validate various accident analyses values. One of the tests performed during the startup testing program was ~~is the~~ validation of rod drop times during cold conditions, both with and without flow. If changes are made to the RCS that would cause a change in flow characteristics of the RCS, the input values must be revalidated by conducting the test again. Any future ~~The~~ no flow test may be performed in MODE 3, 4, or 5 and requires that the pumps be stopped for a short period of time. The Note permits stopping ~~the de-energizing of~~ the pumps in order to perform this test and validate the assumed analysis values. ~~If changes are made to the RCS that would cause a change to the flow~~ R-9 PA3.4-228

(continued)

BASES

LCO (continued)

An OPERABLE RCS loop consists of~~comprises~~ an OPERABLE RCP and an OPERABLE SG ~~in accordance with the Steam Generator Tube Surveillance Program,~~ which is capable of removing decay heat as~~has the minimum water level~~ specified in SR 3.4.6.2. PA3.4-232 CL3.4-121 R-9

Similarly for the RHR System, an OPERABLE RHR loop consists of~~comprises~~ an OPERABLE RHR pump capable of providing forced flow to an OPERABLE RHR heat exchanger. RCPs and RHR pumps are OPERABLE if they are capable of being powered and are able to provide forced flow if required.

APPLICABILITY

In MODE 4, this LCO ensures forced circulation of the reactor coolant to remove decay heat from the core and to provide proper boron mixing. ~~One loop of either RCS or RHR provides sufficient circulation for these purposes. However, two loops consisting of any combination of RCS and RHR loops are required to be OPERABLE to meet single failure considerations.~~ PA3.4-238

Operation in other MODES is covered by:

LCO 3.4.4, "RCS Loops – MODES 1 and 2";
LCO 3.4.5, "RCS Loops – MODE 3";
LCO 3.4.7, "RCS Loops – MODE 5, Loops Filled";
LCO 3.4.8, "RCS Loops – MODE 5, Loops Not Filled";
LCO 3.9.5, "Residual Heat Removal (RHR) and Coolant Circulation – High Water Level" (MODE 6); and
LCO 3.9.6, "Residual Heat Removal (RHR) and Coolant Circulation – Low Water Level" (MODE 6).

(continued)

BASES

ACTIONS

A.1

TA3.4-330

If one required ~~RCS~~ loop is inoperable ~~and two RHR loops are inoperable~~, redundancy for heat removal is lost. Action must be initiated to restore a second RCS or RHR loop to OPERABLE status. The immediate Completion Time reflects the importance of maintaining the availability of two paths for heat removal. Entry to a reduced MODE (MODE 5 or 6) requires RHR availability for long term decay heat removal. Remaining in MODE 4, with RCS loop operation, is conservative.

R-9

PA3.4-239

~~B.1~~

TA3.4-330

~~If one required RHR loop is OPERABLE and in operation and there are no RCS loops OPERABLE, an inoperable RCS or RHR~~

ACTIONS ~~B.1 (continued)~~

~~loop must be restored to OPERABLE status to provide a redundant means for decay heat removal.~~

~~If the parameters that are outside the limits cannot be restored~~If restoration is not accomplished and an RHR Loop is OPERABLE, the unit must be brought to MODE 5 within 24 hours. Bringing the unit to MODE 5 is a conservative action with regard to decay heat removal. With only one RHR loop OPERABLE, redundancy for decay heat removal is lost and, in the event of a loss of the remaining RHR loop, it would be safer to initiate that loss from MODE 5 ~~(≤ 200°F)~~ rather than MODE 4 ~~(200 to 3500°F)~~. The Completion Time of 24 hours is a reasonable time, based on operating experience, to reach MODE 5 from MODE 4 in an orderly manner and without challenging plant systems.

R-9

R-9

(continued)

The Required Action is modified by a Note which indicates that the unit must be placed in MODE 5 only if a RHR loop is OPERABLE. With no RHR loop OPERABLE, the unit is in a condition with only limited cooldown capabilities. Therefore, the actions are to be concentrated on the restoration of a RHR loop, rather than a cooldown of extended duration. TS3.4-330

TA3.4-330

~~C~~B.1 and ~~C~~B.2

CL3.4-113

If both~~no~~ loops ~~is OPERABL~~E are inoperable or a required loop not in operation, except during conditions permitted by Note 1 in the LCO section, all operations involving ~~a reduction~~introduction of coolant into the RCS with boron concentration less than required to meet the minimum SDM of LCO 3.1.1 must be suspended and action to restore one RCS or RHR loop to OPERABLE status and operation must be initiated. ~~Boron dilution requires forced circulation for proper mixing, and t~~The margin to criticality must not be reduced in this type of operation. Suspending the introduction of coolant into the RCS with boron concentration less than required to meet the minimum SDM of LCO 3.1.1 is required to assure continued safe operation. With coolant added without forced circulation, unmixed coolant could be introduced to the core; however, coolant added with boron concentration meeting the minimum SDM maintains acceptable margin to subcritical operations. The immediate Completion Times reflect the importance of maintaining operation for decay heat removal. The action to restore must be continued until one loop is restored to OPERABLE status and operation.

R-9

TA3.4-115

(continued)

BASES

TA3.4-330

SURVEILLANCE REQUIREMENTS

SR 3.4.6.1

This SR requires verification every 12 hours that ~~one~~the required RCS or RHR loop is in operation. Verification may include~~s~~ flow rate, temperature, or pump status monitoring, which helps ensure that forced flow is providing heat removal. The Frequency of 12 hours is sufficient considering other indications and alarms available to the operator in the control room to monitor RCS and RHR loop performance.

R-9

SURVEILLANCE REQUIREMENTS (continued)

SR 3.4.6.2

SR 3.4.6.2 requires verification ~~of~~that the required SG has the capability to remove decay heat. The ability to remove decay heat requires the ability to pressurize and control pressure in the RCS, sufficient secondary side water level in the SG relied on for decay heat removal, and an available supply of feedwater (Ref. 2). The ability of the SG to provide an adequate heat sink for decay heat removal further ensures that the SG tubes remain covered. ~~OPERABILITY. SG OPERABILITY is verified by ensuring that the secondary side narrow range water level is ≥ [17]%. If the SG secondary side narrow range water level is < [17]%, the tubes may become uncovered and the associated loop may not be capable of providing the heat sink necessary for removal of decay heat.~~ The 12 hour Frequency is considered adequate in view of the other indications available in the control room to alert the operator to ~~the~~a loss of capability of the SG to remove decay heat~~level~~.

CL3.4-121

R-9

(continued)

BASES

SR 3.4.6.3

Verification that ~~each~~~~the~~ required pump is OPERABLE ensures that an additional RCS or RHR pump can be placed in operation, if needed, to maintain decay heat removal and reactor coolant circulation. Verification is performed by verifying proper breaker alignment and power available to ~~each~~~~the~~ required pump. Alternatively, verification that a pump is in operation also verifies proper breaker alignment and power availability. The Frequency of 7 days is considered reasonable in view of other administrative controls available and has been shown to be acceptable by operating experience. TA3.4-125

This SR is modified by a Note that states the SR is not required to be performed until 24 hours after a pump is not in operation. TA3.4-125

REFERENCES

1. License Amendment Request Dated November 19, 1999. ~~None.~~ (Approved by License Amendment 152/143, July 14, 2000.) CL3.4-117

2. NRC Information Notice 95-35, "Degraded Ability of Steam Generator to Remove Decay Heat by Natural Circulation." CL3.4-121

R-9

PA3.4-211

BASES (continued)

LCO is to require that a second path be available to provide redundancy for heat removal.

The LCO provides for redundant paths of decay heat removal capability. The first path can be an RHR loop that must be OPERABLE and in operation. The second path can be another OPERABLE RHR loop or maintaining ~~a~~two SG~~s~~ capable of removing decay heat ~~with secondary side water levels above [17]%~~ to provide an alternate method for decay heat removal via natural circulation.

TA3.4-246

CL3.4-121

R-9

APPLICABLE SAFETY ANALYSES

In MODE 5, RCS circulation increases~~is considered in the determination of~~ the time available for mitigation of an~~the~~ accidental boron dilution event. The RHR loops provide this circulation.

CL3.4-237

RCS Loops – MODE 5 (Loops Filled) ~~have been identified in the NRC Policy Statement as important contributors to risk reduction~~satisfies Criterion 4 of 10 CFR 50.36(c)(2)(ii).

LCO

The purpose of this LCO is to require that at least one ~~of the~~ RHR loop~~s~~ be OPERABLE and in operation with an additional RHR loop OPERABLE or a~~two~~ SG~~s~~ capable of removing decay heat via natural circulation~~with secondary side water level ≥ [17]%~~. One RHR loop provides sufficient forced circulation to perform the safety functions of the reactor coolant under these conditions. An additional RHR loop is required to be OPERABLE to provide redundancy~~meet single failure considerations~~. However, if the standby RHR loop is not OPERABLE, an acceptable alternate method is a~~two~~ SG~~s with their secondary side water levels ≥ [17]%~~. Should the operating RHR loop fail, the SG~~s~~ could be used to remove ~~the~~ decay heat via natural circulation.

CL3.4-121

R-9

TA3.4-246

(continued)

BASES (continued)

Note 1 permits all RHR pumps to be de-energized ≤ 1 hour per 8 hour period. The purpose of the Note is to permit tests designed to validate various accident analyses values. One of the tests performed during the startup testing program was~~is the~~ validation of rod drop times during cold conditions, both with and without flow. If changes are made to the RCS that would cause a change in flow characteristics of the RCS, the input values must be revalidated by conducting the test again. Any future~~The~~ no flow test may be performed in MODE 3, 4, or 5 and requires that the pumps be stopped for a short period of time. The Note permits stopping~~de-energizing of~~ the pumps in order to perform this test and validate the assumed analysis values.~~If changes are made to the RCS that would cause a change to the flow characteristics of the RCS, the input values must be revalidated by conducting the test again.~~ The 1 hour time period is adequate to perform the test, and operating experience has shown that boron stratification is not likely during this short period with no forced flow.

R-9

PA3.4-228

Utilization of Note 1 is permitted provided the following conditions are met, along with any other conditions imposed by ~~initial~~ startup test procedures:

PA3.4-228

LCO (continued)

a. No operations are permitted that would dilute the RCS boron concentration with coolant with boron concentration less than required to meet SDM of LCO 3.1.1, therefore maintaining the margin to criticality. Boron reduction with coolant at boron concentrations less than required to assure SDM is maintained is prohibited to preclude the need for a boration, due to the time required to achieve ~~because~~ a uniform ~~concentration~~ distribution~~throughout the RCS cannot be ensured~~ when in natural circulation (Ref. 2); and

TA3.4-115

CL3.4-117

(continued)

b. Core outlet temperature is maintained at least 10°F below saturation temperature, so that no vapor bubble may form and possibly cause a natural circulation flow obstruction.

Note 2 allows one RHR loop to be inoperable for a period of up to 2 hours, provided that the other RHR loop is OPERABLE and in operation. This permits periodic surveillance tests to be performed on the inoperable loop during the only time when such testing is safe and possible.

Note 3 requires a steam or gas bubble in the pressurizer or that the secondary side water temperature of each SG be ≤ ~~[50]~~°F above each of the RCS cold leg temperatures before the start of a reactor coolant pump (RCP) with an RCS cold leg temperature ≤ the OPPS enable temperature specified in the PTLR~~[275]~~ ~~°F~~. A steam or gas bubble ensures that the pressurizer will accommodate the swell resulting from an RCP start. Either of these restraints~~This restriction is to~~ prevents a low temperature overpressure event due to a thermal transient when an RCP is started.

CL3.4-123

TA3.4-119

Note 4 provides for an orderly transition from MODE 5 to MODE 4 during a planned heatup by permitting removal of RHR loops from operation when at least one RCS loop is in operation. This Note provides for the transition to MODE 4 where an RCS loop is permitted to be in operation and replaces the RCS circulation function provided by the RHR loops.

RHR pumps are OPERABLE if they are capable of being powered and are able to provide flow if required. A SG is capable of removing decay heat via natural circulation when: 1) there is the ability to pressurize and control pressure in the RCS; 2) there is sufficient secondary side water level in the SG

TA3.4-246

PA3.4-232

CL3.4-121

(continued)

R-9

PA3.4-211

BASES

relied on for decay heat removal; and 3) there is an available supply of feedwater (Ref. 1). An OPERABLE SG can perform as a heat sink via natural circulation when it has ~~an adequate~~ the capability to remove decay heat as ~~water level and is OPERABLE in accordance with the Steam Generator Tube Surveillance Program~~specified in SR 3.4.7.2.

R-9

APPLICABILITY In MODE 5 with RCS loops filled, this LCO requires forced circulation of the reactor coolant to remove decay heat from the core and to provide proper boron mixing. One loop of RHR provides sufficient circulation for these purposes. However, one additional RHR loop is required to be OPERABLE,

APPLICABILITY (continued) or ~~the secondary side water level of at least [two]~~ SGs is capable of removing decay heat~~required to be ≥ [17]%~~.

CL3.4-121

R-9

Operation in other MODES is covered by:

LCO 3.4.4, "RCS Loops – MODES 1 and 2";
LCO 3.4.5, "RCS Loops – MODE 3";
LCO 3.4.6, "RCS Loops – MODE 4";
LCO 3.4.8, "RCS Loops – MODE 5, Loops Not Filled";
LCO 3.9.5, "Residual Heat Removal (RHR) and Coolant Circulation – High Water Level" (MODE 6); and
LCO 3.9.6, "Residual Heat Removal (RHR) and Coolant Circulation – Low Water Level" (MODE 6).

ACTIONS A.1, ~~and~~ A.2, B.1 and B.2

TA3.4-330

CL3.4-121

If one RHR loop is ~~inoperable~~OPERABLE and the ~~required~~ SGs are not capable of removing decay heat~~have secondary side water levels < [17]%~~, redundancy, for heat removal is lost. Action must be initiated immediately to

R-9

(continued)

BASES (continued)

restore a second RHR loop to OPERABLE status or to restore the required SG capability to remove decay heat~~secondary side water levels~~. Either Required Action ~~A.1 or Required Action A.2~~ will restore redundant heat removal paths. The immediate Completion Time reflects the importance of maintaining the availability of two paths for heat removal. R-9

BC.1 and BC.2

If ~~no~~a required RHR loop is not in operation, TA3.4-330 except during conditions permitted by Note 1, or if no loop is OPERABLE, all operations involving TA3.4-115 ~~a reduction~~introduction of coolant into the RCS with boron concentration less than required to meet the minimum SDM of LCO 3.1.1 must be suspended and action to restore one RHR loop to OPERABLE status and operation must be initiated. ~~To prevent boron dilution, forced circulation is required to provide proper mixing and preserve the margin to criticality in this type of operation~~ Suspending the introduction of coolant into the RCS with boron concentration less than required to meet the minimum SDM of LCO 3.1.1 is required to assure continued safe operation. With coolant added without forced circulation, unmixed coolant could be introduced to the core; however, coolant added with boron concentration meeting the minimum SDM maintains acceptable margin to subcritical operations. The immediate Completion Times reflect the importance of maintaining operation for heat removal. R-9

SURVEILLANCE REQUIREMENTS

SR 3.4.7.1

This SR requires verification every 12 hours that the required loop is in operation. Verification may includes flow rate, temperature, or pump status monitoring, which helps ensure that forced flow is providing heat removal. The Frequency of 12 hours is sufficient considering other

BASES (continued)

indications and alarms available to the operator in the control room to monitor RHR loop performance.

SR 3.4.7.2

CL3.4-121

SR 3.4.7.2 requires verification that the required SG has the capability to remove decay heat via natural circulation. This provides an alternate decay heat removal method in the event that the second RHR loop is not OPERABLE. The ability to remove decay heat requires the ability to pressurize and control pressure in the RCS, sufficient secondary side water level in the SG relied on for decay heat removal, and an available supply of feedwater(Ref. 1). ~~Verifying that at least two SGs are OPERABLE by ensuring their secondary side narrow range water levels are ≥ [17]% ensures an alternate decay heat removal method in the event that the second RHR loop is not OPERABLE. If both~~ RHR loops are OPERABLE, ~~this Surveillance is not needed.~~ The 12 hour Frequency is considered adequate in view of other indications available in the control room to alert the operator to ~~a~~the loss of capability of the SG to remove decay heat~~level~~.

TA3.4-246

R-9

R-9

SR 3.4.7.3

Verification that each required~~a second~~ RHR pump is OPERABLE ensures that an additional pump can be placed in operation, if needed, to maintain decay heat removal and reactor coolant circulation. Verification is performed by verifying proper breaker alignment and power available to ~~the~~each required RHR pump. Alternatively, verification that a pump is in operation also verifies proper breaker alignment and power availability. If ~~secondary side water level is ≥ [17]% in~~ at least one~~two~~ SG~~s~~ is capable of decay heat removal, this Surveillance is not needed. The Frequency of 7 days is considered reasonable in view of other administrative controls

TA3.4-125

CL3.4-121

R-9

PA3.4-211

BASES (continued)

available and has been shown to be acceptable by operating experience.

This SR is modified by a Note that states the SR is not required to be performed until 24 hours after a pump is not in operation. TA3.4-125

REFERENCES

1. NRC Information Notice 95-35, "Degraded Ability of Steam Generators to Remove Decay Heat by Natural Circulation"~~None~~. CL3.4-121

2. License Amendment Request Dated November 19, 1999. (Approved by License Amendment 152/143, July 14, 2000.) TA3.4-246 CL3.4-117

R-9

PA3.4-211

BASES

LCO

The purpose of this LCO is to require that at least two RHR loops be OPERABLE and one of these loops be in operation to. ~~An OPERABLE loop is one that has the capability of~~ transfer~~ring~~ heat from the reactor coolant at a controlled rate. Heat cannot be removed via the RHR System unless forced flow is used. A minimum of one operating~~running~~ RHR pump meets the LCO requirement for one loop in operation. An additional RHR loop is required to be OPERABLE to provide redundancy~~meet single failure considerations~~.

LCO (continued)

Note 1 permits all RHR pumps to be de-energized for ≤ 1 hour per 8 hour period ~~15 minutes when switching from one loop to another~~. The circumstances for stopping both RHR pumps are to be limited to situations when the outage time is short [and core outlet temperature is maintained > 10°F below saturation temperature]. The Note prohibits boron dilution with coolant at boron concentrations less than required to assure SDM is maintained or draining operations when RHR forced flow is stopped.

CL3.4-131

R-9

TA3.4-115

Note 2 allows one RHR loop to be inoperable for a period of ≤ 2 hours, provided that the other loop is OPERABLE and in operation. This permits periodic surveillance tests to be performed on the inoperable loop during the only time when these tests are safe and possible.

An OPERABLE RHR loop is comprised of an OPERABLE RHR pump capable of providing forced flow to an OPERABLE RHR heat exchanger. RHR pumps are OPERABLE if they are capable of being powered and are able to provide flow if required.

(continued)

PA3.4-211

BASES

APPLICABILITY

In MODE 5 with loops not filled, this LCO requires core heat removal and coolant circulation by the RHR System.

Operation in other MODES is covered by:

LCO 3.4.4, "RCS Loops – MODES 1 and 2";
LCO 3.4.5, "RCS Loops – MODE 3";
LCO 3.4.6, "RCS Loops – MODE 4";
LCO 3.4.7, "RCS Loops – MODE 5, Loops Filled";
LCO 3.9.5, "Residual Heat Removal (RHR) and Coolant Circulation – High Water Level" (MODE 6); and
LCO 3.9.6, "Residual Heat Removal (RHR) and Coolant Circulation – Low Water Level" (MODE 6).

ACTIONS

A.1

TA3.4-330

If ~~only~~ one required RHR loop is inoperable ~~OPERABLE and in operation~~, redundancy for RHR is lost. Action must be initiated to restore a second loop to OPERABLE status. The immediate Completion Time reflects the importance of maintaining the availability of two paths for heat removal.

R-9

ACTIONS (continued)

B.1 and B.2

TA3.4-330

If no required ~~RHR~~ loops ~~are~~is OPERABLE or the required loop is not in operation, except during conditions permitted by Note 1, all operations involving ~~a reduction~~introduction of coolant into the RCS with boron concentration less than required to meet the minimum SDM of LCO 3.1.1 must be suspended and action must be initiated immediately to restore an RHR loop to OPERABLE status and operation. ~~Boron dilution requires forced circulation for uniform dilution, and t~~The margin to criticality must not be reduced in this type of operation.

TA3.4-115

R-9

PA3.4-211

BASES

Suspending the introduction of coolant into the RCS with boron concentration less than required to meet the minimum SDM of LCO 3.1.1 is required to assure continued safe operation. With coolant added without forced circulation, unmixed coolant could be introduced to the core; however, coolant added with boron concentration meeting the minimum SDM maintains acceptable margin to subcritical operations. The immediate Completion Time reflects the importance of maintaining operation for heat removal. The action to restore must continue until one loop is restored to OPERABLE status and operation.

CL3.4-132

The Note in Required Action B.2 allows the use of one safety injection pump to provide heat removal in the event of a loss of RHR system cooling during reduced RCS inventory conditions.

SURVEILLANCE REQUIREMENTS

SR 3.4.8.1

TA3.4-330

This SR requires verification every 12 hours that ~~one~~the required loop is in operation. Verification may include~~s~~ flow rate, temperature, or pump status monitoring, which helps ensure that forced flow is providing heat removal. The Frequency of 12 hours is sufficient considering other indications and alarms available to the operator in the control room to monitor RHR loop performance.

R-9

SR 3.4.8.2

Verification that each~~the~~ required ~~number of~~ pump~~s~~ is~~are~~ OPERABLE ensures that an additional pump~~s~~ can be placed in operation, if needed, to maintain decay heat removal and reactor coolant circulation. Verification is performed by verifying proper breaker alignment and power available to ~~the~~each required pump~~s~~. Alternatively, verification that a pump is in operation also verifies proper breaker alignment

TA3.4-125

PA3.4-211

BASES

and power availability. The Frequency of 7 days is considered reasonable in view of other administrative controls available and has been shown to be acceptable by operating experience.

This SR is modified by a Note that states the SR is not required to be performed until 24 hours after a pump is not in operation.

TA3.4-125

REFERENCES None.

CL3.4-162 CL3.4-271 PA3.4-211

R-9

B 3.4 REACTOR COOLANT SYSTEM (RCS)

B 3.4.12 Low Temperature Overpressure Protection (LTOP) - Reactor Coolant System Cold Leg Temperature (RCSCLT) > Safety Injection (SI) Pump Disable Temperature

R-9

BASES

BACKGROUND

The LTOP function limits~~System controls~~ RCS pressure at low temperatures so the integrity of the reactor coolant pressure boundary (RCPB) is not compromised by violating the pressure and temperature (P/T) limits of 10 CFR 50, Appendix G (Ref. 1). The reactor vessel is the limiting RCPB component for demonstrating such protection. The Over Pressure Protection System (OPPS) and the pressurizer power operated relief valves (PORVs) provide the LTOP function (Ref. 2). The PTLR provides the maximum allowable OPPS actuation ~~logic~~ setpoints for the ~~power operated relief valves (~~PORVs~~)~~ and the maximum RCS pressure for the existing RCS cold leg temperature during cooldown, shutdown, and heatup to meet the Reference 1 requirements during the LTOP MODES. The LTOP MODES are the MODES as defined in the Applicability statement of LCO 3.4.12 and LCO 3.4.13.

CL3.4-272

The pressurizer safety valves and PORVs at their normal setpoints do not provide overpressure protection for certain low temperature operational transients. Inadvertent pressurization of the RCS at temperatures below the OPPS enable temperature specified in the PTLR could result in exceeding the ASME Appendix G (Ref. 3) brittle fracture P/T limits. ~~The reactor vessel material is less tough at low temperatures than at normal operating temperature. As the vessel neutron exposure accumulates, the material toughness decreases and becomes less resistant to pressure stress at low temperatures (Ref. 2). RCS pressure, therefore, is maintained low at low temperatures and is increased only as temperature is increased.~~

(continued)

The potential for vessel overpressurization is most acute when the RCS is water solid, occurring only while shutdown; a pressure fluctuation can occur more quickly than an operator can react to relieve the condition. Exceeding the RCS P/T limits by a significant amount could cause brittle cracking of the reactor vessel. LCO 3.4.3, "RCS Pressure and Temperature (P/T) Limits," requires administrative control of RCS pressure and temperature during heatup and cooldown to prevent exceeding the PTLR limits.

This LCO provides RCS overpressure protection by restrictinghaving a minimum coolant input capability and ensuringhaving adequate pressure relief capacity. In MODE 4, above the safety injection (SI) pump disable temperature, lLimiting coolant input capability requires all but [one] [high pressure injection (SIHPI)] pump [and one charging pump] incapable of injection into the RCS and isolating the emergency core cooling system (ECCS) accumulators. The pressure relief capacity requires either two redundant RCS relief valves or a depressurized RCS and an RCS vent of sufficient size. In MODE 4, above the SI pump disable temperature, oOne PORVRCS relief valve or the open RCS vent is the overpressure protection device that acts to terminate an increasing pressure event. CL3.4-163

BACKGROUND

(continued)

With minimum Limiting coolant input capability reduces the ability to provide core coolant addition is restricted. The LCO does not require the makeup control system deactivated or the safety injection (SI) actuation circuits blocked. Due to the lower pressures in the LTOP MODES and the expected core decay heat levels, the chargingmakeup system can provide adequate flow via the makeup control valve. If conditions require the use of more than one S[HPI or] charging pump for makeup in the event of loss of inventory, then pumps can be made available through manual actions.

(continued)

BASES

The LTOP System for In MODE 4, above the SI pump disable temperature, pressure relief consists of two PORVs with reduced lift settings, or two residual heat removal (RHR) suction relief valves, or one PORV and one RHR suction relief valve, or a depressurized RCS and an RCS vent of sufficient size. Two PORVsRCS relief valves are required for redundancy. One PORVRCS relief valve has adequate relieving capability to preventkeep from overpressurization for the required coolant input capability. CL3.4-272

PORV Requirements

As designed for the LTOP functionSystem, each PORV is signaled to open by OPPS if the RCS pressure approaches the lift setpoint provided when OPPS is enableda limit determined by the LTOP actuation logic. The OPPSLTOP actuation logic monitors both RCS temperature and RCS pressure and indicates determines when a condition not acceptable in the PTLR limits is approached. The wide range RCS temperature setpoints indicate conditions requiring enabling OPPSions are auctioneered to select the lowest temperature signal.

The lowest temperature signal is processed through a function generator that calculates a pressure limit for that temperature. The calculated pressure limit is then compared with the indicated RCS pressure from a wide range pressure channel. If the indicated pressure meets or exceeds the calculated value, a PORV is signaled to open.

The PTLR presents the OPPSPORV setpoints for LTOP. The setpoints are normally staggered so only one valve opens during a low temperature overpressure transient. Having the setpoints of both valves within the limits in the PTLR ensures that the Reference 1 limits will not be exceeded in any analyzed event.

(continued)

BASES

BACKGROUND PORV Requirements (continued)

When a PORV is opened in an increasing pressure transient, the release of coolant will cause the pressure increase to slow and reverse. As the PORV releases coolant, the RCS pressure decreases until a reset pressure is reached and the valve is signaled to close. The pressure continues to decrease below the reset pressure as the valve closes.

RHR Suction Relief Valve Requirements CL3.4-272

During LTOP MODES, the RHR System is operated for decay heat removal and low pressure letdown control. Therefore, the RHR suction isolation valves are open in the piping from the RCS hot legs to the inlets of the RHR pumps. While these valves are open and the RHR suction valves are open, the RHR suction relief valves are exposed to the RCS and are able to relieve pressure transients in the RCS.

The RHR suction isolation valves and the RHR suction valves must be open to make the RHR suction relief valves OPERABLE for RCS overpressure mitigation. Autoclosure interlocks are not permitted to cause the RHR suction isolation valves to close. The RHR suction relief valves are spring loaded, bellows type water relief valves with pressure tolerances and accumulation limits established by Section III of the American Society of Mechanical Engineers (ASME) Code (Ref. 3) for Class 2 relief valves.

RCS Vent Requirements CL3.4-272

Once the RCS is depressurized, a vent exposed to the containment atmosphere will maintain the RCS at containment ambient pressure in an RCS overpressure transient, if the

(continued)

BASES

~~relieving requirements of the transient do not exceed the capabilities of the vent. Thus, the vent path must be capable of relieving the flow resulting from the limiting LTOP mass or heat input transient, and maintaining pressure below the P/T limits. The required vent capacity may be provided by one or more vent paths.~~

~~For an RCS vent to meet the flow capacity requirement, it requires removing a pressurizer safety valve, removing a PORV's internals, and disabling its block valve in the open~~

~~BACKGROUND~~ ~~RCS Vent Requirements (continued)~~

~~position, or similarly establishing a vent by opening an RCS vent valve. The vent path(s) must be above the level of reactor coolant, so as not to drain the RCS when open.~~

APPLICABLE SAFETY ANALYSES

Safety analyses (Ref. 24) demonstrate that the reactor vessel is adequately protected against exceeding the Reference 1 P/T limits. In MODES 1, 2, and 3, and in MODE 4 with RCS cold leg temperature exceeding the OPPS enable temperature specified in the PTLR~~[275]°F~~, the pressurizer safety valves will prevent RCS pressure from exceeding the Reference 1 limits. At about the OPPS enable temperature specified in the PTLR~~[275]°F~~ and below, overpressure prevention falls to two OPERABLE PORVs~~RCS relief valves~~ or to a depressurized RCS and a sufficiently sized RCS vent. Each of these means has a limited overpressure relief capability. LCO 3.4.13, "LTOP ≤ SI Pump Disable Temperature," provides the requirements for overpressure prevention at the lower temperatures. TA3.4-119 CL3.4-167

The actual temperature at which the pressure in the P/T limit curve falls below the pressurizer safety valve

(continued)

setpoint increases as the reactor vessel material toughness decreases due to neutron embrittlement. Each time the PTLR curves are revised, ~~the~~ LTOP ~~System~~ must be re-evaluated to ensure its functional requirements can still be met using the PORV~~RCS relief valve~~ method ~~or the depressurized and vented RCS condition~~. CL3.4-272

The PTLR contains the acceptance limits that define the LTOP requirements. Any change to the RCS must be evaluated against the Reference 24 analyses to determine the impact of the change on the LTOP acceptance limits.

Transients that are capable of overpressurizing the RCS are categorized as either mass or heat input transients.~~,~~ The bounding mass input transient ~~examples of which follow:~~ CL3.4-272

~~Mass Input Type Transients~~

~~a.~~ is i~~I~~nadvertent safety injection~~; or~~

~~b.~~ with injection from one SI pump and three c~~C~~harging pumps, and ~~/~~letdown isolated~~flow mismatch~~.

The bounding heat input transient is

APPLICABLE SAFETY ANALYSES (continued)

~~Heat Input Type Transients~~

~~a. Inadvertent actuation of pressurizer heaters;~~

~~b. Loss of RHR cooling; or~~

~~c.~~ r~~R~~eactor coolant pump (RCP) startup with temperature asymmetry within the RCS or between the RCS and steam generators.

The following limitations are required during the Applicability of this specification ~~LTOP MODES~~ to ensure CL3.4-272

(continued)

that mass and heat input transients in excess of analysis assumptions do not occur, which either of the LTOP overpressure protection means cannot handle:

a. Rendering all but [one] [HPSI] pump [and one charging pump] incapable of injection;

b. Deactivating the ECCS accumulator discharge isolation valves in their closed positions; and

c. Disallowing start of an RCP if secondary temperature is more than [50]°F above primary temperature in any one loop. LCO 3.4.6, "RCS Loops – MODE 4," and LCO 3.4.7, "RCS Loops – MODE 5, Loops Filled," provides this protection.

The Reference 24 analyses demonstrate that either one PORVRCS relief valve or the depressurized RCS and RCS vent can maintain RCS pressure below limits when only one S[HPI] pump [and allone charging pumps are] is [are] actuated. Thus, the LCO allows only [one] S[HPI] pump [and one charging pump] OPERABLE during the Applicability of this specificationLTOP MODES. CL3.4-272

Since neither one PORVRCS relief valve nor the RCS vent cannot handle the pressure transient resultingneed from ECCS accumulator injection, when RCS temperature is low, the LCO also requires ECCS the accumulators isolation when ECCS accumulator pressure is greater than or equal to the maximum RCS pressure for the existing RCS cold leg temperature allowed in the PTLR. R-9

The isolated ECCS accumulators must have their discharge valves closed and the valve power supply breakers fixed in their open positions. The analyses show the effect of accumulator discharge is over a narrower RCS temperature CL3.4-272

(continued)

~~range ([175]°F and below) than that of the LCO ([275]°F and below).~~

APPLICABLE SAFETY ANALYSES

~~Heat Input Type Transients (continued)~~

TA3.4-119

Fracture mechanics analyses established the temperature of LTOP Applicability at the OPPS enable temperature specified in the PTLR~~[275]°F~~.

The consequences of a small break loss of coolant accident (LOCA) in LTOP MODE 4 above the SI pump disable temperature conform to 10 CFR 50.46 and 10 CFR 50, Appendix K ~~(Refs. 5 and 6)~~, requirements by having a maximum of ~~[~~one~~]~~ ~~[~~HPSI~~]~~ pump ~~[and one charging pump]~~ OPERABLE and SI actuation enabled.

~~PORV Performance~~

The fracture mechanics analyses show that the vessel is protected when the PORVs are set to open at or below the limit shown in the PTLR. The OPPS setpoints are derived by analyses that model the performance of the ~~LTOP S~~system, assuming the limiting LTOP transient of ~~[~~one~~]~~ ~~[~~HPSI~~]~~ pump ~~[~~and all~~one~~ charging pumps~~]~~ injecting into the RCS. These analyses consider pressure overshoot and undershoot beyond the PORV opening and closing, resulting from signal processing and valve stroke times. The OPPS~~PORV~~ setpoints at or below the derived limit ensures the Reference 1 P/T limits will be met.

The OPPS~~PORV~~ setpoints in the PTLR will be updated when the revised P/T limits conflict with the LTOP analysis limits. The P/T limits are periodically modified as the reactor vessel material toughness decreases due to neutron embrittlement caused by neutron irradiation. Revised limits are determined using neutron fluence projections and the

(continued)

results of examinations of the reactor vessel material irradiation surveillance specimens. The Bases for LCO 3.4.3, "RCS Pressure and Temperature (P/T) Limits," discuss these examinations.

~~The PORVs are considered active components. Thus, the failure of one PORV is assumed to represent the worst case, single active failure.~~

CL3.4-272
CL3.4-163

~~APPLICABLE SAFETY ANALYSES (continued)~~ ~~[RHR Suction Relief Valve Performance]~~

~~The RHR suction relief valves do not have variable pressure and temperature lift setpoints like the PORVs. Analyses must show that one RHR suction relief valve with a setpoint at or between [436.5] psig and [463.5] psig will pass flow greater than that required for the limiting LTOP transient while maintaining RCS pressure less than the P/T limit curve. Assuming all relief flow requirements during the limiting LTOP event, an RHR suction relief valve will maintain RCS pressure to within the valve rated lift setpoint, plus an accumulation $\leq$ 10% of the rated lift setpoint.~~

~~Although each RHR suction relief valve may itself meet single failure criteria, its inclusion and location within the RHR System does not allow it to meet single failure criteria when spurious RHR suction isolation valve closure is postulated. Also, as the RCS P/T limits are decreased to reflect the loss of toughness in the reactor vessel materials due to neutron embrittlement, the RHR suction relief valves must be analyzed to still accommodate the design basis transients for LTOP.~~

(continued)

BASES

The RHR suction relief valves are considered active components. Thus, the failure of one valve is assumed to represent the worst case single active failure.

RCS Vent Performance CL3.4-272

With the RCS depressurized, analyses show a vent size of 2.07 square inches is capable of mitigating the allowed LTOP overpressure transient. The capacity of a vent this size is greater than the flow of the limiting transient for the LTOP configuration, [one] HPI pump [and one charging pump] OPERABLE, maintaining RCS pressure less than the maximum pressure on the P/T limit curve.

The RCS vent size will be re-evaluated for compliance each time the P/T limit curves are revised based on the results of the vessel material surveillance.

The RCS vent is passive and is not subject to active failure.

APPLICABLE SAFETY ANALYSES

RCS Vent Performance (continued)

The LTOP functionSystem satisfies Criterion 2 of the NRC Policy Statement10 CFR 50.36(c)(2)(ii).

LCO

This LCO requires that the LTOP System is OPERABLE. The LTOP System is OPERABLE when the minimumbe provided, by limiting coolant input capability and by OPERABLE pressure relief capabilityies are OPERABLE. Violation of this LCO could lead to the loss of low temperature overpressure mitigation and violation of the Reference 1 limits as a result of an operational transient.

(continued)

TA3.4-166

To limit the coolant input capability, the LCO requires that a maximum of ~~[~~one~~]~~ ~~[~~HP~~]~~SI~~]~~ pump ~~[and one charging pump]~~ be capable of injecting into the RCS, and all ECCS accumulator discharge isolation valves be closed and deenergized~~immobilized.~~ (~~w~~When ECCS accumulator pressure is greater than or equal to the maximum RCS pressure for the existing RCS cold leg temperature allowed in the PTLR).

CL3.4-163

R-9

TA3.4-166

CL3.4-164

The LCO is modified by two Notes. Note 1 allows operation of both SI pumps for ≤ 1 hour for conducting SI system testing providing there is a steam or gas bubble in the pressurizer and at least one isolation valve between the SI pump and the RCS is shut. The purpose of this note is to permit the conduct of the integrated SI test and other SI system tests and operations that may be performed in MODE 4. In this case, pressurizer level is maintained at less than 50% and a positive means of isolation is provided between the SI pumps and the RCS to prevent fluid injection to the RCS. This isolation is accomplished by either a closed manual valve or motor operated valve with the power removed. This combination of conditions under strict administrative control assure that overpressurization cannot occur.

TA3.4-166

R-9

R-9

Note 2 states that ECCS accumulator isolation is only required when the ECCS accumulator pressure is more than or at the maximum RCS pressure for the existing RCS cold leg temperature allowed by the P/T limit curves provided in the PTLR (less allowance for instrument uncertainty). This Note permits the ECCS accumulator discharge isolation valve Surveillance to be performed only under these pressure and temperature conditions.

~~The elements of the LCO that~~To provide low temperature overpressure mitigation through pressure relief, the LCO

(continued)

R-9

CL3.4-162 CL3.4-271 PA3.4-211

BASES

~~a. Two RCS relief valves, as follows:~~

~~1. Two OPERABLE PORVs; or~~

A PORV is OPERABLE for LTOP when its block valve is open, its low pressure lift setpoint ~~is set to the limit required by the PTLR~~ has been selected (OPPS enabled) ~~and testing proves its ability to open at this setpoint~~, and the backup air supply is charged~~motive power is available to the two valves and their control circuits~~.

~~[2. Two OPERABLE RHR suction relief valves; or]~~ CL3.4-163

~~An RHR suction relief valve is OPERABLE for LTOP when its RHR suction isolation valve and its RHR suction valve are open, its setpoint is at or between [436.5] psig and [463.5] psig, and testing has proven its ability to open at this setpoint.~~

~~LCO (continued)~~

~~3. One OPERABLE PORV and one OPERABLE RHR suction relief valve; or~~

~~b. A depressurized RCS and an RCS vent.~~ CL3.4-272

~~An RCS vent is OPERABLE when open with an area of $\geq$ [2.07] square inches.~~

~~Each of these methods of overpressure prevention is capable of mitigating the limiting LTOP transient.~~

APPLICABILITY This LCO is applicable in MODE 4 when any RCS cold leg temperature is $\leq$ the OPPS enable temperature specified in the PTLR and > the SI pump disable temperature specified in the PTLR~~[275]°F, in MODE 5, and in MODE 6 when the reactor~~ TA3.4-119 CL3.4-167

(continued)

~~vessel head is on~~. The pressurizer safety valves provide overpressure protection that meets the Reference 1 P/T limits above the OPPS enable temperature specified in the PTLR~~[275]~~ °F. ~~When the reactor vessel head is off, overpressurization cannot occur.~~

LCO 3.4.3 provides the operational P/T limits for all MODES. LCO 3.4.10, "Pressurizer Safety Valves," requires the OPERABILITY of the pressurizer safety valves that provide overpressure protection during MODES 1, 2, and 3, and MODE 4 above the OPPS enable temperature specified in the PTLR~~[275]~~ °F. LCO 3.4.13 provides the LTOP requirements in MODE 4 ≤ SI pump disable temperature and in MODES 5 and 6. TA3.4-119 CL3.4-167

Low temperature overpressure prevention is most critical during shutdown when the RCS is water solid, and a mass or heat input transient can cause a very rapid increase in RCS pressure when little or no time allows operator action to mitigate the event.

TA3.4-166

~~The Applicability is modified by a Note stating that accumulator isolation is only required when the accumulator pressure is more than or at the maximum RCS pressure for the existing temperature, as allowed by the P/T limit curves. This Note permits the accumulator discharge isolation valve Surveillance to be performed only under these pressure and temperature conditions.~~

ACTIONS A.1 ~~[and B.1]~~

(continued)

ACTIONS

A.1 ~~[and B.1]~~

With two ~~or more HP~~SI pumps capable of injecting into the RCS, RCS overpressurization is possible.

To immediately initiate action to restore restricted coolant input capability to the RCS reflects the urgency of removing the RCS from this condition.

~~Required Action B.1 is modified by a Note that permits two charging pumps capable of RCS injection for ≤ 15 minutes to allow for pump swaps.~~ TA3.4-166

B~~C~~.1, C~~D~~.1, and B~~C~~.2

An unisolated ECCS accumulator requires isolation within 1 hour. This is only required when the ECCS accumulator pressure is at or more than the maximum RCS pressure for the existing temperature allowed by the P/T limit curves. R-9

If isolation is needed and cannot be accomplished in 1 hour, Required Action C~~D~~.1 and Required Action C~~D~~.2 provide two options, either of which must be performed in the next 12 hours. By increasing the RCS temperature to > the OPPS enable temperature specified in the PTLR~~[275] °F~~, an ECCS accumulator pressure of ~~[6800]~~ psig cannot exceed the LTOP analysis limits if the ECCS accumulators are fully injected. Depressurizing the ECCS accumulators below the LTOP limit from the PTLR also gives this protection. TA3.4-119 R-9

The Completion Times are based on operating experience that these activities can be accomplished in these time

(continued)

BASES

In MODE 4 when any RCS cold leg temperature is ≤ the OPPS enable temperature specified in the PTLR~~[275]°F~~, with one required PORV~~RCS relief valve~~ inoperable, the PORV~~RCS relief valve~~ must be restored to OPERABLE status within a Completion Time of 7 days. Two PORVs~~RCS relief valves [in any combination of the PORVS and the RHR suction relief valves]~~ are required to provide low temperature overpressure mitigation while withstanding a single failure of an active component. TA3.4-119 CL3.4-163

ACTIONS

DE.1 (continued)

The Completion Time considers the facts that only one of the PORVs~~RCS relief valves~~ is required to mitigate an overpressure transient and that the likelihood of an active failure of the remaining valve path during this time period is very low.

EF.1

~~The consequences of operational events that will overpressurize the RCS are more severe at lower temperature (Ref. 7). Thus, with one of the two RCS relief valves inoperable in MODE 5 or in MODE 6 with the head on, the Completion Time to restore two valves to OPERABLE status is 24 hours.~~ CL3.4-167

~~The Completion Time represents a reasonable time to investigate and repair several types of relief valve failures without exposure to a lengthy period with only one OPERABLE RCS relief valve to protect against overpressure events.~~

(continued)

~~G.1~~

PA3.4-168
TA3.4-139

MODE 5 must be entered, t~~T~~he RCS must be depressurized and a vent must be established within 12~~8~~ hours when:

a. Both ~~required PORVs~~RCS relief valves are inoperable; or

b. A Required Action and associated Completion Time of Condition A, C~~[B,] D, E~~, or D~~F~~ is not met; or

c. The OPPS~~LTOP System~~ is inoperable~~ for any reason other than Condition A, [B,] C, D, E, or F~~.

CL3.4-169

The vent must be sized ≥ 3~~[2.07]~~ square inches to ensure that the flow capacity is greater than that required for the worst case mass input transient reasonable during the applicable MODES. The vent opening is based on the cross sectional flow area of a PORV. A PORV maintained in the open position satisfies the vent requirement. This action is needed to protect the RCPB
from a low temperature overpressure event and a possible brittle failure of the reactor vessel.

ACTIONS

EG.1 (continued)

The Completion Time considers the time required to place the plant in this Condition and the relatively low probability of an overpressure event during this time period due to increased operator awareness of administrative control requirements.

(continued)

SURVEILLANCE REQUIREMENTS

SR 3.4.12.1~~, [SR 3.4.12.2,]~~ and SR 3.4.12.~~23~~

To minimize the potential for a low temperature overpressure event by limiting the mass input capability, ~~a maximum of [one] [HPSI]~~ pump is~~[and a maximum of one charging pump] are~~ verified incapable of injecting into the RCS and the ECCS accumulator discharge isolation valves are verified closed and deenergized~~locked out~~. CL3.4-163

The ~~[HPSI]~~ pump~~[s] and charging pump[s] are~~ is rendered incapable of injecting into the RCS ~~through removing the power from the pumps by racking the breakers out under administrative control. An alternate method of LTOP control may be employed using~~by employing at least two independent means to prevent a pump start such that a single failure or single action will not result in an injection into the RCS. This may be accomplished through the pump control switch being placed in [pullout ~~to lock~~] and ~~at least one valve in the discharge flow path being closed~~ with a blocking device installed over the control switch that would prevent an unplanned pump start. CL3.4-273

The ECCS accumulator motor operated isolation valves can be verified closed and deenergized by use of control board indication. SR 3.4.12.2 is modified by a Note specifying that this verification is only required when the ECCS accumulator pressure is greater than or equal to the maximum RCS pressure for the existing RCS cold leg temperature allowed in the PTLR. If ECCS accumulator pressure is less than this limit, no verification is required since the ECCS accumulator cannot pressurize the RCS to or above the OPPS setpoint. CL3.4-273 X3.4-171 R-9 R-9

The Frequency of 12 hours is sufficient, considering other indications and alarms available to the operator in the

(continued)

control room, to verify the required status of the equipment.

~~SR 3.4.12.4~~ CL3.4-163

~~Each required RHR suction relief valve shall be demonstrated OPERABLE by verifying its RHR suction valve and RHR suction isolation valves are open and by testing it in accordance with the Inservice Testing Program. (Refer to SR 3.4.12.7 for the RHR suction isolation valve Surveillance.) This Surveillance is only required to be performed if the RHR suction relief valve is being used to meet this LCO.~~

~~SURVEILLANCE REQUIREMENTS~~ ~~SR 3.4.12.4 (continued)~~

~~The RHR suction valve is verified to be opened every 12 hours. The Frequency is considered adequate in view of other administrative controls such as valve status indications available to the operator in the control room that verify the RHR suction valve remains open.~~

~~The ASME Code, Section XI (Ref. 8), test per Inservice Testing Program verifies OPERABILITY by proving proper relief valve mechanical motion and by measuring and, if required, adjusting the lift setpoint.~~

~~SR 3.4.12.5~~ CL3.4-272

~~The RCS vent of $\geq$ [2.07] square inches is proven OPERABLE by verifying its open condition either:~~

~~a. Once every 12 hours for a valve that cannot be locked.~~

~~b. Once every 31 days for a valve that is locked, sealed, or secured in position. A removed pressurizer safety valve fits this category.~~

(continued)

~~The passive vent arrangement must only be open to be OPERABLE. This Surveillance is required to be performed if the vent is being used to satisfy the pressure relief requirements of the LCO 3.4.12b.~~

SR 3.4.12.~~36~~

The PORV block valve must be verified open every 72 hours to provide the flow path for each required PORV to perform its function when actuated. The valve may~~must~~ be remotely verified open in the main control room. ~~[This Surveillance is performed if the PORV satisfies the LCO.]~~

The block valve is a remotely controlled, motor operated valve. The power to the valve operator is not required to be removed, and the manual operator is not required to be locked in the inactive position. Thus, the block valve can be closed in the event the PORV develops excessive leakage or does not close (sticks open) after relieving an overpressure situation.

SURVEILLANCE REQUIREMENTS

SR 3.4.12.~~36~~ (continued)

The 72 hour Frequency is considered adequate in view of other administrative controls available to the operator in the control room, such as valve position indication, that verify that the PORV block valve remains open.

~~SR 3.4.12.7~~ CL3.4-163

~~Each required RHR suction relief valve shall be demonstrated OPERABLE by verifying its RHR suction valve and RHR suction isolation valve are open and by testing it in accordance~~

(continued)

~~with the Inservice Testing Program. (Refer to SR 3.4.12.4 for the RHR suction valve Surveillance and for a description of the requirements of the Inservice Testing Program.) This Surveillance is only performed if the RHR suction relief valve is being used to satisfy this LCO.~~

~~Every 31 days the RHR suction isolation valve is verified locked open, with power to the valve operator removed, to ensure that accidental closure will not occur. The "locked open" valve must be locally verified in its open position with the manual actuator locked in its inactive position. The 31 day Frequency is based on engineering judgment, is consistent with the procedural controls governing valve operation, and ensures correct valve position.~~

SR 3.4.12.~~48~~

Performance of a COT is required ~~within 12 hours after decreasing RCS temperature to ≤ [275]°F and~~ every 31 days on ~~each required PORV~~OPPS to verify and, as necessary, adjust the PORV~~its~~ lift setpoints. A successful test of the required contact(s) of a channel relay may be performed by the verification of the change of state of a single contact of the relay. This clarifies what is an acceptable CHANNEL OPERATIONAL TEST of a relay. This is acceptable because all of the other required contacts of the relay are verified by other Technical Specifications and non-Technical Specifications tests at least once per refueling interval with applicable extensions. The COT will verify the setpoints are~~is~~ within the PTLR allowed maximum limits in the PTLR. PORV actuation during this testing could depressurize the RCS and is not required.

TA3.4-313

~~The 12 hour Frequency considers the unlikelihood of a low temperature overpressure event during this time.~~

(continued)

BASES

A Note has been added indicating that this SR is required to be performed~~met~~ 12 hours after decreasing RCS cold leg temperature to ≤ the OPPS enable temperature specified in the PTLR~~[275]°F~~. The COT may not have been~~cannot be~~ performed before entry into~~until in~~ the LTOP MODES~~when the PORV lift setpoint can be reduced to the LTOP~~ TA3.4-157 TA3.4-119

~~SURVEILLANCE REQUIREMENTS~~ ~~SR 3.4.12.8 (continued)~~

~~setting. The test must be performed within 12 hours after entering the LTOP MODES~~. The 12 hour initial time considers the unlikehood of a low temperature overpressure event during this time.

SR 3.4.12.~~5~~9

Performance of a CHANNEL CALIBRATION on OPPS~~Each required PORV actuation channel~~ is required every 24~~[18]~~ months to adjust the whole channel so that it responds and the valve opens within the required range and accuracy to known input. CL3.4-107 R-2

REFERENCES

1. 10 CFR 50, Appendix G.
2. USAR, Section 4.4.
3. ASME, Boiler and Pressure Vessel Code, Section XI, Appendix G, with ASME Code Case N-514~~Generic Letter 88-11~~.

~~3. ASME, Boiler and Pressure Vessel Code, Section III.~~

~~4. FSAR, Chapter [15]~~

~~5. 10 CFR 50, Section 50.46.~~

~~6. 10 CFR 50, Appendix K.~~

BASES (continued)

~~7. Generic Letter 90-06.~~

~~8. ASME, Boiler and Pressure Vessel Code, Section XI.~~

B 3.4 REACTOR COOLANT SYSTEM (RCS)

B 3.4.13 Low Temperature Overpressure Protection (LTOP) - Reactor Coolant System Cold Leg Temperature (RCSCLT) ≤ Safety Injection (SI) Pump Disable Temperature

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BASES

BACKGROUND

The LTOP function limits RCS pressure at low temperatures so the integrity of the reactor coolant pressure boundary (RCPB) is not compromised by violating the pressure and temperature (P/T) limits of 10 CFR 50, Appendix G (Ref. 1). The reactor vessel is the limiting RCPB component for demonstrating such protection. The Over Pressure Protection System (OPPS) provides the actuation setpoints for the pressurizer power operated relief valves (PORVs) for the LTOP function (Ref.2). The PTLR provides the maximum allowable OPPS actuation setpoints and the maximum RCS pressure for the existing RCS cold leg temperature during cooldown, shutdown, and heatup to meet the Reference 1 requirements during the LTOP MODES. The LTOP MODES are the MODES as defined in the Applicability statement of LCO 3.4.12 and LCO 3.4.13.

The pressurizer safety valves and PORVs at their normal setpoints do not provide overpressure protection for certain low temperature operational transients. Inadvertent pressurization of the RCS at temperatures below the OPPS enable temperature specified in the PTLR could result in exceeding the ASME Appendix G (Ref. 3) brittle fracture P/T limits. Exceeding the RCS P/T limits by a significant amount could cause brittle cracking of the reactor vessel. LCO 3.4.3, "RCS Pressure and Temperature (P/T) Limits," requires administrative control of RCS pressure and temperature during heatup and cooldown to prevent exceeding the PTLR limits.

(continued)

This LCO provides RCS overpressure protection by restricting coolant input capability and ensuring adequate pressure relief capacity. In MODE 4, at or below the safety injection (SI) pump disable temperature, limiting coolant input capability requires both SI pumps incapable of injection into the RCS and isolating the emergency core cooling system (ECCS) accumulators. The pressure relief capacity requires either two redundant RCS relief valves or a depressurized RCS and an RCS vent of sufficient size. One PORV or the open RCS vent is the overpressure protection device that acts to terminate an increasing pressure event.

BACKGROUND (continued)

Limiting coolant input capability reduces the ability to provide core coolant addition. The LCO does not require the makeup control system deactivated or the SI actuation circuits blocked. Due to the lower pressures in the LTOP MODES and the expected core decay heat levels, the charging system can provide adequate flow. If conditions require the use of an SI pump for makeup in the event of loss of inventory, the pump can be made available through manual actions.

The LTOP pressure relief consists of two PORVs with reduced lift settings or a depressurized RCS and an RCS vent of sufficient size. Two PORVs are required for redundancy. One PORV has adequate relieving capability to prevent overpressurization for the required coolant input capability.

OPPS and PORV Requirements

As designed for the LTOP function, each PORV is signaled to open by OPPS if the RCS pressure approaches the lift setpoint provided when OPPS is enabled. The OPPS monitors both RCS temperature and RCS pressure and indicates when a condition not acceptable in the PTLR limits is approached. The wide range RCS temperature setpoints indicate conditions

(continued)

requiring enabling OPPS. The PTLR presents the OPPS setpoints for LTOP.

RCS Vent Requirements

Once the RCS is depressurized, a vent exposed to the containment atmosphere will maintain the RCS at containment ambient pressure in an RCS overpressure transient, if the relieving requirements of the transient do not exceed the capabilities of the vent. Thus, the vent path must be capable of relieving the flow resulting from the limiting LTOP mass or heat input transient, and maintaining pressure below the P/T limits. The required vent capacity may be provided by one or more vent paths.

APPLICABLE SAFETY ANALYSES

Safety analyses (Ref. 2) demonstrate that the reactor vessel is adequately protected against exceeding the Reference 1 P/T limits. In MODES 1, 2, and 3, and in MODE 4 with RCS cold leg temperature exceeding the OPPS enable temperature specified in the PTLR, the pressurizer safety valves will prevent RCS pressure from exceeding the Reference 1 limits. At about the OPPS enable temperature specified in the PTLR and below, overpressure prevention falls to two OPERABLE PORVs or to a depressurized RCS and a sufficiently sized RCS vent. Each of these means has a limited overpressure relief capability. LCO 3.4.12, "LTOP > SI Pump Disable Temperature," provides the requirements for overpressure prevention at temperatures above the SI Pump disable temperature.

The actual temperature at which the pressure in the P/T limit curve falls below the pressurizer safety valve setpoint increases as the reactor vessel material toughness decreases due to neutron embrittlement. Each time the PTLR

(continued)

curves are revised, LTOP must be re-evaluated to ensure its functional requirements can still be met using the PORV method or the depressurized and vented RCS condition.

The PTLR contains the acceptance limits that define the LTOP requirements. Any change to the RCS must be evaluated against the Reference 2 analyses to determine the impact of the change on the LTOP acceptance limits.

Transients that are capable of overpressurizing the RCS are categorized as either mass or heat input transients. The bounding mass input transient is inadvertent safety injection with injection from one SI pump and three charging pumps, and letdown isolated. The bounding heat input transient is reactor coolant pump (RCP) startup with temperature asymmetry within the RCS or between the RCS and steam generators.

The following limitations are required during the Applicability of this specification to ensure that mass and heat input transients in excess of analysis assumptions do not occur:

a. Rendering both SI pumps incapable of injection;

b. Deactivating the ECCS accumulator discharge isolation valves in their closed positions; and

c. Disallowing start of an RCP if secondary temperature is more than 50°F above primary temperature in any one loop. LCO 3.4.6, "RCS Loops – MODE 4," provides this protection.

The Reference 2 analyses demonstrate that either one PORV or the depressurized RCS and RCS vent can maintain RCS pressure below limits when all charging pumps are actuated. Neither one PORV nor the RCS vent can handle the pressure transient resulting from inadvertant SI pump or ECCS accumulator

(continued)

injection when the RCS is below the SI pump disable temperature. Thus, the LCO requires both SI pumps to be disabled below the temperature specified in the PTLR.

The LCO also requires ECCS accumulator isolation when ECCS accumulator pressure is greater than or equal to the maximum RCS pressure for the existing RCS cold leg temperature allowed in the PTLR. The isolated ECCS accumulators must have their discharge valves closed and the valve power supply breakers fixed in their open positions. R-9

Fracture mechanics analyses established the temperature of LTOP Applicability at the OPPS enable temperature specified in the PTLR. The fracture mechanics analyses show that the vessel is protected when the PORVs are set to open at or below the limit shown in the PTLR. The OPPS setpoints are derived by analyses that model the performance of the system, assuming the limiting LTOP transient of all charging pumps injecting into the RCS. These analyses consider pressure overshoot and undershoot beyond the PORV opening and closing, resulting from signal processing and valve stroke times. The OPPS setpoints at or below the derived limit ensures the Reference 1 P/T limits will be met.

APPLICABLE SAFETY ANALYSES (continued)

The OPPS setpoints in the PTLR will be updated when the revised P/T limits conflict with the LTOP analysis limits. The P/T limits are periodically modified as the reactor vessel material toughness decreases due to neutron embrittlement caused by neutron irradiation. Revised limits are determined using neutron fluence projections and the results of examinations of the reactor vessel material irradiation surveillance specimens. The Bases for LCO 3.4.3, "RCS Pressure and Temperature (P/T) Limits," discuss these examinations.

With the RCS depressurized, analyses show a vent size equivalent to the cross sectional flow area of a PORV is

(continued)

capable of mitigating the allowed LTOP overpressure transient. The capacity of a vent this size is greater than the flow of the limiting transient for the LTOP configuration, both SI pumps disabled and all charging pumps OPERABLE when the RCS is below the SI pump disable temperature, maintaining RCS pressure less than the maximum pressure on the P/T limit curve.

The RCS vent is passive and is not subject to active failure.

The LTOP function satisfies Criterion 2 of 10 CFR 50.36(c)(2)(ii).

LCO

This LCO requires that LTOP be provided, by limiting coolant input capability and by OPERABLE pressure relief capability. Violation of this LCO could lead to the loss of low temperature overpressure mitigation and violation of the Reference 1 limits as a result of an operational transient.

To limit the coolant input capability, the LCO requires both SI pumps be incapable of injecting into the RCS, and all ECCS accumulator discharge isolation valves be closed and deenergized (when ECCS accumulator pressure is greater than or equal to the maximum RCS pressure for the existing RCS cold leg temperature allowed in the PTLR). R-9

The LCO is modified by three Notes. Note 1 allows operation of both SI pumps for ≤ 1 hour for conducting SI system testing providing there is a steam or gas bubble in the pressurizer and at least one isolation valve between the SI pump and the RCS is shut. The purpose of this note is to permit the conduct of the integrated SI test and other SI system tests and operations that may be performed in MODES 4, 5 or 6. In this case, pressurizer level is maintained at less than 50% and a positive means of isolation is provided

(continued)

R-9

BASES

between the SI pumps and the RCS to prevent fluid injection to the RCS. This isolation is accomplished by either a closed manual valve or motor operated valve with the power removed. This combination of conditions under strict administrative control assure that overpressurization cannot occur.

Note 2 allows operation of an SI pump during reduced inventory conditions as required to maintain adequate core cooling and RCS inventory. The purpose of this note is to allow use of an SI pump in the event of a loss of other injection capability (e.g., loss of Residual Heat Removal System cooling while in reduced inventory conditions). The operation of an SI pump under such conditions would be controlled by an approved emergency operating procedure.

Note 3 states that ECCS accumulator isolation is only required when the ECCS accumulator pressure is more than or at the maximum RCS pressure for the existing RCS cold leg temperature allowed by the P/T limit curves provided in the PTLR (less allowance for instrument uncertainty). This Note permits the ECCS accumulator discharge isolation valve Surveillance to be performed only under these pressure and temperature conditions.

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The elements of the LCO that provide low temperature overpressure mitigation through pressure relief are:

a. An OPERABLE OPPS with two PORVs.

   A PORV is OPERABLE for LTOP when its block valve is open, its low pressure lift setpoint has been selected (OPPS enabled), and the backup air supply is charged.

b. A depressurized RCS and an RCS vent.

   An RCS vent is OPERABLE when open with an area of ≥ 3 square inches. Because the RCS vent opening

(continued)

a PORV maintained in the open position satisfies the RCS vent requirement.

Each of these methods of overpressure prevention is capable of mitigating the limiting LTOP transient.

APPLICABILITY

This LCO is applicable in MODE 4 when any RCS cold leg temperature is ≤ the SI pump disable temperature specified in the PTLR, in MODE 5, and in MODE 6 when the reactor vessel head is on and the SG primary system manways and pressurizer manway are closed and secured. The pressurizer safety valves provide overpressure protection that meets the Reference 1 P/T limits above the OPPS enable temperature specified in the PTLR. When the reactor vessel head is off, overpressurization cannot occur.

LCO 3.4.3 provides the operational P/T limits for all MODES. LCO 3.4.10, "Pressurizer Safety Valves," requires the OPERABILITY of the pressurizer safety valves that provide overpressure protection during MODES 1, 2, and 3, and MODE 4 above the OPPS enable temperature specified in the PTLR. LCO 3.4.12, "Low Temperature Overpressure Protection (LTOP) ≤ Safety Injection (SI) Pump Disable Temperature," provides the requirements for MODE 4 below the OPPS enable temperature and above the SI pump disable temperature.

Low temperature overpressure prevention is most critical during shutdown when the RCS is water solid, and a mass or heat input transient can cause a very rapid increase in RCS pressure when little or no time allows operator action to mitigate the event.

(continued)

R-9

BASES

ACTIONS

A.1

With one or more SI pumps capable of injecting into the RCS, RCS overpressurization is possible.

To immediately initiate action to restore restricted coolant input capability to the RCS reflects the urgency of removing the RCS from this condition.

B.1, C.1, and C.2

An unisolated ECCS accumulator requires isolation within 1 hour. This is only required when the ECCS accumulator pressure is at or more than the maximum RCS pressure for the existing temperature allowed by the P/T limit curves.

R-9

If isolation is needed and cannot be accomplished in 1 hour, Required Action C.1 and Required Action C.2 provide two options, either of which must be performed in the next 12 hours. By increasing the RCS temperature to > the OPPS enable temperature specified in the PTLR, an ECCS accumulator pressure of 800 psig cannot exceed the LTOP analysis limits if the ECCS accumulators are fully injected. Depressurizing the accumulators below the LTOP limit from the PTLR also gives this protection.

R-9

R-9

The Completion Times are based on operating experience that these activities can be accomplished in these time periods and on engineering evaluations indicating that an event requiring LTOP is not likely in the allowed times.

D.1

The consequences of operational events that will overpressurize the RCS are more severe at lower temperature.

(continued)

BASES (continued)

leg temperature is ≤ the SI Pump disable temperature specified in the PTLR, MODE 5 or in MODE 6 with the head on, the Completion Time to restore two valves to OPERABLE status is 24 hours. A Note clarifies that Condition D is only applicable when the OPPS and PORVs are being used to satisfy the pressure relief requirements of LCO 3.4.13.a.

The Completion Time represents a reasonable time to investigate and repair several types of relief valve failures without exposure to a lengthy period with only one OPERABLE PORV to protect against overpressure events.

ACTIONS

E.1

(continued)

The RCS must be depressurized and a vent must be established within 8 hours when:

a. Both required PORVs are inoperable; or

b. A Required Action and associated Completion Time of Condition A, C, or D is not met; or

c. The OPPS is inoperable.

The vent must be sized ≥ 3 square inches to ensure that the flow capacity is greater than that required for the worst case mass input transient reasonable during the applicable MODES. The vent opening is based on the cross sectional flow area of a PORV. A PORV maintained in the open position satisfies the vent requirement. This action is needed to protect the RCPB from a low temperature overpressure event and a possible brittle failure of the reactor vessel.

The Completion Time considers the time required to place the plant in this Condition and the relatively low probability of an overpressure event during this time period due to

(continued)

R-9

BASES (continued)

increased operator awareness of administrative control requirements.

SURVEILLANCE REQUIREMENTS

SR 3.4.13.1, and SR 3.4.13.2

To minimize the potential for a low temperature overpressure event by limiting the mass input capability, both SI pumps are verified incapable of injecting into the RCS and the ECCS accumulator discharge isolation valves are verified closed and deenergized.

The SI pumps are rendered incapable of injecting into the RCS by employing at least two independent means to prevent a pump start such that a single failure or single action will not result in an injection into the RCS. This may be accomplished through the pump control switch being placed in pullout with a blocking device installed over the control switch that would prevent an unplanned pump start.

The ECCS accumulator motor operated isolation valves can be verified closed and deenergized by use of control board indication. SR 3.4.13.2 is modified by a Note specifying that this verification is only required when the ECCS accumulator pressure is greater than or equal to the maximum RCS pressure for the existing RCS cold leg temperature allowed in the PTLR. If ECCS accumulator pressure is less than this limit, no verification is required since the ECCS accumulator cannot pressurize the RCS to or above the OPPS setpoint.

R-9

R-9

R-9

The Frequency of 12 hours is sufficient, considering other indications and alarms available to the operator in the control room, to verify the required status of the equipment.

SR 3.4.13.3

(continued)

R-9

BASES (continued)

The required RCS vent of ≥ 3 square inches is proven OPERABLE by verifying its open condition either:

a. Once every 12 hours for a valve that is not locked, sealed, or secured in the open position.

b. Once every 31 days for other vent path(s) (e.g., a vent valve that is locked, sealed, or secured in position). A removed pressurizer safety valve or open manway also fits this category.

The passive vent path arrangement must only be open when required to be OPERABLE. This Surveillance is required if the vent is being used to satisfy the pressure relief requirements of LCO 3.4.13b.

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SR 3.4.13.4

The PORV block valve must be verified open every 72 hours to provide the flow path for each required PORV to perform its function when actuated. The valve may be remotely verified open in the main control room. This Surveillance is performed if the PORV satisfies the LCO.

The block valve is a remotely controlled, motor operated valve. The power to the valve operator is not required to be removed, and the manual operator is not required to be locked in the inactive position. Thus, the block valve can be closed in the event the PORV develops excessive leakage or does not close (sticks open) after relieving an overpressure situation.

SURVEILLANCE REQUIREMENTS

SR 3.4.13.4 (continued)

The 72 hour Frequency is considered adequate in view of other administrative controls available to the operator in

(continued)

the control room, such as valve position indication, that verify that the PORV block valve remains open.

SR 3.4.13.5

Performance of a COT is required every 31 days on OPPS to verify and, as necessary, adjust the PORV lift setpoints. A successful test of the required contact(s) of a channel relay may be performed by the verification of the change of state of a single contact of the relay. This clarifies what is an acceptable CHANNEL OPERATIONAL TEST of a relay. This is acceptable because all of the other required contacts of the relay are verified by other Technical Specifications and non-Technical Specifications tests at least once per refueling interval with applicable extensions. The COT will verify the setpoints are within the PTLR allowed maximum limits in the PTLR. PORV actuation during this testing could depressurize the RCS and is not required.

Note 1 has been added indicating that this SR is not required to be performed until 12 hours after decreasing RCS cold leg temperature to ≤ the OPPS enable temperature specified in the PTLR. The COT may not have been performed before entry into the LTOP MODES. The 12 hour initial time considers the unlikehood of a low temperature overpressure event during this time.

Note 2 has been added to specify that this SR is only required to be performed when OPPS and PORVs are providing the LTOP function per LCO 3.4.13.a.

SR 3.4.13.6

Performance of a CHANNEL CALIBRATION on OPPS is required every 24 months to adjust the whole channel so that it responds and the valve opens within the required range and accuracy to known input.

(continued)

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BASES (continued)

REFERENCES

1. 10 CFR 50, Appendix G.

2. USAR, Section 4.4.

3. ASME, Boiler and Pressure Vessel Code, Section XI, Appendix G, with ASME Code Case N-514.

(continued)

PA3.4-211

BASES

noted that LEAKAGE past seals and gaskets is not pressure boundary LEAKAGE. These leakage detection systems are specified in LCO 3.4.~~16~~5, "RCS Leakage Detection Instrumentation."

CL3.4-331

The ~~72~~24 hour Frequency is a reasonable interval to trend LEAKAGE and recognizes the importance of early leakage

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~~SURVEILLANCE REQUIREMENTS~~ ~~SR 3.4.13.1 (continued)~~

detection in the prevention of accidents. ~~A Note under the Frequency column states that this SR is required to be performed during steady state operation.~~

TA3.4-176

SR 3.4.1~~3~~4.2

This SR provides the means necessary to determine SG OPERABILITY in an operational MODE. The requirement to demonstrate SG tube integrity in accordance with the Steam Generator ~~Tube Surveillance~~ Program emphasizes the importance of SG tube integrity, even though this Surveillance cannot be performed at normal operating conditions.

PA3.4-179

REFERENCES

1. ~~10 CFR 50, Appendix A, GDC 30~~AEC "General Design Criteria for Nuclear Power Plant Construction Permits," Criterion 16, issued for comment July 10, 1967, as referenced in USAR Section 1.2.

CL3.4-221

2. ~~Regulatory Guide 1.45, May 1973.~~

~~3. UFSAR, Section 14.5[15].~~

PA3.4-211

BASES (continued)

ACTIONS

~~A Note to the ACTIONS excludes the MODE change restriction of LCO 3.0.4. This exception allows entry into the applicable MODE(S) while relying on the ACTIONS even though the ACTIONS may eventually require plant shutdown. This exception is acceptable due to the significant conservatism incorporated into the specific activity limit, the low probability of an event which is limiting due to exceeding this limit, and the ability to restore transient specific activity excursions while the plant remains at, or proceeds to power operation.~~

TA3.4-314

A.1 and A.2

With the DOSE EQUIVALENT I-131 greater than the LCO limit,
samples at intervals of 4 hours must be taken to demonstrate that the limits of Figure 3.4.167-1 are not exceeded. The Completion Time of 4 hours is required to obtain and analyze a sample. Sampling is done to continue to provide a trend.

R-9

The DOSE EQUIVALENT I-131 must be restored to within limits within 48 hours. The Completion Time of 48 hours is required, if the limit violation resulted from normal iodine spiking.

R-9

Permitting POWER OPERATION to continue for limited time periods with the primary coolant's specific activity greater than 1.0 μCi/gm DOSE EQUIVALENT I-131, but within the allowable limit shown on Figure 3.4.17-1, accommodates the possible iodine spiking phenomenon which may occur following changes in THERMAL POWER. Operation with specific activity levels exceeding 1.0 μCi/gm DOSE EQUIVALENT I-131 but within the limits shown on Figure 3.4.17-1 should be minimuzed since the activity levels allowed by the figure

CL3.4-325

(continued)

BASES (continued)

PA3.4-211

increase the dose at the site boundary following a postulated steam generator tube rupture.

A Note to the ACTIONS excludes the MODE change restriction of LCO 3.0.4. This exception allows entry into the applicable MODE(S) while relying on the ACTIONS even though the ACTIONS may eventually require plant shutdown. This exception is acceptable due to the significant conservatism incorporated into the specific activity limit, the low probability of an event which is limiting due to exceeding this limit, and the ability to restore transient specific activity excursions while the plant remains at, or proceeds to power operation.

TA3.4-314

B.1 ~~and B.2~~

With the gross specific activity in excess of the allowed limit, the reactor must be placed in a MODE in which the requirement does not apply~~an analysis must be performed within 4 hours to determine DOSE EQUIVALENT I-131. The Completion Time of 4 hours is required to obtain and analyze a sample~~.

TA3.4-201

The change within 6 hours to MODE 3 and RCS average temperature < 500°F lowers the saturation pressure of the reactor coolant below the setpoints of the main steam safety valves and prevents venting the SG to the environment in a~~n~~ SGTR event. The allowed Completion Time of 6 hours is reasonable, based on operating experience, to reach MODE 3 below 500°F from full power conditions in an orderly manner ~~and~~ without challenging plant systems.

ACTIONS (continued)

C.1

(continued)

BASES

PA3.4-211

If a Required Action and the associated Completion Time of Condition A is not met or if the DOSE EQUIVALENT I-131 is in the unacceptable region of Figure 3.4.167-1, the reactor must be brought to MODE 3 with RCS average temperature < 500°F within 6 hours. The Completion Time of 6 hours is reasonable, based on operating experience, to reach MODE 3 below 500°F from full power conditions in an orderly manner ~~and~~ without challenging plant systems.

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SURVEILLANCE REQUIREMENTS

SR 3.4.167.1

SR 3.4.167.1 requires performing a gamma isotopic analysis as a measure of the gross specific activity of the reactor coolant at least once every 7 days. While basically a quantitative measure of radionuclides with half lives longer than 15 minutes, excluding iodines, this measurement is the sum of the degassed gamma activities and the gaseous gamma activities in the sample taken. This Surveillance provides an indication of any increase in gross specific activity.

Trending the results of this Surveillance allows proper remedial action to be taken before reaching the LCO limit under normal operating conditions. The Surveillance is applicable in MODES 1 and 2, and in MODE 3 with T_{avg} at least 500°F. The 7 day Frequency considers the unlikelihood of a gross fuel failure during the time.

SR 3.4.167.2

This Surveillance is performed in MODE 1 only to ensure iodine remains within limit during normal operation and following fast power changes when fuel failure is more apt to occur. The 14 day Frequency is adequate to trend

R-9

(continued)

BASES

changes in the iodine activity level, considering gross activity is monitored every 7 days. The Frequency, between 2 and 6 hours after a power change ≥ 15% RTP within a 1 hour period, is established because the iodine levels peak during this time following fuel failure; samples at other times would provide inaccurate results.

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SURVEILLANCE REQUIREMENTS (continued)

SR 3.4.~~16~~7.3

A radiochemical analysis for $\bar{E}$ determination is required every 184 days (6 months) with the plant operating in MODE 1 equilibrium conditions. The $\bar{E}$ determination directly relates to the LCO and is required to verify plant operation within the specified gross activity LCO limit. The analysis for $\bar{E}$ is a measurement of the average energies per disintegration for isotopes with half lives longer than 15 minutes, excluding iodines. The Frequency of 184 days recognizes $\bar{E}$ does not change rapidly.

This SR has been modified by a Note that indicates sampling is required to be performed within 31 days after a minimum of 2 effective full power days and 20 days of MODE 1 operation have elapsed since the reactor was last subcritical for at least 48 hours. This ensures that the radioactive materials are at equilibrium so the analysis for $\bar{E}$ is representative and not skewed by a crud burst or other similar abnormal event.

REFERENCES

1. 10 CFR 100.11, 1973.

2. Letter from Dominic C. DiIanni, NRC, to L. O. Mayer, NSP, dated December 4, 1981.

3. UFSAR, Section 14.5~~[15.6.3]~~.

CL3.4-324

(continued)

Difference Category	Difference Number 3.4-	Justification for Differences
CL	103	NUREG-1431 SR 3.4.1.3 was not included since PI CTS do not contain this requirement and the existing control board flow meters do not provide sufficient resolution to measure the specified values. These flow meters are 100% scale devices that are intended to provide operators with indication that RCS flow through each loop is approximately equal, but not an exact flow indication. Since a modification would be required to implement this SR, a reactor trip currently exists for low RCS flow, and RCS total flow rate is verified following startup from each refueling outage, this surveillance was not added.

Difference Category	Difference Number 3.4-	Justification for Differences
CL	104	The Note for ISTS SR 3.4.1.4 was deleted. This SR provides for the verification of the RCS total flow rate. The associated Note states that this SR was not to be performed until 24 hours after $\geq$ [90]% RTP. PI CTS 3.10.J.c requires that the RCS flow be verified to be within its limits specified in the COLR after each refueling outage. The purpose of the SR is to measure RCS flow rate which allows for the installed RCS flow instrumentation to be calibrated and verifies actual RCS flow rate is greater than or equal to the minimum required RCS flow rate. PI currently performs this verification however, the CTS does not provide any specific time or RTP level as to when this verification must be performed. Even though the CTS does not require a specific time or RTP level, prudent operations would not allow PI to operate for a very long period of time at high power levels without performing this SR. In addition, during power escalation, various plant instrumentation and parameters are monitored to ensure that the reactor core is maintaining expected temperatures which provides further assurance that there is adequate RCS cooling (flow rate) until this verification can be performed. In accordance with the agreements made with the NRC for plants converting to the STS, plants are able to maintain their current license basis and CTS. As such, PI will maintain our CTS requirements and not place a specific time or RTP for verification of the RCS flow rate.

Difference Category	Difference Number 3.4-	Justification for Differences
	105	Not used.
PA	106	CTS does not specify a particular method for performing the RCS flow test. Thus the phrase, "by precision heat balance that" is not included in ITS SR 3.4.1.3.
CL	107	The CTS requirement for this surveillance requires the test to be performed each refueling cycle. Since PI intends to extend the plant refueling cycle up to 24 months, this Frequency is also extended to 24 months.
TA	108	This deviation implements approved TSTF-26.
TA	109	This change incorporates approved TSTF-339, Revision 1 except for the RCS flow which is already in the COLR per CTS. This is addressed in CL3.4-102. Since PI ITS retains the SL curves in Section SL 2.1.1, changes in the 3.4.1 Bases, Applicability, last paragraph, are not included.

Difference Category	Difference Number 3.4-	Justification for Differences
CL	110	PI only has two groups of heaters to which this Specification applies and both groups are "required". Since both groups are required, the term "required" is not necessary and has been deleted in ITS 3.4.9, Condition B.
TA	111	This change implements TSTF-27, Rev. 3.
CL	112	Since PI is a two loop plant, "two" RCS loops has been specified and "all" has been replaced with "both".
CL	113	LCO, Actions, Surveillance Requirements and Bases are revised as appropriate to reflect that PI is a two loop plant. In some applications, use of "required" is not necessary or applicable since PI is a two loop plant; therefore, "required" has been deleted. (Markup did not include TSTF-263 since PI is a two loop plant).
CL	114	The Note to LCO 3.4.5 was modified by changing "All" to "Both" since PI is a two loop plant.
TA	115	This change incorporates TSTF-286, Revision 2.
	116	Not used.

Difference Category	Difference Number 3.4-	Justification for Differences
CL	117	The allowed time and purpose of allowing both pumps to be not operating was extended to 12 hours and clarified that it is "to perform preplanned work activities". These changes were justified in a License Amendment Request dated November 19, 1999 (This LAR was approved by License Amendment 152/143, July 14, 2000). The justification presented in the LAR is factored in to the Bases. This justification argues that natural circulation provides sufficient flow for decay heat removal, and for boron addition requisite for provision of shutdown margin. The justification notes that this circulation may not be sufficient to respond to all potential dilution events. Thus, preplanned activities that stop forced flow must include actions to preclude the potential for events such as boron dilution.
TA	118	This change incorporated traveler TSTF-87, Rev. 2.
TA	119	This change incorporates TSTF-233. The specific phrase that has been inserted is modified to include PI specific terminology for the LTOP system, "Over Pressure Protection System (OPPS)."
	120	Not used.

Difference Category	Difference Number 3.4-	Justification for Differences
CL	121	ISTS 3.4.5, 3.4.6, and 3.4.7 state in several places that the secondary side water levels for the steam generators will be ≥ [17%] for the required RCS loop. PI CTS does not require a specific water level in the SG. The CTS requires at least two methods of decay heat removal shall be OPERABLE with one in operation. Acceptable methods for removing decay heat are at least one reactor coolant pump and its associated steam generator. In addition, based on NRC Information Notice 95-32, TSTF 114, and WOG 155, the ITS statement has been revised to verify that the required steam generator is capable of removing decay heat. The current ISTS is incomplete and misleading. TSTF-114 revised the Bases for LCO 3.4.7 and incorporated a reference to IN 95-35, but did not include sufficient information for an operator to recognize the additional requirements discussed in the IN. The ISTS LCO 3.4.7 requirement that the secondary side water level of at least one SG be ≥ 17% is insufficient to ensure the SG can be relied upon to remove heat from the RCS in the applicable conditions. The wording of the LCO and the referencing of the IN create a condition in which the document referenced in the Bases contains additional requirements necessary to meet the intent of the LCO. As a result, LCO 3.4.7, SR 3.4.5.2 and SR.3.4.6.2 have been revised to only require verification of SG secondary side water level and removes the specific level values.

Difference Category	Difference Number 3.4-	Justification for Differences
	122	Not used.
CL	123	CTS require a steam or gas bubble in the pressurizer prior to low temperature starting of a RCP. This requirement has been included in the ITS for consistency with the current licensing basis.
	124	Not used.
TA	125	This change incorporates TSTF-265, Revision 2.
CL	126	CTS for this mode of operation require one SG to be operable; thus "one" is specified to retain current requirements.

Difference Category	Difference Number 3.4-	Justification for Differences
PA	127	Minor wording change to make the ITS wording consistent with the NUMARC 93-03, Writer's Guide for Restructured Technical Specifications.
CL	128	LCO, Actions, Surveillance Requirements and Bases are revised as appropriate to reflect that PI has only two RHR loops.
	129	Not used.
	130	Not used.

Difference Category	Difference Number 3.4-	Justification for Differences
CL	131	The note has been revised to incorporate PI CLB and CTS. PI CLB, which has been approved by the NRC, allows that both RHR pumps may be shutdown for one hour provided the reactor is subcritical, no operations are permitted that would cause dilution of the reactor coolant boron concentration and core outlet temperature is maintained at least 10 ^{0}F below saturation temperature. PI did add two other restrictions; no RCS draining operations are permitted during this 1 hour period and that the pumps can only be shutdown for 1 hour during an 8 hour period. These two additions are consistent with NUREG-1431. This change is acceptable since the circumstances are to be limited when the outage time is short and the other conditions of the note are met. This change is consistent with PI CLB and CTS which has been approved by the NRC. One of the agreements between the industry and NRC is that during the conversion process to the ITS, a licensee is able to maintain their CLB or approved CTS. PI is exercising this agreement for this note.
CL	132	A Note has been included in Required Action B.2 to incorporate current licensing basis provisions. As allowed by the CTS, a Safety Injection pump may be operated if required to maintain adequate core cooling and RCS inventory during reduced RCS water inventory operations.