WOLF CREEK
NUCLEAR OPERATING CORPORATION

Terry J. Garrett
Vice President Engineering

August 14, 2008

ET 08-0039

U. S. Nuclear Regulatory Commission
ATTN: Document Control Desk
Washington, DC 20555

Subject: Docket No. 50-482: Revision to Technical Specification (TS) 3.3.2, "Engineered Safety Feature Actuation System (ESFAS) Instrumentation," TS 3.7.2, "Main Steam Isolation Valves (MSIVs)," and Addition of New TS 3.7.19, "Secondary System Isolation Valves"

Gentlemen:

Pursuant to 10 CFR 50.90, Wolf Creek Nuclear Operating Corporation (WCNOC) hereby requests an amendment to Operating License NPF-42 for the Wolf Creek Generating Station (WCGS) to incorporate proposed changes into the WCGS Technical Specifications (TS).

The proposed changes will revise TS 3.7.2, "Main Steam Isolation Valves (MSIVs)" to add the MSIV bypass valves to the scope of this TS. The proposed changes include a revision to the Limiting Condition for Operation (LCO), Applicability, Conditions/Required Actions, and Surveillance Requirements for this TS. A revision to footnote (i) and addition of new footnote (l) in Table 3.3.2-1 of TS 3.3.2, "Engineered Safety Feature Actuation System (ESFAS) Instrumentation," is made for consistency with the revised Applicability of LCO 3.7.2.

The proposed changes also add new TS 3.7.19, "Secondary System Isolation Valves (SSIVs)," to include an LCO, Conditions/Required Actions and Surveillance Requirements for the steam generator blowdown isolation valves (SGBIVs) and steam generator blowdown sample isolation valves (SGBSIVs).

The appropriate TS Bases changes for the proposed revisions to TS 3.3.2 and TS 3.7.2 are included for information. Also included for information are new TS Bases for TS 3.7.19.

Attachment I through IV provide the Evaluation, Markup of TSs, Retyped TS pages, and proposed TS Bases changes, respectively, in support of this amendment request. Attachment IV is provided for information only. Final TS Bases changes will be implemented pursuant to TS 5.5.14, "Technical Specification (TS) Bases Control Program," at the time the amendment is implemented. Attachment V provides a List of Regulatory Commitments made by WCNOC in this submittal.

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It has been determined that this amendment application does not involve a significant hazard consideration as determined per 10 CFR 50.92. The amendment application was reviewed by the WCNOC Plant Safety Review Committee. In accordance with 10 CFR 50.91, a copy of this application is being provided to the designated Kansas State official.

WCNOC requests approval of this proposed amendment by June 30, 2009. Once approved, the amendment will be implemented prior to startup from Refueling Outage 17. The implementation date is base on new surveillance requirements that are performed during a refueling outage.

If you have any questions concerning this matter, please contact me at (620) 364-4084, or Mr. Richard D. Flannigan at (620) 364-4117.

Sincerely,

Terry J. Garrett

TJG/rlt

Attachments:
- I - Evaluation
- II - Markup of Technical Specification Pages
- III - Retyped Technical Specification Pages
- IV - Proposed TS Bases Changes (for information only)
- V - List of Regulatory Commitments

cc: E. E. Collins (NRC), w/a
T. A. Conley (KDHE), w/a
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STATE OF KANSAS)
) SS
COUNTY OF COFFEY)

Terry J. Garrett, of lawful age, being first duly sworn upon oath says that he is Vice President Engineering of Wolf Creek Nuclear Operating Corporation; that he has read the foregoing document and knows the contents thereof; that he has executed the same for and on behalf of said Corporation with full power and authority to do so; and that the facts therein stated are true and correct to the best of his knowledge, information and belief.

By _____
Terry J. Garrett
Vice President Engineering

SUBSCRIBED and sworn to before me this 14th day of August 2008.

RHONDA L. TIEMEYER
NOTARY PUBLIC
OFFICIAL SEAL
STATE OF KANSAS
MY COMMISSION EXPIRES
January 11, 2010

Rhonda L. Tiemeyer
Notary Public

Expiration Date January 11, 2010

EVALUATION

1.0 SUMMARY DESCRIPTION

This amendment application involves changes to the Wolf Creek Generating Station (WCGS) Technical Specifications (TS) to revise TS 3.7.2, "Main Steam Isolation Valves (MSIVs)" to add the MSIV bypass valves to the scope of this TS. The proposed changes include a revision to the Limiting Condition for Operation (LCO), Applicability, Conditions/Required Actions, and Surveillance Requirements for this TS. A revision to footnote (i) and addition of new footnote (l) in Table 3.3.2-1 of TS 3.3.2, "Engineered Safety Feature Actuation System (ESFAS) Instrumentation," is made for consistency with the revised Applicability of LCO 3.7.2.

The proposed changes also add new TS 3.7.19, "Secondary System Isolation Valves (SSIVs)," to include an LCO, Conditions/Required Actions and Surveillance Requirements (SR) for the steam generator blowdown isolation valves (SGBIVs) and steam generator blowdown sample isolation valves (SGBSIVs).

2.0 DETAILED DESCRIPTION

2.1 Change to TS Table of Contents

The TS Table of Contents is revised to change the title of TS 3.7.2 from "Main Steam Isolation Valves (MSIVs)" to "Main Steam Isolation Valves (MSIVs) and MSIV Bypass Valves." This change is being made to reflect the addition of the MSIV bypass valves to TS 3.7.2.

Additionally, the Table of Contents is revised to add new TS 3.7.19, "Secondary System Isolation Valves (SSIVs)."

2.2 Change to TS Table 3.3.2-1, "Engineered Safety Feature Actuation System Instrumentation"

TS Table 3.3.2-1 is revised to reflect the addition of the MSIV bypass valves to TS 3.7.2 and the associated Applicability. Footnote (i) is revised from "Except when all MSIVs are closed" to "Except when all MSIVs are closed and de-activated; and all MSIV bypass valves are closed and de-activated, or closed and isolated by a closed manual valve, or isolated by two closed manual valves."

Function 4.c, Steam Line Isolation – Automatic Actuation Logic (MSFIS), is revised by changing the Applicable Modes or Other Specified Conditions Footnote from (i) to new footnote (l). Footnote (l) is essentially the same as the current footnote (i) with the exception that "and de-activated" is added consistent with the changes to TS 3.7.2 Applicability.

2.3 Change to TS 3.7.2, "Main Steam Isolation Valves (MSIV)

TS 3.7.2 is revised to incorporate requirements for the MSIV bypass valves. Specific changes to TS 3.7.2 include:

- The title of TS 3.7.2 is revised from "Main Steam Isolation Valves (MSIVs)" to "Main Steam Isolation Valves (MSIVs) and MSIV Bypass Valves."

- LCO 3.7.2 is revised to incorporate four MSIV bypass valves. The LCO is revised to state: "Four MSIVs and their associated actuator trains, and four MSIV bypass valves shall be OPERABLE." Two Notes are added to the LCO. Note 1 specifies that the MSIVs are not required to be OPERABLE in MODES 2 and 3 when closed and de-activated. Note 2 specifies that the MSIV bypass valves are not required to be OPERABLE when closed and de-activated, closed and isolated by a closed manual valve, or isolated by two closed manual valves.

- Current Condition H and associated Required Actions are relettered/renumbered to Condition I to address the addition of new Condition H for one or more MSIV bypass valves inoperable.

- Current Condition I and associated Required Actions are relettered/renumbered to Condition J to address the addition of new Condition H for one or more MSIV bypass valves inoperable. Additionally, the Condition is revised to the Required Action and associated Completion Time of new Condition I not met.

- New Condition H addresses one or more MSIV bypass valves inoperable. The Required Actions for Condition H are to close or isolate the MSIV bypass valve in 8 hours and verify the MSIV bypass valve is closed or isolated once per 7 days. The Completion Times are consistent with the Completion Times for an MSIV. A Note to Condition H allows separate Condition entry for each MSIV bypass valve. Separate Condition entry is acceptable since the Required Actions provide appropriate compensatory actions for each inoperable MSIV bypass valve.

- New SR 3.7.2.3 is added to verify each MSIV bypass valve actuates to the isolation position on an actual or simulated actuation signal with a Frequency of 18 months.

- New SR 3.7.2.4 is added to verify the isolation time of each MSIV bypass valve is within limit with a Frequency in accordance with the Inservice Testing Program. The MSIV bypass valves are currently tested in accordance with the Inservice Testing Program on a quarterly basis.

- New TS 3.7.19, "Secondary System Isolation Valves (SSIVs)," is proposed with requirements established for the steam generator blowdown isolation valves (SGBIVs) and the steam generator blowdown sample isolation valves (SGBSIVs). The LCO requires each SSIV be OPERABLE.

  The proposed Applicability requires each SSIV be OPERABLE in MODES 1, 2, and 3, when there is sufficient mass and energy in the Reactor Coolant System (RCS) and steam generators. Exceptions to the Applicability are allowed for cases where the SSIV is assured of performing its specified safety function.

  The ACTIONS are modified by two Notes. Note 1 allows separate Condition entry for each SSIV. This is acceptable since the Required Actions for each Condition provide appropriate compensatory actions for each inoperable SSIV. Complying with the Required Actions may allow for continued operation, and subsequent inoperable SSIVs are governed by subsequent Condition entry and application of associated Required Actions. Note 2 allows an SSIV to be unisolated intermittently under administrative controls. Condition A and

associated Required Actions address one or more SSIVs inoperable and require closure or isolation of the SSIV within 7 days and verification that the SSIV is closed or isolated once per 7 days thereafter. If the Required Action and associated Completion Time is not met, Condition B requires placing the plant in a MODE in which the LCO does not apply.

Appropriate SRs are proposed for the SSIVs. Proposed SR 3.7.19.1 verifies the proper alignment for automatic SSIVs in the flow path that are used to isolate the secondary side with a Frequency of 31 days. Proposed SR 3.7.19.2 verifies that the isolation time of each automatic SSIV is within limit when tested in accordance with the Inservice Testing Program. Proposed SR 3.7.19.3 verifies that each automatic SSIV in the flow path is capable of closure on an actual or simulated actuation signal with a Frequency of 18 months.

3.0 TECHNICAL ANALYSIS

3.1 System Description and Design Function(s)

The Main Steam Supply System functions to (1) contain and transport saturated steam from the steam generator to the main turbine and other loads, (2) serve as the main heat sink for the primary system, preventing fuel overheating during transients and accidents, and (3) supply a source of power to the turbine-driven auxiliary feedwater pump (TDAFP) turbine. The Main Steam Supply System starts at the four steam generators and includes the components on each of the four main steam lines. Leaving the steam generator, each main steam line contains an atmospheric relief valve and five main steam safety valves. Downstream of the main steam safety valves, are steam supplies to the TDAFP via two of the four steam headers.

Main steam then flows through the MSIVs or MSIV bypass valves to the turbine building. The MSIVs and MSIV bypass valves provide steam generator isolation for steam line break protection. Upstream of the MSIVs, the steam generators act independently of each other when the MSIVs are closed. Normally the MSIVs are open and the MSIV bypass valves are closed. When the MSIVs are open, main steam flow from each steam generator tie together in a parallel configuration which is distributed to loads in the turbine building. The crosstie header equalizes the pressure in all four steam generators which maintains equal flow on all the generators. Updated Safety Analysis Report (USAR) Section 10.3 describes the Main Steam Supply System.

The major function of the Steam Generator Blowdown System is to maintain the steam generator secondary side water chemistry within specifications. The blowdown system is designed to recover a portion of the heat from the blowdown process and treat the water prior to returning it to the secondary system or discharging it. The blowdown system also provides the means to sample the secondary side of the steam generators, drain the steam generators during outages and re-circulate the steam generator water during wet layup conditions. USAR Section 10.4.8 describes the Steam Generator Blowdown System.

3.2 MSIV Bypass Valves

The MSIV bypass valves are air-operated, two-inch bypass valves around the MSIVs. The bypass valves are provided for warming of downstream steam lines and equalizing the steam

pressure across the MSIVs. The bypass valves have two redundant solenoid valves which, when de-energized, result in valve closure. Both of the solenoid valves are de-energized on a steamline isolation signal. The bypass valves are controlled from the main control board panel. The bypass valves also have manual handwheels that are normally locked in the neutral position.

3.3 Steam Generator Blowdown Isolation Valves (SGBIVs)

One SGBIV is installed in each of the four blowdown lines outside the containment. The isolation valves are installed to prevent uncontrolled blowdown from more than one steam generator. Failure of the isolation valve for an unaffected steam generator after a main steam line break results in blowdown from the steam generator to the blowdown flash tank. The SGBIVs are air-operated globe valves which fail closed. For emergency closure, either of two safety related solenoid valves is de-energized to dump air supplied to the valve actuator. The electrical solenoid valves are energized from separate Class 1E sources. The SGBIVs are automatically closed on a safety injection signal, loss of offsite power signal, or an auxiliary feedwater actuation signal (Steam Generator Blowdown System Isolation Signal (SGBSIS)).

3.4 Steam Generator Blowdown Sample Isolation Valves (SGBSIVs)

Three SGBSIVs are installed in each of the sample line flow paths for each steam generator. Two valves are located inside the containment (one from each sample point), and one valve is located outside containment. The SGBSIVs prevent uncontrolled blowdown from more than one steam generator and isolate the non-safety related portions from the safety related portions of the system. The SGBSIVs are solenoid-operated globe valves which fail closed. The inside containment solenoid valves are energized from separate Class 1E sources from the outside containment solenoid valves. These valves are automatically closed on a safety injection signal, loss of offsite power signal, or an auxiliary feedwater actuation signal (Steam Generator Blowdown System Isolation Signal (SGBSIS).

3.5 Licensing Basis for Secondary System Isolation Valves

The WCGS licensing basis specifies that the automatic isolation valves associated with the main steam, feedwater, blowdown and sample lines are not containment isolation valves. The specified safety function for these valves is to isolate the plant secondary side in response to certain postulated accidents, thereby limiting the associated blowdown and/or isolating the non-safety portions of the secondary side from the safety related portion. The SSIVs are being added to TS under the same licensing basis as the current secondary system isolation valves covered in TS 3.7.2 and TS 3.7.3 (MSIVs, MFIVs, MFRVs, and MFRV bypass valves). These valves are not required to meet containment isolation criteria since they are not part of the containment barrier. As described in the WCGS Updated Safety Analysis Report, the main steam lines and feed lines (including the steam generator blowdown and sample lines) are considered extensions of containment. As noted in USAR Sections 6.2.4.3, 6.2.6.3, and on Figure 6.2.4-1 and Figure 6.2.4-2, the containment penetrations associated with steam generators are not subject to the 10 CFR 50 Appendix A General Design Criteria that address containment isolation provisions, since the containment barrier integrity is not breached. Updated Safety Analysis Report Section 6.2.4.3, Safety Evaluation Seven specifically states: "As indicated in Table 6.2.4-1, there are no penetrations which are subject to GDC-57. Note that the containment penetrations associated with the steam generators are not

subject to GDC-57, since the containment barrier integrity is not breached. The boundary or barrier against fission product leakage to the environment is the inside of the steam generator tubes, the outside of the steam generator shell, and the outside of the lines emanating from the steam generator shell side. Figure 6.2.4-2 shows the arrangement and justifies compliance with containment isolation." A review of the Final Safety Analysis Report (FSAR) at the time the plant was licensed identified that the current wording in Safety Evaluation Seven is the same wording as when the plant was licensed.

USAR Section 3.1.7 provides a discussion of WCNOC's commitment to GDC-57, "Closed System Isolation Valves." The USAR states: "All containment penetrations are considered to be covered by either GDC-55 or GDC-56. There are no penetrations to which GDC-57 is considered applicable."

The purpose of the main steam line and feed line isolation valves is to isolate the plant secondary side, to control steam generator blow down, and to ensure the delivery of required auxiliary feedwater flow during a design basis accident, In this regard, and as further explained below, these valves perform a safety function(s).

3.6 Evaluation of Accident Analyses

Closure of secondary system isolation valves (SSIVs) ensures that the assumptions used in the plant accident and containment analyses remain valid. In accident conditions, SSIVs close to terminate the blowdown from the faulted steam generator and isolate the intact steam generators, as well as to isolate the plant secondary side and prevent possible diversion of auxiliary feedwater flow.

In the event of a design basis accident (main steamline break, feedline break, or steam generator tube rupture), the accident analyses assume that the steam generators are isolated after SSIVs receive an isolation signal. Following receipt of the steam line isolation signal (SLIS) and auxiliary feedwater actuation signal, the intact steam generators are assumed to be isolated, except for the steam supply valves to the TDAFP (governed by TS 3.7.5, Auxiliary Feedwater (AFW) System). There are also analysis cases that evaluate the single failure of a MSIV or MFIV. In addition to the valves governed by TS 3.7.2 (Main Steam Isolation Valves (MSIVs) and MSIV Bypass Valves) and TS 3.7.3 (Main Feedwater Isolation Valves (MFIVs) and Main Feedwater Regulating Valves (MFRVs) and MFRV Bypass Valves), the analysis assumptions require that the steam generator blowdown and sample line isolation valves are closed.

When plant accident conditions require delivery of auxiliary feedwater, the normally closed steam supply isolation valves to the TDAFP open on an auxiliary feedwater actuation signal. This ensures availability of the TDAFP. Note that the auxiliary feedwater actuation signal (SGBSIS) also closes the steam generator blowdown and sample isolation valves to isolate the plant's secondary side.

Portions of the steam generator blowdown system are safety related and are required to function following a design basis accident. Steam generator blowdown system isolation valves prevent uncontrolled blowdown from more than one steam generator and isolate non-safety related portions from the safety related portions of the system. The valves are closed upon receipt of an auxiliary feedwater actuation signal (Steam Generator Blowdown and Sample

Isolation Signal (SGBSIS)). The steam generator blowdown system also includes safety related sample isolation valves. The sample isolation valves also prevent uncontrolled blowdown from more than one steam generator and isolate the non-safety related portions from the safety related portions of the system. The sample isolation valves are also closed upon receipt of an auxiliary feedwater actuation signal (SGBSIS) signal.

3.7 Justification/Evaluation for Proposed Changes to TS 3.3.2, "Engineered Safety Feature Actuation System (ESFAS) Instrumentation"

As discussed in Section 2.2 above, TS Table 3.3.2-1 is revised to reflect the addition of the MSIV bypass valves to TS 3.7.2 and the associated Applicability.

Consistent with the Westinghouse Standard Technical Specifications (NUREG-1431, Rev. 31.), footnote (i) in TS Table 3.3.2-1 is changed to be consistent with the revised TS 3.7.2 Applicability. The revised footnote (i) reflects the actuation circuitry requirements necessary to serve the actuated components (i.e., the SSIVs) addressed by the Applicability of LCO 3.7.2 as revised. Footnote (i) in Table 3.3.2-1 provides an exception to the TS instrumentation requirements for the Steam Line Isolation Function when all MSIVs are closed and deactivated. When all the MSIVs are closed and de-activated the steam line isolation function is met. The exception also applies when the MSIV bypass valves are closed and de-activated, or closed and isolated by a closed manual valve, or isolated by two closed manual valves. Function 4.c, Steam Line Isolation – Automatic Actuation Logic (MSFIS), is revised by changing the Applicable Modes or Other Specified Conditions Footnote from (i) to new footnote (l). Footnote (l) is essentially the same as the current footnote (i) with the exception that "and de-activated" is added consistent with the changes to TS 3.7.2 Applicability. In these cases the instrumentation requirements for the Steam Line Isolation Function are met.

3.8 Justification/Evaluation for Proposed Changes to TS 3.7.2, "Main Steam Isolation Valves (MSIVs)"

As described previously, the MSIV bypass valves are normally closed during plant operation, while the MSIVs are open. However, the MSIV bypass valves are open for warming of the steamlines and equalizing steam pressure across the MSIVs. They may also be opened to support maintenance and testing at power. As such, the open MSIV bypass valves constitute a flow path similar to the MSIVs such that the MSIV bypass valves should be subject to the same or similar requirements as the MSIVs.

The proposed LCO ensures that the MSIVs and MSIV bypass valves will isolate steam flow from the secondary side of the steam generators following a high energy line break. This closure terminates flow from the intact steam generators. The proposed LCO requires that four MSIVs and their associated actuator trains and four MSIV bypass valves be OPERABLE. Under the proposed TS change, the MSIVs and their associated actuator trains are required OPERABLE in MODES 1,2, and 3. However, consistent with the Westinghouse Standard Technical Specifications, exceptions to the LCO requirements are allowed for the MSIVs and their associated actuator trains in MODES 2 and 3. In MODES 2 and 3 when the MSIVs are closed and de-activated, they are assured of performing their specified safety functions. Requiring the MSIVs closed and de-activated provides assurance that the specified safety function is being met. The addition of Note 1 to the LCO provides an exception consistent with the Westinghouse Standard Technical Specifications.

The MSIV bypass valves are considered OPERABLE when their isolation times are within limits and they are capable of closing on an isolation actuation signal. All MSIV bypass valves can be and are normally closed during power operation.

Similar to the proposed TS for MSIVs, the LCO requirements for the MSIV bypass valves are applicable in MODES 1, 2, and 3 except in the following cases when the MSIV bypass valves are assured of performing their specified safety function: (1) one or more MSIV bypass valves are closed and de-activated, (2) the MSIV bypass valve(s) is closed and isolated by a closed manual valve, or (3) the MSIV bypass valve(s) is isolated by two closed manual valves. Requiring the valve to be closed and de-activated, closed and isolated by a closed manual valve, or isolated by two closed manual valves provides assurance that it is performing its specified safety function. When the valve is de-activated, power and air are removed from both actuation solenoid valves and the valve is spring closed.

Conditions, Required Actions, and Completion Times are established for one or more inoperable MSIV bypass valves. With one or more MSIV bypass valves inoperable, the valve(s) must be closed or isolated within 8 hours and it must be verified closed or isolated once per 7 days. The 8 hour Completion Time is consistent with the Completion Time for an inoperable MSIV and is reasonable, considering the low probability of an accident occurring during this time period that would require a closure of the valve. For inoperable MSIV bypass valves that cannot be restored to OPERABLE status within the specified Completion Time, but are closed, the inoperable MSIV bypass valves must be verified on a periodic basis to be closed. This is necessary to ensure that the assumptions in the safety analysis remain valid. The 7 day Completion Time is consistent with the Completion Time for an inoperable, but closed MSIV, and is reasonable based on engineering judgment and other administrative controls to ensure that the MSIV bypass valves are in the closed position. The Condition is modified by a Note indicating that separate Condition entry is allowed for each MSIV bypass valve. This is acceptable since the Required Actions provide appropriate compensatory actions for each inoperable MSIV bypass valve. Complying with the Required Actions may allow for continued operation, and subsequent inoperable MSIV bypass valves are governed by subsequent Condition entry and application of associated Required Actions.

New TS SRs for the MSIV bypass valves demonstrate their ability to initiate closure on the same actuation signals as the MSIVs and that the isolation time is within limit. Proposed TS SR 3.7.2.3 requires verification that each required MSIV bypass valve is capable of closure on an actual or simulated actuation signal. The Frequency of MSIV bypass valve testing is every 18 months, the same as currently required for MSIVs. The 18 month Frequency for testing is acceptable from a reliability standpoint and is based on the refueling cycle.

Proposed TS SR 3.7.2.4 verifies that the closure time of each MSIV bypass valve is $\leq$ 15 seconds when tested pursuant to the Inservice Testing Program. This is consistent with the assumptions used in the accident and containment analyses. For the MSIV bypass valves, this SR is performed routinely during plant operation (or as required for post-maintenance testing), but it may be required to be performed upon returning the unit to operation following a refueling outage. The Frequency for this SR is in accordance with the Inservice Testing Program.

3.9 Justification/Evaluation for Proposed New TS 3.7.19, "Secondary System Isolation Valves (SSIVs)"

Proposed new TS 3.7.19, "Secondary System Isolation Valves (SSIVs)," provides Limiting Conditions of Operation, Conditions and Required Actions, and Surveillance Requirements for specified secondary system isolation valves. These valves receive ESFAS signals for automatic isolation. The new Specification addresses the following secondary system isolation valves: steam generator blowdown isolation valves (SGBIVs) and steam generator blowdown sample isolation valves (SGBSIVs). When the SSIVs are closed, they are performing their safety function of isolating the plant secondary side, following a main feedline or main steam line break and ensuring the required flow of auxiliary feedwater to the intact steam generators. The SSIVs function to ensure the primary success path for steam line and feed line isolation and for delivery of required auxiliary feedwater flow and, therefore, satisfy Criterion 3 of 10 CFR 50.36(c)(2)(ii).

Similar to the MSIVs and MFIVs, the LCO requires each SSIV to be OPERABLE in MODES 1, 2, and 3 when there is significant mass and energy in the RCS and steam generators. Exceptions to the Applicability are allowed for cases where the SSIV is assured of performing its specified safety function. When the SSIV is closed and de-activated, or is closed and isolated by a closed manual valve, or the SSIV flow path is isolated by the required combination of closed manual valve(s) and closed and de-activated automatic valve(s), the safety function is fulfilled. Requiring the valve to be closed and de-activated provides assurance that it is performing its specified safety function. The combination provides a means of isolation that cannot be adversely affected by a single active failure thus assuring the safety function is met. Requiring the valve to be closed and isolated by a closed manual valve also provides assurance that it is performing its specified safety function. There is also assurance that the specified safety function is being performed when the SSIV flow path is isolated by two closed valves which can be any combination of closed manual and closed and de-activated automatic valves. When used for the steam generator blowdown system SSIVs, the combinations for isolation must provide assurance that the flow paths associated with the connection between the SG blowdown sample and SG blowdown lines are isolated.

Conditions, Required Actions, and Completion Times are established for the SSIVs. The ACTIONS Table is modified by two Notes. Note 1 indicates that separate Condition entry is allowed for each SSIV. This is acceptable since the Required Actions for each Condition provide appropriate compensatory actions for each inoperable SSIV. Complying with the Required Actions may allow for continued operation, and subsequent inoperable SSIVs are governed by subsequent Condition entry and application of associated Required Actions. Note 2 allows SSIVs to be unisolated under administrative controls. These administrative controls consist of stationing a dedicated operator at the valve controls, who is in continuous communication with the control room. In this way, the SSIV can be rapidly isolated when the need for secondary system isolation is indicated. With one or more SSIVs inoperable, Required Action A.1 must be taken to restore the affected valves to OPERABLE status, or to close or isolate inoperable valves, within 7 days. When the SSIV is closed or isolated, it is performing its specified safety function. The 7 day Completion Time takes into account the low probability of an event occurring during this period that would require isolation of the plant's secondary side. The 7 day Completion Time is reasonable, based on operating experience. Required Action A.2 requires inoperable SSIVs that are closed or isolated to be verified on a periodic basis that they are closed or isolated. This is necessary to ensure that the

assumptions in the accident analyses remain valid. The 7 day Completion Time is reasonable based on engineering judgment, in view of valve status indications in the control room, and other administrative controls, to ensure that these valves are in the closed position or isolated. Note that if the SSIVs are closed and de-activated, or closed and isolated by a closed manual valve, or the SSIV flow path is isolated by two closed valves, the LCO does not apply.

If the Required Action and associated Completion Time of Condition A is not met, the unit must be placed in a MODE in which the LCO does not apply. To achieve this status, Required Action B.1 and B.2 require placing the unit in MODE 3 within 6 hours and in MODE 4 within 12 hours. The allowed Completion Times are reasonable, based on operating experience, for reaching the required unit conditions in an orderly manner and without challenging unit systems.

New SR 3.7.19.1 verifies the proper alignment for required automatic SSIVs in the flow path that are used to isolate the plant's secondary side. The SSIV is allowed to be in the non-accident position (i.e., open) provided the valve will automatically reposition (close) within the proper stroke time. The SR does not require any testing or valve manipulations, but involves verification, through a system walkdown (which may include the use of local or remote indicators), that valves capable of being mispositioned are in the correct position. The 31 day Frequency is based on engineering judgment and is consistent with procedural controls governing valve operation, and ensures correct valve position.

New SR 3.7.19.2 verifies that the isolation time of each required automatic SSIV is within limit when tested pursuant to the Inservice Testing Program. The specific limit is documented in the Inservice Testing Program. The SSIV isolation times are less than or equal to those assumed in the accident and containment analyses. The SR is performed only for required SSIVs. The Frequency for this SR is in accordance with the Inservice Testing Program.

New SR 3.7.19.3 verifies that each required automatic SSIV in the flow path is capable of closure on an actual or simulated actuation signal. The Frequency for this SR is 18 months and is consistent with that of the MSIVs.

4.0 REGULATORY EVALUATION

4.1 Applicable Regulatory Requirements/Criteria

The proposed changes affect the content of the TS, as new components are being added to the scope of the TS. 10 CFR 50.36 is the regulation that provides the requirements regarding the content of Technical Specifications. Specifically, 10 CFR 50.36(c)(2)(ii)[1] states that: "A technical specification limiting condition for operation of a nuclear reactor must be established for each item meeting one or more of the following criteria:....." Criterion 3 of 10 CFR 50.36(c)(2)(ii) requires that a structure, system, or component that is part of the primary success path and which functions or actuates to mitigate a design basis accident or transient

[1] A final rule (72FR49351, dated August 28, 2007) inserted a new paragraph 10 CFR 50.36(c) which caused the paragraph for the technical specification criteria to be re-designated from 10 CFR 50.36(c) to 10 CFR 50.36(d). A rulemaking petition was submitted by the STARS alliance to renumber the paragraphs. For this submittal, the references to 10 CFR 50.36(c) refer to the regulations prior to the August 28, 2007 final rule.

that either assumes the failure or presents a challenge to the integrity of a fission product barrier is included in the TS. Conformance to this criteria is the basis for the TS changes that are incorporating requirements for the SSIVs.

Additional guidance is provided in SECY-93-067, "Final Policy Statement on Technical Specifications Improvements," dated March 17, 1993. The following discussion summarized from SECY-93-067 pertains specifically to Criterion 3:

> An important concept in assuring the adequate protection of the public health and safety is that in the event that a postulated Design Basis Accident or Transient should occur, structures, systems, and components are available to function or to actuate in order to mitigate the consequences of the Design Basis Accident or Transient. Safety sequence analyses or their equivalent have been performed in recent years and provide a method of presenting the plant response to an accident. These can be used to define the primary success paths.
>
> A safety sequence analysis is a systematic examination of the actions required to mitigate the consequences of events considered in the plant's Design Basis Accident and Transient analyses, as presented in Chapters 6 and 15 of the plant's FSAR. Such a safety sequence analysis considers the applicable events, whether explicitly or implicitly presented. The primary success path of a safety sequence analysis consists of the combination and sequences of equipment needed to operate (including consideration of the single failure criteria), so that the plant response to Design Basis Accidents and Transients limits the consequences of these events to within the appropriate acceptance criteria.
>
> It is the intent of Criterion 3 to capture into Technical Specifications only those structures, systems, and components that are part of the primary success path of a safety sequence analysis. Also captured by this criterion are those support and actuation systems that are necessary for items in the primary success path to successfully function.

All of the subject SSIVs addressed in this amendment application have been determined to meet Criterion 3 contained in 10 CFR 50.36(c)(2)(ii), and therefore, limiting condition for operation and surveillance requirements are being established for these valves.

Closure of the SSIVs ensures that the assumptions used in the plant accident and containment analyses remain valid. In the event of a main steam line or feed line break, SSIVs close to terminate the blowdown from the faulted steam generator and isolate the intact steam generators, and to isolate the plant secondary side and thereby prevent possible diversion of auxiliary feedwater flow. The assumed isolation response involves the valves governed by TS 3.7.2 (main steam isolation valves and main steam isolation valve bypass valves) and TS 3.7.3 (main feedwater isolation valves, main feedwater regulating valves, and main feedwater regulating valve bypass valves), but the analyses assumptions also require that the steam generator blowdown and sample line isolation valves are closed.

The following regulatory requirements and guidance documents apply to the proposed changes.

GDC-2, "Design bases for protection against natural phenomena," requires that structures, systems, and components important to safety be designed to withstand the effects of natural phenomena, such as earthquakes, tornadoes, hurricanes, floods, tsunami, and seiches without the loss of the capability to perform their safety function.

GDC-4, "Environmental and dynamic effects design bases," requires that structures, systems, and components important to safety be designed to accommodate the effects of, and to be compatible with, the environmental conditions associated with the normal operation, maintenance, testing, and postulated accidents, including loss-of-coolant accidents. These structures, systems, and components shall be appropriately protected against dynamic effects, including the effects of missiles, pipe whipping, discharging fluids that may result from equipment failures, and from events and conditions outside the nuclear power unit. However, dynamic effects associated with postulated pipe ruptures in nuclear power units may be excluded from the design basis when analyses reviewed and approved by the Commission demonstrate that the probability of fluid system piping rupture is extremely low under conditions consistent with the design basis of the piping.

GDC-13, "Instrumentation and control," requires that instrumentation shall be provided to monitor variables and systems over their anticipated ranges for normal operation, for anticipated operational occurrences, and for accident conditions as appropriate to assure adequate safety, including those variables and systems that can affect the fission process, the integrity of the reactor core, the reactor coolant pressure boundary, and the containment and its associated systems.

GDC-20 requires that protection system(s) shall be designed (1) to initiate automatically the operation of appropriate systems including the reactivity control systems, to assure that specified acceptable fuel design limits are not exceeded as a result of anticipated operational occurrences and (2) to sense accident conditions and to initiate the operation of systems and components important to safety.

GDC-21 requires that the protection system(s) shall be designed for high functional reliability and testability.

GDC-34, "Residual heat removal," requires a system to remove residual heat be provided. The system safety function shall be to transfer fission product decay heat and other residual heat from the reactor core at a rate such that specified acceptable fuel design limits and the design conditions of the reactor coolant pressure boundary are not exceeded. The WCGS licensing basis provided in the USAR, specifies that compliance with GDC-34 includes that for a main feedwater line break upstream of the main feedwater isolation valves (outside containment), the feedwater system is designed to prevent the blowdown of any one steam generator and to provide a path for the addition of auxiliary feedwater for reactor cooldown under emergency shutdown conditions.

Regulatory Guide 1.22 discusses an acceptable method of satisfying GDC-20 and GDC-21 regarding the periodic testing of protection system actuation functions. These periodic tests should duplicate, as closely as practicable, the performance that is required of the actuation devices in the event of an accident.

10 CFR 50.55a(h) requires that the protection systems meet IEEE 279-1971. Section 4.2 of IEEE 279-1971 discusses the general functional requirement for protection systems to assure they satisfy the single failure criterion.

There will be no changes to the secondary system isolation valves or ESFAS instrumentation design such that compliance with any of the regulatory requirements and guidance documents above would be affected. The above evaluations confirm that the plant will continue to comply with all applicable regulatory requirements.

4.2 Precedent

AmerenUE (Callaway Plant) submitted a similar license amendment request (letter ULNRC-05466) on December 28, 2007 (ADAMS Accession number ML080150642). The primary difference between the Callaway Plant request and this request is that WCNOC determined that the main steam low point drain isolation valves and steam generator chemical injection isolation valves are not included in the assumptions in the plant accident and containment analysis.

4.3 Significant Hazards Consideration

The proposed change adds the main steam isolation valve bypass valves (MSIV bypass valves) to the scope of Technical Specification (TS) 3.7.2, "Main Steam Isolation Valves (MSIVs)," and also revises the Applicability of the TS for the MSIVs. Because the Applicability for TS 3.7.2 is revised, footnote (i) of Table 3.3.2-1 for TS 3.3.2, "ESFAS Instrumentation," is also changed for consistency. Further, a new Technical Specification, TS 3.7.19, "Secondary System Isolation Valves (SSIVs)," is proposed to establish requirements for the steam generator blowdown isolation valves (SGBIVs) and steam generator blowdown sample isolation valves (SGBSIVs).

1. Does the proposed amendment involve a significant increase in the probability or consequences of an accident previously evaluated?

   Response: No

   The proposed change adds requirements to the TS to ensure that systems and components are maintained consistent with the safety analysis and licensing basis.

   Requirements are incorporated into the TS for secondary system isolation valves. These changes do not involve any design or physical changes to the facility, including the SSIVs themselves. The design and functional performance requirements, operational characteristics, and reliability of the SSIVs are unchanged.

   Overall protection system performance will remain within the bounds of the previously performed accident analyses since there are no design changes. All design, material, and construction standards that were applicable prior to this amendment request will be maintained. There will be no changes to any design or operating limits.

The proposed changes will not change accident initiators or precursors assumed or postulated in the Updated Safety Analysis Report (USAR) described accident analyses, nor will they alter the design assumptions, conditions, and configuration of the facility or the manner in which the plant is operated and maintained. The proposed changes will not alter or prevent the ability of structures, systems, and components (SSCs) from performing their intended functions to mitigate the consequences of an initiating event within the assumed acceptance limits.

The proposed changes do not physically alter safety related systems, nor do they affect the way in which safety related systems perform their functions. All accident analysis acceptance criteria will continue to be met with the proposed changes. The proposed changes will not affect the source term, containment isolation, or radiological release assumptions used in evaluating the radiological consequences of an accident previously evaluated. The proposed changes will not alter any assumptions or change any mitigation actions in the radiological consequence evaluations in the USAR. The applicable radiological dose acceptance criteria will continue to be met.

Based on the above considerations, the proposed changes do not involve a significant increase in the probability or consequences of an accident previously evaluated.

2. Does the proposed amendment create the possibility of a new or different kind of accident from any accident previously evaluated?

   Response: No

   There are no proposed design changes, nor are there any changes in the method by which any safety related plant SSC performs its specified safety function. The proposed changes will not affect the normal method of plant operation or change any operating parameters. No equipment performance requirements will be affected. The proposed changes will not alter any assumptions made in the safety analyses.

   No new accident scenarios, transient precursors, failure mechanisms, or limiting single failures will be introduced as a result of this amendment. There will be no adverse effect or challenges imposed on any safety related system as a result of this amendment. The proposed amendment will not alter the design or performance of the 7300 Process Protection System, Nuclear Instrumentation System, or Solid State Protection System used in the plant protection systems.

   Therefore, the proposed changes do not create the possibility of a new or different accident from any accident previously evaluated.

3. Does the proposed amendment involve a significant reduction in a margin of safety?

   Response: No

   There will be no effect on those plant systems necessary to assure the accomplishment of protection functions. There will be no impact on the overpower limit, departure from nucleate boiling ratio (DNBR) limits, heat flux hot channel factor (F_Q), nuclear enthalpy rise hot channel factor ($F\Delta H$), loss of coolant accident peak cladding temperature (LOCA PCT),

peak local power density, or any other margin of safety. The applicable radiological dose consequence acceptance criteria for design-basis transients and accidents will continue to be met.

The proposed changes do not eliminate any surveillances or alter the frequency of surveillances required by the Technical Specifications. None of the acceptance criteria for any accident analysis will be changed.

Therefore, the proposed changes do not involve a significant reduction in a margin of safety.

In conclusion, based on the considerations discussed above, 1) there is a reasonable assurance that the health and safety of the public will not be endangered by operation in the proposed manner, 2) such activities will be conducted in compliance with the Commission's regulations, and 3) the issuance of the amendment will not be inimical to the common defense and security or to the health and safety of the public.

5.0 ENVIRONMENTAL CONSIDERATION

WCNOC has evaluated the proposed change and has determined that the change does not involve (i) a significant hazards consideration, (ii) a significant change in the types of or significant increase in the amounts of any effluents that may be released offsite, or (iii) a significant increase in individual or cumulative occupational radiation exposure. Accordingly, the proposed change meets the eligibility criteria for categorical exclusion set forth in 10 CFR 51.22(c)(9). Therefore, pursuant to 10 CFR 51.22(b), an environmental assessment of the proposed change is not required.

Markup of Technical Specification Pages

and MSIV Bypass Valves

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Engineered Safety Feature Actuation System Instrumentation

FUNCTION	APPLICABLE MODES OR OTHER SPECIFIED CONDITIONS	REQUIRED CHANNELS	CONDITIONS	SURVEILLANCE REQUIREMENTS	ALLOWABLE VALUE (a)
3. Containment Isolation					
a. Phase A Isolation					
(1) Manual Initiation	1,2,3,4	2	B	SR 3.3.2.8	NA
(2) Automatic Actuation Logic and Actuation Relays	1,2,3,4	2 trains	C	SR 3.3.2.2 SR 3.3.2.4 SR 3.3.2.6 SR 3.3.2.13	NA
(3) Safety Injection	Refer to Function 1 (Safety Injection) for all initiation functions and requirements.				
b. Phase B Isolation					
(1) Manual Initiation	1,2,3,4	2 per train, 2 trains	B	SR 3.3.2.8	NA
(2) Automatic Actuation Logic and Actuation Relays	1,2,3,4	2 trains	C	SR 3.3.2.2 SR 3.3.2.4 SR 3.3.2.6	NA
(3) Containment Pressure - High 3	1,2,3	4	E	SR 3.3.2.1 SR 3.3.2.5 SR 3.3.2.9 SR 3.3.2.10	≤ 28.3 psig
4. Steam Line Isolation					
a. Manual Initiation	1,2(i), 3(i)	2	F	SR 3.3.2.8	NA
b. Automatic Actuation Logic and Actuation Relays (SSPS)	1,2(i), 3(i)	2 trains	G	SR 3.3.2.2 SR 3.3.2.4 SR 3.3.2.6	NA
c. Automatic Actuation Logic (MSFIS)	1,2(i), 3(i)	2 trains	G	SR 3.3.2.6	NA
d. Containment Pressure - High 2	1,2(i), 3(i)	3	D	SR 3.3.2.1 SR 3.3.2.5 SR 3.3.2.9 SR 3.3.2.10	≤ 18.3 psig

(continued)

(a) The Allowable Value defines the Limiting Safety System Setting. See the Bases for the Trip Setpoints.
Except when all MSIVs are closed and de-activated.

(i) Except when all MSIVs are closed and de-activated; and all MSIV bypass valves are closed and de-activated, or closed and isolated by a closed manual valve, or isolated by two closed manual valves.

Table 3.3.2-1 (page 3 of 5)
Engineered Safety Feature Actuation System Instrumentation

	FUNCTION	APPLICABLE MODES OR OTHER SPECIFIED CONDITIONS	REQUIRED CHANNELS	CONDITIONS	SURVEILLANCE REQUIREMENTS	ALLOWABLE VALUE (a)
4.	Steam Line Isolation (continued)					
	e. Steam Line Pressure					
	(1) Low	1,2(i),3(b)(i)	3 per steam line	D	SR 3.3.2.1 SR 3.3.2.5 SR 3.3.2.9 SR 3.3.2.10	≥ 571 psig(c)
	(2) Negative Rate - High	3(g)(i)	3 per steam line	D	SR 3.3.2.1 SR 3.3.2.5 SR 3.3.2.9 SR 3.3.2.10	≤ 125(h) psi
5.	Turbine Trip and Feedwater Isolation					
	a. Automatic Actuation Logic and Actuation Relays (SSPS)	1,2(j),3(j)	2 trains	G	SR 3.3.2.2 SR 3.3.2.4 SR 3.3.2.6 SR 3.3.2.14	NA
	b. Automatic Actuation Logic (MSFIS)	1,2(k),3(k)	2 trains	G	SR 3.3.2.6	NA
	c. SG Water Level -High High (P-14)	1,2(j)	4 per SG	I	SR 3.3.2.1 SR 3.3.2.5 SR 3.3.2.9 SR 3.3.2.10	≤ 79.7% of Narrow Range Instrument Span
	d. Safety Injection	Refer to Function 1 (Safety Injection) for all initiation functions and requirements.				

(continued)

(a) The Allowable Value defines the Limiting Safety System Setting. See the Bases for the Trip Setpoints.
(b) Above the P-11 (Pressurizer Pressure) Interlock and below P-11 unless the Function is blocked.
(c) Time constants used in the lead/lag controller are $t_1 \geq 50$ seconds and $t_2 \leq 5$ seconds.
(g) Below the P-11 (Pressurizer Pressure) Interlock; however, may be blocked below P-11 when safety injection on low steam line pressure is not blocked.
(h) Time constant utilized in the rate/lag controller is ≥ 50 seconds.
(i) Except when all MSIVs are closed and de-activated; and all MSIV bypass valves are closed and de-activated, or closed and isolated by a closed manual valve, or isolated by two closed manual valves.
(j) Except when all MFIVs are closed and de-activated; and all MFRVs are closed and de-activated or closed and isolated by a closed manual valve; and all MFRV bypass valves are closed and de-activated, or closed and isolated by a closed manual valve, or isolated by two closed manual valves.
(k) Except when all MFIVs are closed and de-activated.

MSIVs
3.7.2

3.7 PLANT SYSTEMS

and MSIV Bypass Valves

3.7.2 Main Steam Isolation Valves (MSIVs)

, and four MSIV bypass valves

LCO 3.7.2 Four MSIVs and their associated actuator trains shall be OPERABLE.

INSERT 3.7.5

APPLICABILITY: MODE 1, 2, and 3.

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. One MSIV actuator train inoperable.	A.1 Restore MSIV actuator train to OPERABLE status.	7 days
B. Two MSIV actuator trains inoperable for different MSIVs when the inoperable actuator trains are not in the same separation group.	B.1 Restore one MSIV actuator train to OPERABLE status.	72 hours
C. Two MSIV actuator trains inoperable when the inoperable actuator trains are in the same separation group.	C.1 Restore one MSIV actuator train to OPERABLE status.	24 hours
D. Two actuator trains for one MSIV inoperable.	D.1 Declare the affected MSIV inoperable.	Immediately

(continued)

INSERT 3.7-5

----------NOTE----------

1. All MSIVs and their associated actuator trains may be inoperable in MODES 2 and 3 when closed and de-activated.

2. One or more MSIV bypass valves may be inoperable when closed and de-activated, closed and isolated by a closed manual valve, or isolated by two closed manual valves.

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and MSIV Bypass Valves

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
E. Three or more MSIV actuator trains inoperable. OR Required Action and associated Completion Time of Condition A, B, or C not met.	E.1 Declare each affected MSIV inoperable.	Immediately
F. One MSIV inoperable in MODE 1.	F.1 Restore MSIV to OPERABLE status.	8 hours
G. Required Action and associated Completion Time of Condition F not met.	G.1 Be in MODE 2.	6 hours
INSERT 3.7-6 H. (I.) ----------NOTE---------- Separate Condition entry is allowed for each MSIV. ---------- One or more MSIV inoperable in MODE 2 or 3.	I.1 (H.1) Close MSIV. AND I.2 (H.2) Verify MSIV is closed.	8 hours Once per 7 days
I. (J.) Required Action and associated Completion Time of Condition H not met. (or I)	J.1 (I.1) Be in MODE 3. AND J.2 (I.2) Be in MODE 4.	6 hours 12 hours

INSERT 3.7-6

H.	----------NOTE---------- Separate Condition entry is allowed for each MSIV bypass valve. ---------- One or more MSIV bypass valves inoperable.	H.1 AND H.2	Close or isolate MSIV bypass valve. Verify MSIV bypass valve is closed or isolated.	8 hours Once per 7 days

and MSIV Bypass Valves

SURVEILLANCE REQUIREMENTS

	SURVEILLANCE	FREQUENCY
SR 3.7.2.1	----------NOTE---------- Only required to be performed in MODES 1 and 2. ---------- Verify the isolation time of each MSIV is within limits.	In accordance with the Inservice Testing Program
SR 3.7.2.2	----------NOTE---------- Only required to be performed in MODES 1 and 2. ---------- Verify each actuator train actuates the MSIV to the isolation position on an actual or simulated actuation signal.	18 months

INSERT 3.7-7

INSERT 3.7-7

SR 3.7.2.3	Verify each MSIV bypass valve actuates to the isolation position on an actual or simulated actuation signal.	18 months
SR 3.7.2.4	Verify isolation time of each MSIV bypass valve is within limit.	In accordance with the Inservice Testing Program

3.7 PLANT SYSTEMS

3.7.18 Secondary Specific Activity

LCO 3.7.18 The specific activity of the secondary coolant shall be ≤ 0.10 μCi/gm DOSE EQUIVALENT I-131.

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

ACTIONS

CONDITION	REQUIRED ACTION		COMPLETION TIME
A. Specific activity not within limit.	A.1	Be in MODE 3.	6 hours
	AND		
	A.2	Be in MODE 5.	36 hours

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.7.18.1	Verify the specific activity of the secondary coolant is ≤ 0.10 μCi/gm DOSE EQUIVALENT I-131.	31 days

INSERT 3.7-42

INSERT 3.7-42

3.7 PLANT SYSTEMS

3.7.19 Secondary System Isolation Valves (SSIVs)

LCO 3.7.19 Each SSIV shall be OPERABLE.

APPLICABILITY: MODES 1, 2, and 3, except when the SSIV is closed and de-activated, or is closed and isolated by a closed manual valve, or the flow path is isolated by a combination of closed manual valve(s) and closed de-activated automatic valve(s).

ACTIONS

----------NOTE----------

1. Separate Condition entry is allowed for each SSIV.

2. SSIVs may be unisolated intermittently under administrative controls.

CONDITION	REQUIRED ACTION		COMPLETION TIME
A. One or more SSIVs inoperable.	A.1	Close or isolate SSIV.	7 days
	AND		
	A.2	Verify SSIV is closed or isolated.	Once per 7 days
B. Required Action and associated Completion Time not met.	A.1	Be in MODE 3.	6 hours
	AND		
	A.2	Be in MODE 4.	12 hours

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.7.19.1	Verify each automatic SSIV in the flow path is in the correct position.	31 days
SR 3.7.19.2	Verify the isolation time of each automatic SSIV is within limit.	In accordance with the Inservice Testing Program
SR 3.7.19.3	Verify each automatic SSIV in the flow path actuates to the isolation position on an actual or simulated actuation signal.	18 months

Retyped Technical Specification Pages

Table 3.3.2-1 (page 1 of 5)
Engineered Safety Feature Actuation System Instrumentation

	FUNCTION	APPLICABLE MODES OR OTHER SPECIFIED CONDITIONS	REQUIRED CHANNELS	CONDITIONS	SURVEILLANCE REQUIREMENTS	ALLOWABLE VALUE (a)
1.	Safety Injection					
	a. Manual Initiation	1,2,3,4	2	B	SR 3.3.2.8	NA
	b. Automatic Actuation Logic and Actuation Relays	1,2,3,4	2 trains	C	SR 3.3.2.2 SR 3.3.2.4 SR 3.3.2.6 SR 3.3.2.13	NA
	c. Containment Pressure - High 1	1,2,3	3	D	SR 3.3.2.1 SR 3.3.2.5 SR 3.3.2.9 SR 3.3.2.10	≤ 4.5 psig
	d. Pressurizer Pressure - Low	1,2,3(b)	4	D	SR 3.3.2.1 SR 3.3.2.5 SR 3.3.2.9 SR 3.3.2.10	≥ 1820 psig
	e. Steam Line Pressure Low	1,2,3(b)	3 per steam line	D	SR 3.3.2.1 SR 3.3.2.5 SR 3.3.2.9 SR 3.3.2.10	≥ 571 psig(c)
2.	Containment Spray					
	a. Manual Initiation	1,2,3,4	2 per train, 2 trains	B	SR 3.3.2.8	NA
	b. Automatic Actuation Logic and Actuation Relays	1,2,3,4	2 trains	C	SR 3.3.2.2 SR 3.3.2.4 SR 3.3.2.6	NA
	c. Containment Pressure High - 3	1,2,3	4	E	SR 3.3.2.1 SR 3.3.2.5 SR 3.3.2.9 SR 3.3.2.10	≤ 28.3 psig

(continued)

(a) The Allowable Value defines the Limiting Safety System Setting. See the Bases for the Trip Setpoints.
(b) Above the P-11 (Pressurizer Pressure) interlock and below P-11 unless the Function is blocked.
(c) Time constants used in the lead/lag controller are $t_1 \geq 50$ seconds and $t_2 \leq 5$ seconds.

Table 3.3.2-1 (page 2 of 5)
Engineered Safety Feature Actuation System Instrumentation

	FUNCTION	APPLICABLE MODES OR OTHER SPECIFIED CONDITIONS	REQUIRED CHANNELS	CONDITIONS	SURVEILLANCE REQUIREMENTS	ALLOWABLE VALUE (a)
3.	Containment Isolation					
	a. Phase A Isolation					
	(1) Manual Initiation	1,2,3,4	2	B	SR 3.3.2.8	NA
	(2) Automatic Actuation Logic and Actuation Relays	1,2,3,4	2 trains	C	SR 3.3.2.2 SR 3.3.2.4 SR 3.3.2.6 SR 3.3.2.13	NA
	(3) Safety Injection	Refer to Function 1 (Safety Injection) for all initiation functions and requirements.				
	b. Phase B Isolation					
	(1) Manual Initiation	1,2,3,4	2 per train, 2 trains	B	SR 3.3.2.8	NA
	(2) Automatic Actuation Logic and Actuation Relays	1,2,3,4	2 trains	C	SR 3.3.2.2 SR 3.3.2.4 SR 3.3.2.6	NA
	(3) Containment Pressure - High 3	1,2,3	4	E	SR 3.3.2.1 SR 3.3.2.5 SR 3.3.2.9 SR 3.3.2.10	≤ 28.3 psig
4.	Steam Line Isolation					
	a. Manual Initiation	1,2[(i)], 3[(i)]	2	F	SR 3.3.2.8	NA
	b. Automatic Actuation Logic and Actuation Relays (SSPS)	1,2[(i)], 3[(i)]	2 trains	G	SR 3.3.2.2 SR 3.3.2.4 SR 3.3.2.6	NA
	c. Automatic Actuation Logic (MSFIS)	1,2[(l)], 3[(l)]	2 trains	G	SR 3.3.2.6	NA
	d. Containment Pressure – High 2	1,2[(i)], 3[(i)]	3	D	SR 3.3.2.1 SR 3.3.2.5 SR 3.3.2.9 SR 3.3.2.10	≤ 18.3 psig

(continued)

(a) The Allowable Value defines the Limiting Safety System Setting. See the Bases for the Trip Setpoints.
(i) Except when all MSIVs are closed and de-activated; and all MSIV bypass valves are closed and de-activated, or closed and isolated by a closed manual valve, or isolated by two closed manual valves.
(l) Except when all MSIVs are closed and de-activated.

Table 3.3.2-1 (page 3 of 5)
Engineered Safety Feature Actuation System Instrumentation

	FUNCTION	APPLICABLE MODES OR OTHER SPECIFIED CONDITIONS	REQUIRED CHANNELS	CONDITIONS	SURVEILLANCE REQUIREMENTS	ALLOWABLE VALUE (a)
4.	Steam Line Isolation (continued)					
	e. Steam Line Pressure					
	(1) Low	1,2(i),3(b)(i)	3 per steam line	D	SR 3.3.2.1 SR 3.3.2.5 SR 3.3.2.9 SR 3.3.2.10	≥ 571 psig(c)
	(2) Negative Rate - High	3(g)(i)	3 per steam line	D	SR 3.3.2.1 SR 3.3.2.5 SR 3.3.2.9 SR 3.3.2.10	≤ 125(h) psi
5.	Turbine Trip and Feedwater Isolation					
	a. Automatic Actuation Logic and Actuation Relays (SSPS)	1,2(j),3(j)	2 trains	G	SR 3.3.2.2 SR 3.3.2.4 SR 3.3.2.6 SR 3.3.2.14	NA
	b. Automatic Actuation Logic (MSFIS)	1,2(k),3(k)	2 trains	G	SR 3.3.2.6	NA
	c. SG Water Level -High High (P-14)	1,2(j)	4 per SG	I	SR 3.3.2.1 SR 3.3.2.5 SR 3.3.2.9 SR 3.3.2.10	≤ 79.7% of Narrow Range Instrument Span
	d. Safety Injection	Refer to Function 1 (Safety Injection) for all initiation functions and requirements.				

(continued)

(a) The Allowable Value defines the Limiting Safety System Setting. See the Bases for the Trip Setpoints.
(b) Above the P-11 (Pressurizer Pressure) Interlock and below P-11 unless the Function is blocked.
(c) Time constants used in the lead/lag controller are $t_1 \geq 50$ seconds and $t_2 \leq 5$ seconds.
(g) Below the P-11 (Pressurizer Pressure) Interlock; however, may be blocked below P-11 when safety injection on low steam line pressure is not blocked.
(h) Time constant utilized in the rate/lag controller is ≥ 50 seconds.
(i) Except when all MSIVs are closed and de-activated; and all MSIV bypass valves are closed and de-activated, or closed and isolated by a closed manual valve, or isolated by two closed manual valves.
(j) Except when all MFIVs are closed and de-activated; and all MFRVs are closed and de-activated or closed and isolated by a closed manual valve; and all MFRV bypass valves are closed and de-activated, or closed and isolated by a closed manual valve, or isolated by two closed manual valves.
(k) Except when all MFIVs are closed and de-activated.

Table 3.3.2-1 (page 4 of 5)
Engineered Safety Feature Actuation System Instrumentation

	FUNCTION	APPLICABLE MODES OR OTHER SPECIFIED CONDITIONS	REQUIRED CHANNELS	CONDITIONS	SURVEILLANCE REQUIREMENTS	ALLOWABLE VALUE (a)
6.	Auxiliary Feedwater					
a.	Manual Initiation	1,2,3	1 per pump	O	SR 3.3.2.8	NA
b.	Automatic Actuation Logic and Actuation Relays (Solid State Protection System)	1,2,3	2 trains	G	SR 3.3.2.2 SR 3.3.2.4 SR 3.3.2.6	NA
c.	Automatic Actuation Logic and Actuation Relays (Balance of Plant ESFAS)	1,2,3	2 trains	N	SR 3.3.2.3	NA
d.	SG Water Level Low - Low	1,2,3	4 per SG	D	SR 3.3.2.1 SR 3.3.2.5 SR 3.3.2.9 SR 3.3.2.10	≥ 22.3% of Narrow Range Instrument Span
e.	Safety Injection	Refer to Function 1 (Safety Injection) for all initiation functions and requirements.				
f.	Loss of Offsite Power	1,2,3	2 trains	P	SR 3.3.2.7 SR 3.3.2.10	NA
g.	Trip of all Main Feedwater Pumps	1	2 per pump	J	SR 3.3.2.8	NA
h.	Auxiliary Feedwater Pump Suction Transfer on Suction Pressure - Low	1,2,3	3	M	SR 3.3.2.1 SR 3.3.2.9 SR 3.3.2.10 SR 3.3.2.12	≥ 20.53 psia

(continued)

(a) The Allowable Value defines the Limiting Safety System Setting. See the Bases for the Trip Setpoints.

3.7 PLANT SYSTEMS

3.7.2 Main Steam Isolation Valves (MSIVs) and MSIV Bypass Valves

LCO 3.7.2 Four MSIVs and their associated actuator trains, and four MSIV bypass valves shall be OPERABLE.

---NOTE---

1. All MSIVs and their associated actuator trains may be inoperable in MODES 2 and 3 when closed and de-activated.

2. One or more MSIV bypass valves may be inoperable when closed and de-activated, closed and isolated by a closed manual valve, or isolated by two closed manual valves.

APPLICABILITY: MODE 1, 2, and 3.

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. One MSIV actuator train inoperable.	A.1 Restore MSIV actuator train to OPERABLE status.	7 days
B. Two MSIV actuator trains inoperable for different MSIVs when the inoperable actuator trains are not in the same separation group.	B.1 Restore one MSIV actuator train to OPERABLE status.	72 hours
C. Two MSIV actuator trains inoperable when the inoperable actuator trains are in the same separation group.	C.1 Restore one MSIV actuator train to OPERABLE status.	24 hours

(continued)

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
D. Two actuator trains for one MSIV inoperable.	D.1 Declare the affected MSIV inoperable.	Immediately
E. Three or more MSIV actuator trains inoperable. OR Required Action and associated Completion Time of Condition A, B, or C not met.	E.1 Declare each affected MSIV inoperable.	Immediately
F. One MSIV inoperable in MODE 1.	F.1 Restore MSIV to OPERABLE status.	8 hours
G. Required Action and associated Completion Time of Condition F not met.	G.1 Be in MODE 2.	6 hours
H. ----------NOTE---------- Separate Condition entry is allowed for each MSIV bypass valve. ---------- One or more MSIV bypass valves inoperable.	H.1 Close or isolate MSIV bypass valve. AND H.2 Verify MSIV bypass valve is closed or isolated.	8 hours Once per 7 days

(continued)

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
I. ----------NOTE---------- Separate Condition entry is allowed for each MSIV. ---------- One or more MSIV inoperable in MODE 2 or 3.	I.1 Close MSIV. AND I.2 Verify MSIV is closed.	8 hours Once per 7 days
J. Required Action and associated Completion Time of Condition H or I not met.	J.1 Be in MODE 3. AND J.2 Be in MODE 4.	6 hours 12 hours

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.7.2.1	----------NOTE---------- Only required to be performed in MODES 1 and 2. ---------- Verify the isolation time of each MSIV is within limits.	In accordance with the Inservice Testing Program
SR 3.7.2.2	----------NOTE---------- Only required to be performed in MODES 1 and 2. ---------- Verify each actuator train actuates the MSIV to the isolation position on an actual or simulated actuation signal.	18 months

(continued)

SURVEILLANCE REQUIREMENTS (continued)

	SURVEILLANCE	FREQUENCY
SR 3.7.2.3	Verify each MSIV bypass valve actuates to the isolation position on an actual or simulated actuation signal.	18 months
SR 3.7.2.4	Verify isolation time of each MSIV bypass valve is within limit.	In accordance with the Inservice Testing Program

3.7 PLANT SYSTEMS

3.7.3 Main Feedwater Isolation Valves (MFIVs) and Main Feedwater Regulating Valves (MFRVs) and MFRV Bypass Valves

LCO 3.7.3 Each MFIV and its associated actuator trains, MFRV and MFRV bypass valve for the four main feedwater lines shall be OPERABLE.

APPLICABILITY: MODE 1
MODES 2 and 3, except for each affected main feedwater line when:

a. The MFIV is closed and deactivated; or

b. The MFRV is closed and deactivated or closed and isolated by a closed manual valve; and the MFRV bypass valve is either closed and deactivated, closed and isolated by a closed manual valve, or isolated by two closed manual valves.

ACTIONS

CONDITION	REQUIRED ACTION		COMPLETION TIME
A. One MFIV actuator train inoperable.	A.1	Restore MFIV actuator train to OPERABLE status.	7 days
B. Two MFIV actuator trains inoperable for different MFIVs when the inoperable actuator trains are not in the same separation group.	B.1	Restore one MFIV actuator train to OPERABLE status.	72 hours
C. Two MFIV actuator trains inoperable when the inoperable actuator trains are in the same separation group.	C.1	Restore one MFIV actuator train to OPERABLE status.	24 hours

(continued)

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
D. Two actuator trains for one MFIV inoperable.	D.1 Declare the affected MFIV inoperable.	Immediately
E. Three or more MFIV actuator trains inoperable. OR Required Action and associated Completion Time of Condition A, B, or C not met.	E.1 Declare each affected MFIV inoperable.	Immediately
F. ----------NOTE---------- Separate Condition entry is allowed for each MFIV. ---------- One or more MFIVs inoperable.	F.1 Close MFIV. AND F.2 Verify MFIV is closed.	72 hours Once per 7 days
G. ----------NOTE---------- Separate Condition entry is allowed for each MFRV. ---------- One or more MFRVs inoperable.	G.1 Close or isolate MFRV. AND G.2 Verify MFRV is closed or isolated.	72 hours Once per 7 days

(continued)

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
H. ----------NOTE---------- Separate Condition entry is allowed for each MFRV bypass valve. ---------- One or more MFRV bypass valves is inoperable.	H.1 Close or isolate MFRV bypass valve. AND H.2 Verify MFRV bypass valve is closed or isolated.	72 hours Once per 7 days
I. Two valves in the same flow path inoperable.	I.1 Isolate affected flow path.	8 hours
J. Required Action and associated Completion Time of Condition F, G, H, or I not met.	J.1 Be in MODE 3. AND J.2 Be in MODE 4.	6 hours 12 hours

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.7.3.1	----------NOTE---------- Only required to be performed in MODES 1 and 2. ---------- Verify the isolation time of each MFIV, MFRV and MFRV bypass valve is within limits.	In accordance with the Inservice Testing Program

(continued)

SURVEILLANCE REQUIRMENTS (continued)

SURVEILLANCE		FREQUENCY
SR 3.7.3.2	----------NOTE---------- Only required to be performed in MODES 1 and 2. ---------- Verify each actuator train actuates the MFIV to the isolation position on an actual or simulated actuation signal.	18 months
SR 3.7.3.3	----------NOTE---------- Only required to be performed in MODES 1 and 2. ---------- Verify each MFRV and MFRV bypass valve actuates to the isolation position on an actual or simulated actuation signal.	18 months

3.7 PLANT SYSTEMS

3.7.4 Atmospheric Relief Valves (ARVs)

LCO 3.7.4 Four ARV lines shall be OPERABLE.

APPLICABILITY: MODES 1, 2, and 3.

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. One ARV line inoperable for reasons other than excessive leakage.	A.1 Restore required ARV line to OPERABLE status.	7 days
B. Two ARV lines inoperable for reasons other than excessive leakage.	B.1 Restore all but one required ARV line to OPERABLE status.	72 hours
C. Three or more ARV lines inoperable for reasons other than excessive leakage.	C.1 Restore all but two ARV lines to OPERABLE status.	24 hours

(continued)

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
D. With one or more of the ARVs inoperable because of excessive seat leakage.	D.1 Initiate action to close the associated block valve(s). AND D.2 Restore ARV(s) to OPERABLE staus.	Immediately 30 days
E. Required Action and associated Completion Time not met.	E.1 Be in MODE 3. AND E.2 Be in MODE 4.	6 hours 12 hours

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.7.4.1	Verify one complete cycle of each ARV.	In accordance with the Inservice Testing Program
SR 3.7.4.2	Verify one complete cycle of each ARV block valve.	18 months

3.7 PLANT SYSTEMS

3.7.5 Auxiliary Feedwater (AFW) System

LCO 3.7.5 Three AFW trains shall be OPERABLE.

APPLICABILITY: MODES 1, 2, and 3.

ACTIONS

---NOTE---
LCO 3.0.4b. is not applicable when entering MODE 1.

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. One steam supply to turbine driven AFW pump inoperable.	A.1 Restore steam supply to OPERABLE status.	7 days AND 10 days from discovery of failure to meet the LCO
B. One AFW train inoperable for reasons other than Condition A.	B.1 Restore AFW train to OPERABLE status.	72 hours AND 10 days from discovery of failure to meet the LCO

(continued)

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
C. Required Action and associated Completion Time for Condition A or B not met. OR Two AFW trains inoperable.	C.1 Be in MODE 3. AND C.2 Be in MODE 4.	6 hours 12 hours
D. Three AFW trains inoperable.	D.1 ----------NOTE---------- LCO 3.0.3 and all other LCO Required Actions requiring MODE changes are suspended until one AFW train is restored to OPERABLE status. ---------- Initiate action to restore one AFW train to OPERABLE status.	 Immediately

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.7.5.1	----------NOTE---------- Not required to be performed for the AFW flow control valves until the system is placed in standby or THERMAL POWER is > 10% RTP. ---------- Verify each AFW manual, power operated, and automatic valve in each water flow path, and in both steam supply flow paths to the steam turbine driven pump, that is not locked, sealed, or otherwise secured in position, is in the correct position.	 31 days

(continued)

SURVEILLANCE REQUIREMENTS (continued)

	SURVEILLANCE	FREQUENCY
SR 3.7.5.2	----------NOTE---------- Not required to be performed for the turbine driven AFW pump until 24 hours after ≥ 900 psig in the steam generator. ---------- Verify the developed head of each AFW pump at the flow test point is greater than or equal to the required developed head.	In accordance with the Inservice Test Program
SR 3.7.5.3	Verify each AFW automatic valve that is not locked, sealed, or otherwise secured in position, actuates to the correct position on an actual or simulated actuation signal.	18 months
SR 3.7.5.4	----------NOTE---------- Not required to be performed for the turbine driven AFW pump until 24 hours after ≥ 900 psig in the steam generator. ---------- Verify each AFW pump starts automatically on an actual or simulated actuation signal.	18 months
SR 3.7.5.5	Verify proper alignment of the required AFW flow paths by verifying flow from the condensate storage tank to each steam generator.	Prior to entering MODE 2 whenever unit has been in MODE 5 or 6 for > 30 days

3.7 PLANT SYSTEMS

3.7.6 Condensate Storage Tank (CST)

LCO 3.7.6 The CST contained water volume shall be ≥ 281,000 gal.

APPLICABILITY: MODES 1, 2, and 3.

ACTIONS

CONDITION	REQUIRED ACTION		COMPLETION TIME
A. CST contained water volume not within limit.	A.1	Verify by administrative means OPERABILITY of backup water supply.	4 hours AND Once per 12 hours thereafter
	AND		
	A.2	Restore CST contained water volume to within limit.	7 days
B. Required Action and associated Completion Time not met.	B.1	Be in MODE 3.	6 hours
	AND		
	B.2	Be in MODE 4.	12 hours

SURVEILLANCE REQUIREMENTS

	SURVEILLANCE	FREQUENCY
SR 3.7.6.1	Verify the CST contained water volume is ≥ 281,000 gal.	12 hours

3.7 PLANT SYSTEMS

3.7.7 Component Cooling Water (CCW) System

LCO 3.7.7 Two CCW trains shall be OPERABLE.

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

ACTIONS

CONDITION	REQUIRED ACTION		COMPLETION TIME
A. One CCW train inoperable.	A.1	----------NOTE---------- Enter applicable Conditions and Required Actions of LCO 3.4.6, "RCS Loops - MODE 4," for residual heat removal loops made inoperable by CCW. ---------- Restore CCW train to OPERABLE status.	72 hours
B. Required Action and associated Completion Time of Condition A not met.	B.1 AND B.2	Be in MODE 3. Be in MODE 5.	6 hours 36 hours

SURVEILLANCE REQUIREMENTS

	SURVEILLANCE	FREQUENCY
SR 3.7.7.1	----------NOTE---------- Isolation of CCW flow to individual components does not render the CCW System inoperable. ---------- Verify each CCW manual, power operated, and automatic valve in the flow path servicing safety related equipment, that is not locked, sealed, or otherwise secured in position, is in the correct position.	31 days
SR 3.7.7.2	Verify each CCW automatic valve in the flow path that is not locked, sealed, or otherwise secured in position, actuates to the correct position on an actual or simulated actuation signal.	18 months
SR 3.7.7.3	Verify each CCW pump starts automatically on an actual or simulated actuation signal.	18 months

3.7 PLANT SYSTEMS

3.7.8 Essential Service Water (ESW) System

LCO 3.7.8 Two ESW trains shall be OPERABLE.

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

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. One ESW train inoperable.	A.1 ----------NOTES---------- 1. Enter applicable Conditions and Required Actions of LCO 3.8.1, "AC Sources - Operating," for emergency diesel generator made inoperable by ESW System. 2. Enter applicable Conditions and Required Actions of LCO 3.4.6, "RCS Loops - MODE 4," for residual heat removal loops made inoperable by ESW System. ---------- Restore ESW train to OPERABLE status.	72 hours

(continued)

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
B. Required Action and associated Completion Time of Condition A not met.	B.1 Be in MODE 3. AND B.2 Be in MODE 5.	6 hours 36 hours

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.7.8.1	----------NOTE---------- Isolation of ESW System flow to individual components does not render the ESW System inoperable. ---------- Verify each ESW manual, power operated, and automatic valve in the flow path servicing safety related equipment, that is not locked, sealed, or otherwise secured in position, is in the correct position.	31 days
SR 3.7.8.2	Verify each ESW automatic valve in the flow path that is not locked, sealed, or otherwise secured in position, actuates to the correct position on an actual or simulated actuation signal.	18 months
SR 3.7.8.3	Verify each ESW pump starts automatically on an actual or simulated actuation signal.	18 months

3.7 PLANT SYSTEMS

3.7.9 Ultimate Heat Sink (UHS)

LCO 3.7.9 The UHS shall be OPERABLE.

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

ACTIONS

CONDITION	REQUIRED ACTION		COMPLETION TIME
A. Plant inlet water temperature of UHS not within limit.	A.1	Verify water level of main cooling lake ≥ 1075 ft. mean sea level.	1 hour AND Once per 12 hours thereafter
	AND		
	A.2	Verify plant inlet water temperature of UHS is ≤ 94°F.	Once per hour
B. Required Action and associated Completion Time not met. OR UHS inoperable for reasons other than Condition A.	B.1	Be in MODE 3.	6 hours
	AND		
	B.2	Be in MODE 5.	36 hours

SURVEILLANCE REQUIREMENTS

	SURVEILLANCE	FREQUENCY
SR 3.7.9.1	Verify water level of UHS is ≥ 1070 ft mean sea level.	24 hours
SR 3.7.9.2	Verify plant inlet water temperature of UHS is ≤ 90°F.	24 hours

3.7 PLANT SYSTEMS

3.7.10 Control Room Emergency Ventilation System (CREVS)

LCO 3.7.10 Two CREVS trains shall be OPERABLE.

---NOTE---
The control room boundary may be opened intermittently under administrative controls.

APPLICABILITY: MODES 1, 2, 3, 4, 5, and 6,
During movement of irradiated fuel assemblies.

ACTIONS

CONDITION	REQUIRED ACTION		COMPLETION TIME
A. One CREVS train inoperable.	A.1	Restore CREVS train to OPERABLE status.	7 days
B. Two CREVS trains inoperable due to inoperable control room boundary in MODES 1, 2, 3, and 4.	B.1	Restore control room boundary to OPERABLE status.	24 hours
C. Required Action and associated Completion Time of Condition A or B not met in MODE 1, 2, 3, or 4.	C.1 AND C.2	Be in MODE 3. Be in MODE 5.	6 hours 36 hours

(continued)

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
D. Required Action and associated Completion Time of Condition A not met in MODE 5 or 6, or during movement of irradiated fuel assemblies.	D.1.1 Place OPERABLE CREVS train in CRVIS mode. AND D.1.2 Verify OPERABLE CREVS train is capable of being powered by an emergency power source. OR D.2.1 Suspend CORE ALTERATIONS. AND D.2.2 Suspend movement of irradiated fuel assemblies.	Immediately Immediately Immediately Immediately
E. Two CREVS trains inoperable in MODE 5 or 6, or during movement of irradiated fuel assemblies.	E.1 Suspend CORE ALTERATIONS. AND E.2 Suspend movement of irradiated fuel assemblies.	Immediately Immediately
F. Two CREVS trains inoperable in MODE 1, 2, 3, or 4 for reasons other than Condition B.	F.1 Enter LCO 3.0.3.	Immediately

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.7.10.1	Operate each CREVS train pressurization filter unit for ≥ 10 continuous hours with the heaters operating and each CREVS train filtration filter unit for ≥ 15 minutes.	31 days
SR 3.7.10.2	Perform required CREVS filter testing in accordance with the Ventilation Filter Testing Program (VFTP).	In accordance with VFTP
SR 3.7.10.3	Verify each CREVS train actuates on an actual or simulated actuation signal.	18 months
SR 3.7.10.4	Verify one CREVS train can maintain a positive pressure of ≥ 0.25 inches water gauge, relative to the outside atmosphere during the CRVIS mode of operation.	18 months on a STAGGERED TEST BASIS

3.7 PLANT SYSTEMS

3.7.11 Control Room Air Conditioning System (CRACS)

LCO 3.7.11 Two CRACS trains shall be OPERABLE.

APPLICABILITY: MODES 1, 2, 3, 4, 5, and 6,
During movement of irradiated fuel assemblies.

ACTIONS

CONDITION	REQUIRED ACTION		COMPLETION TIME
A. One CRACS train inoperable.	A.1	Restore CRACS train to OPERABLE status.	30 days
B. Required Action and associated Completion Time of Condition A not met in MODE 1, 2, 3, or 4.	B.1	Be in MODE 3.	6 hours
	AND		
	B.2	Be in MODE 5.	36 hours

(continued)

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
C. Required Action and associated Completion Time of Condition A not met in MODE 5 or 6, or during movement of irradiated fuel assemblies .	C.1.1 Place OPERABLE CRACS train in operation. AND C.1.2 Verify OPERABLE CRACS train is capable of being powered by an emergency power source. OR C.2.1 Suspend CORE ALTERATIONS. AND C.2.2 Suspend movement of irradiated fuel assemblies.	Immediately Immediately Immediately Immediately
D. Two CRACS trains inoperable in MODE 5 or 6, or during movement of irradiated fuel assemblies.	D.1 Suspend CORE ALTERATIONS. AND D.2 Suspend movement of irradiated fuel assemblies.	Immediately Immediately
E. Two CRACS trains inoperable in MODE 1, 2, 3, or 4.	E.1 Enter LCO 3.0.3.	Immediately

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.7.11.1	Verify each CRACS train has the capability to remove the assumed heat load.	18 months

3.7 PLANT SYSTEMS

3.7.12 Emergency Core Cooling System (ECCS) Pump Room Exhaust Air Cleanup System (PREACS)

NOT USED

3.7 PLANT SYSTEMS

3.7.13 Emergency Exhaust System (EES)

LCO 3.7.13 Two EES trains shall be OPERABLE.

---NOTE---
The auxiliary building or fuel building boundary may be opened intermittently under administrative controls.

APPLICABILITY: MODES 1, 2, 3, and 4,
During movement of irradiated fuel assemblies in the fuel building.

---NOTE---
The SIS mode of operation is required only in MODES 1, 2, 3, and 4. The FBVIS mode of operation is required only during movement of irradiated fuel assemblies in the fuel building.

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. One EES train inoperable in MODE 1, 2, 3, or 4.	A.1 Restore EES train to OPERABLE status.	7 days
B. Two EES trains inoperable due to inoperable auxiliary building boundary in MODE 1, 2, 3, or 4.	B.1 Restore auxiliary building boundary to OPERABLE status.	24 hours

(continued)

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
C. Required Action and associated Completion Time of Condition A or B not met in MODE 1, 2, 3, or 4. OR Two EES trains inoperable in MODE 1, 2, 3, or 4 for reasons other than Condition B.	C.1 Be in MODE 3. AND C.2 Be in MODE 5.	6 hours 36 hours
D. One EES train inoperable during movement of irradiated fuel assemblies in the fuel building.	D.1 Place OPERABLE EES train in operation in FBVIS mode. OR D.2 Suspend movement of irradiated fuel assemblies in the fuel building.	Immediately Immediately
E. Two EES trains inoperable due to inoperable fuel building boundary during movement of irradiated fuel assemblies in the fuel building.	E.1 Restore fuel building boundary to OPERABLE status.	24 hours

(continued)

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
F. Required Action and associated Completion Time of Condition E not met. OR Two EES trains inoperable during movement of irradiated fuel assemblies in the fuel building for reasons other than Condition E.	F.1 Suspend movement of irradiated fuel assemblies in the fuel building.	Immediately

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.7.13.1	Operate each EES train for ≥ 10 continuous hours with the heaters operating.	31 days
SR 3.7.13.2	Perform required EES filter testing in accordance with the Ventilation Filter Testing Program (VFTP).	In accordance with the VFTP
SR 3.7.13.3	Verify each EES train actuates on an actual or simulated actuation signal.	18 months

(continued)

SURVEILLANCE REQUIREMENTS (continued)

	SURVEILLANCE	FREQUENCY
SR 3.7.13.4	Verify one EES train can maintain a negative pressure ≥ 0.25 inches water gauge with respect to atmospheric pressure in the auxiliary building during the SIS mode of operation.	18 months on a STAGGERED TEST BASIS
SR 3.7.13.5	Verify one EES train can maintain a negative pressure ≥ 0.25 inches water gauge with respect to atmospheric pressure in the fuel building during the FBVIS mode of operation.	18 months on a STAGGERED TEST BASIS

3.7 PLANT SYSTEMS

3.7.14 Penetration Room Exhaust Air Cleanup System (PREACS)

NOT USED

3.7 PLANT SYSTEMS

3.7.15 Fuel Storage Pool Water Level

LCO 3.7.15 The fuel storage pool water level shall be ≥ 23 ft over the top of irradiated fuel assemblies seated in the storage racks.

APPLICABILITY: During movement of irradiated fuel assemblies in the fuel storage pool.

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. Fuel storage pool water level not within limit.	A.1 ----------NOTE---------- LCO 3.0.3 is not applicable. ---------- Suspend movement of irradiated fuel assemblies in the fuel storage pool.	Immediately

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.7.15.1	Verify the fuel storage pool water level is ≥ 23 ft above the top of the irradiated fuel assemblies seated in the storage racks.	7 days

3.7 PLANT SYSTEMS

3.7.16 Fuel Storage Pool Boron Concentration

LCO 3.7.16 The fuel storage pool boron concentration shall be ≥ 2165 ppm.

APPLICABILITY: When fuel assemblies are stored in the fuel storage pool and a fuel storage pool verification has not been performed since the last movement of fuel assemblies in the fuel storage pool.

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. Fuel storage pool boron concentration not within limit.	----------NOTE---------- LCO 3.0.3 is not applicable. ----------	
	A.1 Suspend movement of fuel assemblies in the fuel storage pool.	Immediately
	AND	
	A.2.1 Initiate action to restore fuel storage pool boron concentration to within limit.	Immediately
	OR	
	A.2.2 Verify by administrative means that a non-Region 1 fuel storage pool verification has been performed since the last movement of fuel assemblies in the fuel storage pool.	Immediately

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.7.16.1	Verify the fuel storage pool boron concentration is within limit.	7 days

3.7 PLANT SYSTEMS

3.7.17 Spent Fuel Assembly Storage

LCO 3.7.17 The combination of initial enrichment and burnup of each spent fuel assembly stored in Region 2 or 3 shall be within the Acceptable Domain of Figure 3.7.17-1 or in accordance with Specification 4.3.1.1.

APPLICABILITY: Whenever any fuel assembly is stored in Region 2 or 3 of the fuel storage pool.

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. Requirements of the LCO not met.	A.1 ----------NOTE---------- LCO 3.0.3 is not applicable. ---------- Initiate action to move the noncomplying fuel assembly to Region 1.	Immediately

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.7.17.1	Verify by administrative means the initial enrichment and burnup of the fuel assembly is in accordance with Figure 3.7.17-1 or Specification 4.3.1.1.	Prior to storing the fuel assembly in Region 2 or 3

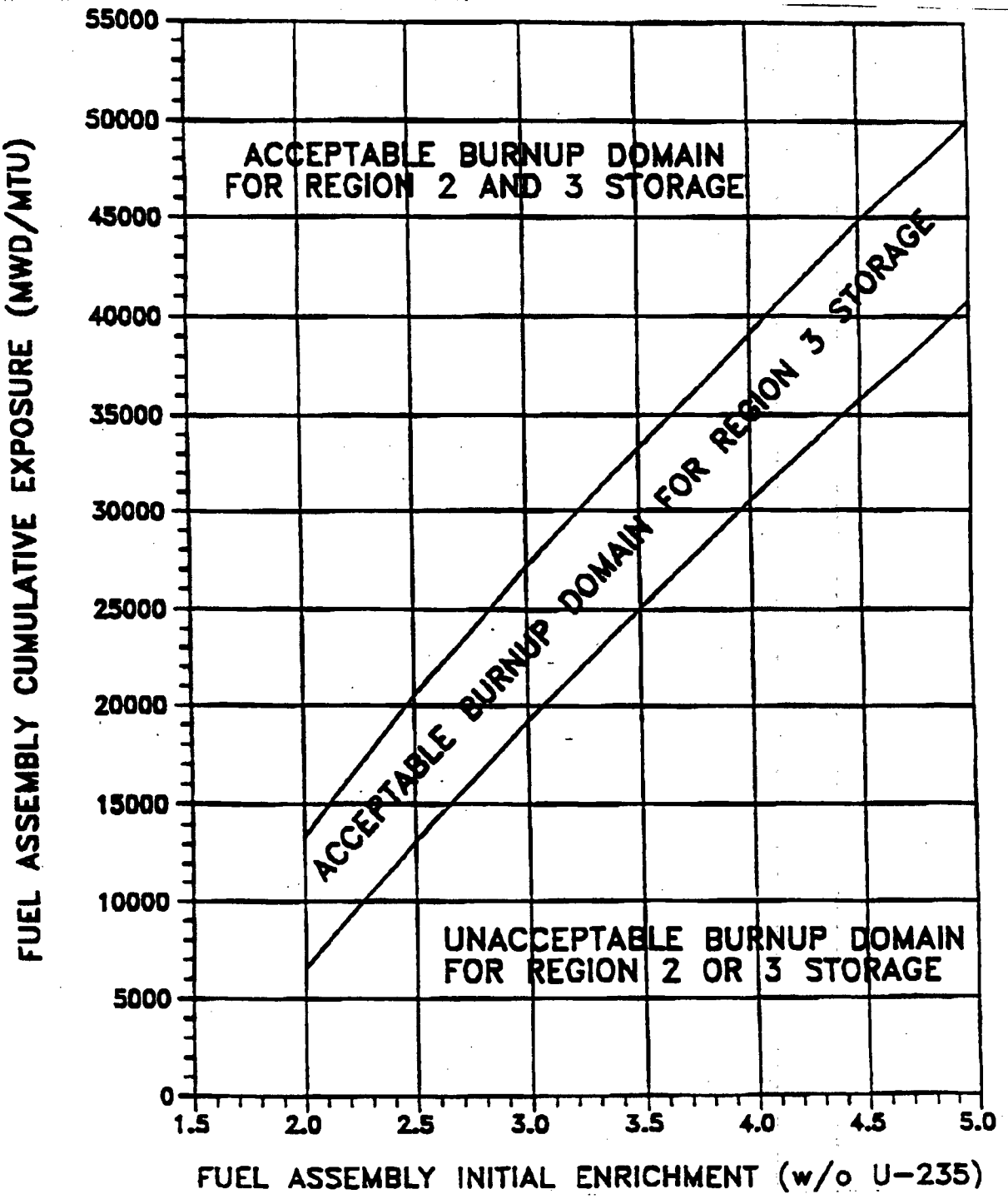

Figure 3.7.17-1 (page 1 of 1)
Minimum Required Fuel Assembly Burnup as a Function
of Initial Enrichment to Permit Storage in Regions 2 and 3

3.7 PLANT SYSTEMS

3.7.18 Secondary Specific Activity

LCO 3.7.18 The specific activity of the secondary coolant shall be ≤ 0.10 μCi/gm DOSE EQUIVALENT I-131.

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

ACTIONS

CONDITION	REQUIRED ACTION		COMPLETION TIME
A. Specific activity not within limit.	A.1	Be in MODE 3.	6 hours
	AND		
	A.2	Be in MODE 5.	36 hours

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.7.18.1	Verify the specific activity of the secondary coolant is ≤ 0.10 μCi/gm DOSE EQUIVALENT I-131.	31 days

3.7 PLANT SYSTEMS

3.7.19 Secondary System Isolation Valves (SSIVs)

LCO 3.7.19 Each SSIV shall be OPERABLE.

APPLICABILITY: MODES 1, 2, and 3, except when the SSIV is closed and de-activated, or is closed and isolated by a closed manual valve, or the flow path is isolated by a combination of closed manual valve(s) and closed de-activated automatic valve(s).

ACTIONS

----------NOTE----------

1. Separate Condition entry is allowed for each SSIV.

2. SSIVs may be unisolated intermittently under administrative controls.

CONDITION	REQUIRED ACTION		COMPLETION TIME
A. One or more SSIVs inoperable.	A.1	Close or isolate SSIV.	7 days
	AND		
	A.2	Verify SSIV is closed or isolated.	Once per 7 days
B. Required Action and associated Completion Time not met.	A.1	Be in MODE 3.	6 hours
	AND		
	A.2	Be in MODE 4.	12 hours

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.7.19.1	Verify each automatic SSIV in the flow path is in the correct position.	31 days
SR 3.7.19.2	Verify the isolation time of each automatic SSIV is within limit.	In accordance with the Inservice Testing Program
SR 3.7.19.3	Verify each automatic SSIV in the flow path actuates to the isolation position on an actual or simulated actuation signal.	18 months

Proposed TS Bases Changes (for information only)

MSIVs
B 3.7.2

and MSIV Bypass Valves

B 3.7 PLANT SYSTEMS

B 3.7.2 Main Steam Isolation Valves (MSIVs)

BASES

BACKGROUND

The MSIVs isolate steam flow from the secondary side of the steam generators following a high energy line break (HELB). MSIV closure terminates flow from the unaffected (intact) steam generators to the break.

One MSIV is located in each main steam line outside, but close to, containment. The MSIVs are downstream from the main steam safety valves (MSSVs) and auxiliary feedwater (AFW) pump turbine steam supply, to prevent MSSV and AFW isolation from the steam generators by MSIV closure. Closing the MSIVs isolates each steam generator from the others, and isolates the turbine, Turbine Bypass System, and other auxiliary steam supplies from the steam generators.

The MSIV is a 28-inch gate valve with system-medium actuation trains. Either actuation train can independently perform the safety function to fast-close the MSIV on demand. For each MSIV, one actuator train is associated with separation group 4 ("yellow"), and one actuator train is associated with separation group 1 ("red").

The MSIVs close on a main steam isolation signal generated by low steam line pressure, high steam line negative pressure rate or High-2 containment pressure. The MSIVs fail as is on loss of control or actuation power.

INSERT B 3.7.2-1

Each MSIV has an MSIV bypass valve. Although these bypass valves are normally closed, they receive the same emergency closure signal as do their associated MSIVs. The MSIVs may also be actuated manually.

A description of the MSIVs is found in the USAR, Section 10.3 (Ref. 1).

and MSIV bypass valves

and MSIV bypass valves

APPLICABLE SAFETY ANALYSES

The design basis of the MSIVs is established by the containment analysis for the large steam line break (SLB) inside containment, discussed in the USAR, Section 6.2.1.4 (Ref. 2). It is also affected by the accident analysis of the SLB events presented in the USAR, Section 15.1.5 (Ref. 3). The design precludes the blowdown of more than one steam generator, assuming a single active component failure (e.g., the failure of one MSIV to close on demand).

or MSIV bypass valve

INSERT B 3.7.2-1

Each MSIV has an MSIV bypass valve. Although the bypass valves are normally closed, they receive the same emergency closure signals as the associated MSIV. The MSIV bypass valves are open when the MSIVs are closed, to permit warming of the main steam lines prior to startup. The MSIV bypass valves are air-operated globe valves. For emergency closure of each MSIV bypass valve, either of two separate solenoid valves, when de-energized, will result in valve closure. The two electrical solenoid valves are energized from separate Class 1E sources.

and MSIV Bypass Valves

MSIVs
B 3.7.2

BASES

APPLICABLE SAFETY ANALYSES (continued)

The limiting case for the containment pressure analysis is the SLB inside containment, with initial reactor power at approximately 0% with loss of offsite power and the failure of one emergency diesel generator. At lower powers, the steam generator inventory and temperature are at their maximum, maximizing the analyzed mass and energy release to the containment. Due to reverse flow and failure of the MSIV to close,the additional mass and energy in the steam headers downstream from the other MSIV contribute to the total release. With the most reactive rod cluster control assembly assumed stuck in the fully withdrawn position, there is an increased possibility that the core will become critical and return to power. The core is ultimately shut down by the boric acid injection delivered by the Emergency Core Cooling System.

The accident analysis compares several different SLB events against different acceptance criteria. The large SLB outside containment upstream of the MSIV is limiting for offsite dose, although a break in this short section of main steam header has a very low probability. The large SLB inside containment at hot zero power is the limiting case for a post trip return to power. The analysis includes scenarios with offsite power available, and with a loss of offsite power following turbine trip. With offsite power available, the reactor coolant pumps continue to circulate coolant through the steam generators, maximizing the Reactor Coolant System cooldown. With a loss of offsite power, the response of mitigating systems is delayed. Significant single failures considered include failure of an MSIV to close.

The MSIV bypass valves are typically used for turbine warming and pressure equalization during startup, and are normally closed during power operation, but may be opened, for example, for testing or maintenance.

The MSIVs serve only a safety function and remain open during power operation. These valves operate under the following situations:

a. An HELB inside containment. In order to maximize the mass and energy release into containment, the analysis assumes that the MSIV in the affected steam generator remains open. For this accident scenario, steam is discharged into containment from all steam generators until the remaining MSIVs close. After MSIV closure, steam is discharged into containment only from the affected steam generator and from the residual steam in the main steam header downstream of the closed MSIVs in the unaffected loops. Closure of the MSIVs isolates the break from the unaffected steam generators.

and MSIV bypass valve

and MSIV bypass valves

MSIVs (and MSIV bypass valves)

b. A break outside of containment and upstream from the MSIVs is not a containment pressurization concern. The uncontrolled blowdown of more than one steam generator must be prevented to limit the potential for uncontrolled RCS cooldown and positive reactivity addition. Closure of the MSIVs isolates the break and limits the blowdown to a single steam generator.

(and MSIV bypass valves)

and MSIV Bypass Valves

MSIVs
B 3.7.2

BASES

APPLICABLE SAFETY ANALYSES (continued)

c. A break downstream of the MSIVs will be isolated by the closure of the MSIVs. and the closed MSIV bypass valves

d. Following a steam generator tube rupture, closure of the MSIVs isolates the ruptured steam generator from the intact steam generators to minimize radiological releases. (and MSIV bypass valves)

less limiting

e. The MSIVs are also utilized during other events such as a feedwater line break. This event is less limiting as far as MSIV OPERABILITY is concerned.

and MSIV bypass valves

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

, and four MSIV bypass valves

LCO

This LCO requires that four MSIVs and their associated actuator trains be OPERABLE. The MSIVs are considered OPERABLE when the isolation times are within limits, and they close on an isolation actuation signal.

An MSIV actuator train is considered OPERABLE when it is capable of closing the associated MSIV on demand and within the required isolation time. The MSIVs are considered OPERABLE when isolation times are within limits of Figure B 3.7.2-1 when given a close signal and they are capable of closing on an isolation actuation signal.

INSERT B 3.7.2-3

This LCO provides assurance that the MSIVs will perform their design safety function to mitigate the consequences of accidents that could result in offsite exposures comparable to the 10 CFR 100 (Ref. 4) limits or the NRC staff approved licensing basis.

and MSIV bypass valves

APPLICABILITY

The MSIVs must be OPERABLE in MODE 1, and in MODES 2 and 3 due to significant mass and energy in the RCS and steam generators. When the MSIVs are closed, they are already performing the safety function. The MSIV actuator trains must be OPERABLE in MODES 1, 2, and 3 to support operation of the MSIV.

5 or 6,

In MODE 4, the steam generator energy is low.

In MODE 5 or 6, the steam generators do not contain much energy because their temperature is below the boiling point of water. Therefore, the MSIVs are not required for isolation of potential high energy secondary system pipe breaks in these MODES.

and MSIV bypass valves

INSERT B 3.7.2-3

The MSIV bypass valves are considered OPERABLE when their isolation times are within limits and they are capable of closing on an isolation actuation signal.

The LCO is modified by two Notes. Note 1 allows all MSIVs and their associated actuator trains to be inoperable in MODES 2 and 3 when closed and de-activated. When all MSIVs are closed and de-activated, they are performing the specified safety function. Closing and de-activating provides a means of isolation that cannot be adversely affected by a single active failure, thus assuring the MSIV is performing the specified safety function. To de-activate the MSIVs, the electrical power sources must be removed from the actuation solenoids on all four MSIVs and a drain or vent path must be available from the lower piston chamber. Note 2 allows one or more MSIV bypass valve to be inoperable when closed and de-activated, closed and isolated by a closed manual valve, or isolated by two closed manual valves. When one or more MSIV bypass valves are closed and de-activated, closed and isolated by a closed manual valve, or isolated by two closed manual valves, they are performing their specified safety function. When the valve is de-activated, power and air are removed from both actuation solenoid valves and the valve is spring closed. Requiring the MSIV bypass valve to be closed and isolated by a closed manual valve or isolated by two closed manual valves also provides the dual assurance that the specified safety function is being performed.

and MSIV Bypass Valves

BASES

ACTIONS

The LCO specifies OPERABILITY requirements for the MSIVs as well as for their associated actuator trains. The Conditions and Required Actions for TS 3.7.2 separately address inoperability of the MSIV actuator trains and inoperability of the MSIVs themselves.

A.1

With a single actuator train inoperable on one MSIV, action must be taken to restore the inoperable actuator train to OPERABLE status within 7 days. The 7-day Completion Time is reasonable in light of the dual-redundant actuator train design such that with one actuator train inoperable, the affected MSIV is still capable of closing on demand via the remaining OPERABLE actuator train. The 7-day Completion Time takes into account the redundant OPERABLE actuator train to the MSIV, reasonable time for repairs, and the low probability of an event occurring that requires the inoperable actuator train to the affected MSIV.

B.1

With an actuator train on one MSIV inoperable and an actuator train on an additional MSIV inoperable, such that the inoperable actuator trains are not in the same separation group, action must be taken to restore one of the inoperable actuator trains to OPERABLE status within 72 hours. With two actuator trains inoperable on two MSIVs, there is an increased likelihood that an additional failure (such as the failure of an actuation logic train) could cause one MSIV to fail to close. The 72-hour Completion Time is reasonable since the dual-redundant actuator train design ensures that with only one actuator train on each of two affected MSIVs inoperable, each MSIV is still capable of closing on demand.

C.1

With an actuator train on one MSIV inoperable and an actuator train on an additional MSIV inoperable, but with both inoperable actuator trains in the same separation group, action must be taken to restore one of the inoperable actuator trains to OPERABLE status within 24 hours. The 24-hour Completion Time provides a reasonable amount of time for restoring at least one actuator train since the dual-redundant actuator train design for each MSIV ensures that a single inoperable actuator train cannot prevent the affected MSIV(s) from closing on demand. With two actuator trains inoperable in the same separation group, an additional failure (such as the failure of an actuation logic train in the other separation group) could cause both affected MSIVs to fail to close on demand. The 24 hour

and MSIV Bypass Valves

BASES

ACTIONS

C.1 (continued)

Completion Time takes into the redundant OPERABLE actuator trains to the affected MSIVs and the low probability of an event occurring that requires the inoperable actuator trains to the affected MSIVs.

D.1

Required Action D.1 provides assurance that the appropriate Action is entered for the affected MSIV if its associated actuator trains become inoperable. Failure of both actuator trains for a single MSIV results in the inability to close the affected MSIV on demand.

E.1

With three or more MSIV actuator trains inoperable or when Required Action A.1, B.1, or C.1 cannot be completed within the required Completion Time, the affected MSIVs may be incapable of closing on demand and must be immediately declared inoperable. Having three actuator trains inoperable could involve two inoperable actuator trains on one MSIV and one inoperable actuator train on another MSIV, or an inoperable actuator train on each of three MSIVs, for which the inoperable actuator trains could all be in the same separation group or be staggered among the two separation groups.

Depending on which of these conditions or combinations is in effect, the condition or combination could mean that all of the affected MSIVs remain capable of closing on demand (due to the dual-redundant actuator train design), or that at least one MSIV is inoperable, or that with an additional single failure up to three MSIVs could be incapable of closing on demand. Therefore, in some cases, immediately declaring the affected MSIVs inoperable is conservative (when some or all of the affected MSIVs may still be capable of closing on demand even with a single additional failure), while in other cases it is appropriate (when at least one of the MSIVs would be inoperable, or up to three could be rendered inoperable by an additional single failure). Required Action E.1 is conservatively based on the worst-case condition and therefore requires immediately declaring all the affected MSIVs inoperable. Declaring two or more MSIVs inoperable while in MODE 1 requires entry into LCO 3.0.3.

and MSIV Bypass Valves

BASES

ACTIONS (continued)

F.1

With one MSIV inoperable in MODE 1, action must be taken to restore OPERABLE status within 8 hours. Some repairs to the MSIV can be made with the unit hot. The 8 hour Completion Time is reasonable, considering the low probability of an accident occurring during this time period that would require a closure of the MSIVs. Condition F is entered when one MSIV is inoperable in MODE 1, including when both actuator trains for one MSIV are inoperable. When only one actuator train is inoperable on one MSIV, Condition A applies.

The 8 hour Completion Time is consistent with that allowed for containment isolation valves that isolate a closed system penetrating containment. This time is reasonable due to the relative stability of the closed system which provides an additional passive means for containment isolation.

G.1

If the MSIV cannot be restored to OPERABLE status within 8 hours, the unit must be placed in a MODE in which the LCO does not apply. To achieve this status, the unit must be placed in MODE 2 within 6 hours and Condition H would be entered. The Completion Times are reasonable, based on operating experience, to reach MODE 2 and to close the MSIVs in an orderly manner and without challenging unit systems.

INSERT B 3.7.2-6

~~H.1 and H.2~~ I.1 and I.2

I

Condition ~~G~~ I is modified by a Note indicating that separate Condition entry is allowed for each MSIV.

Since the MSIVs are required to be OPERABLE in MODES 2 and 3, the inoperable MSIVs may either be restored to OPERABLE status or closed. When closed, the MSIVs are already in the position required by the assumptions in the safety analysis.

The 8 hour Completion Time is consistent with that allowed in Condition F.

For inoperable MSIVs that cannot be restored to OPERABLE status within the specified Completion Time, but are closed, the inoperable MSIVs must be verified on a periodic basis to be closed. This is necessary to ensure that the assumptions in the safety analysis remain valid.

INSERT B 3.7.2-6

H.1 and H.2

Condition H is modified by a Note indicating that separate Condition entry is allowed for each MSIV bypass valve.

With one or more MSIV bypass valves inoperable, action must be taken to restore each MSIV bypass valve to OPERABLE status within 8 hours or the inoperable MSIV bypass valve must be closed or isolated. When closed or isolated, the MSIV bypass valve is in the position required by the assumptions in the safety analysis. The 8 hour Completion Time takes into account the redundancy afforded by the remaining OPERABLE valves and the low probability of an accident occurring during this time period that would require a closure of the MSIV bypass valves.

For inoperable MSIV bypass valves that cannot be restored to OPERABLE status within 8 hours, but are closed or isolated, the inoperable MSIV bypass valves must be verified on a periodic basis to be closed or isolated. This is necessary to assure that the assumptions in the safety analysis remain valid. The 7 day Completion Time is reasonable, based on engineering judgment, in view of valve status indications available in the control room, and other administrative controls to ensure that these valves are closed or isolated.

and MSIV Bypass Valves

BASES

ACTIONS H.1 and H.2 (continued)

I.1 and I.2

The 7 day Completion Time is reasonable, based on engineering judgment, in view of MSIV status indications available in the control room, and other administrative controls, to ensure that these valves are in the closed position.

J.1 and J.2

I.1 and I.2

If the Required Actions of Condition H or I are not met,

If the MSIVs cannot be restored to OPERABLE status or are not closed within the associated Completion Time, the unit must be placed in a MODE in which the LCO does not apply. To achieve this status, the unit must be placed at least in MODE 3 within 6 hours, and in MODE 4 within 12 hours. The allowed Completion Times are reasonable, based on operating experience, to reach the required unit conditions from MODE 2 conditions in an orderly manner and without challenging unit systems.

SURVEILLANCE REQUIREMENTS

SR 3.7.2.1

This SR verifies that the closure time of each MSIV is within the limits of Figure B 3.7.2-1 from each actuator train when tested pursuant to the Inservice Testing Program. The MSIV isolation time is explicitly assumed in the accident analyses that credit the Steam Line Isolation. Figure B 3.2.7-1 is a curve of the MSIV isolation time limit as a function of steam generator pressure. The acceptance curve for the MSIV stroke time conservatively accounts for potential pressure differential between the steam generator pressure indication and the pressure at the MSIV. This Surveillance is normally performed upon returning the unit to operation following a refueling outage.

The Frequency is in accordance with the Inservice Testing Program.

This test can be conducted in MODE 3 with the unit at operating temperature and pressure. This SR is modified by a Note that allows entry into and operation in MODE 3 prior to performing the SR. This allows a delay of testing until MODE 3, to establish conditions consistent with those under which the acceptance criterion was generated.

SR 3.7.2.2

This SR verifies that each actuator train can close its respective MSIV on an actual or simulated actuation signal. The manual fast close hand switch in the control room provides an acceptable actuation signal. This Surveillance is normally performed upon returning the plant to operation

and MSIV Bypass Valves

BASES

SURVEILLANCE REQUIREMENTS

SR 3.7.2.2 (continued)

following a refueling outage. This SR is modified by a Note that allows entry into and operation in MODE 3 prior to performing the SR. This allows a delay of testing until MODE 3, to establish conditions consistent with those under which the acceptance criterion was generated.

The frequency of MSIV testing is every 18 months. The 18 month Frequency for testing is based on the refueling cycle. Operating experience has shown that these components usually pass the Surveillance when performed at the 18 month Frequency. Therefore, this Frequency is acceptable from a reliability standpoint.

INSERT B 3.7.2-8

REFERENCES

1. USAR, Section 10.3.
2. USAR, Section 6.2.
3. USAR, Section 15.1.5.
4. 10 CFR 100.11.

INSERT B 3.7.2-8

SR 3.7.2.3

This SR verifies that each MSIV bypass valve can close on an actual or simulated actuation signal. This Surveillance is normally performed upon returning the plant to operation following a refueling outage. The Frequency of MSIV bypass valve testing is every 18 months. The 18 month Frequency for testing is based on the refueling cycle. Operating experience has shown that these components usually pass the Surveillance when performed at the 18 month Frequency. Therefore, this Frequency is acceptable from a reliability standpoint.

SR 3.7.2.4

This SR verifies that the closure time of each MSIV bypass valve is $\leq$ 15 seconds when tested pursuant to the Inservice Testing Program. This is consistent with the assumptions used in the accident and containment analyses. For the MSIV bypass valves, this Surveillance is performed routinely during plant operation (or as required for post-maintenance testing, but it may also be required to be performed upon returning the unit to operation following a refueling outage.

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

and MSIV Bypass Valves

MSIVs
B 3.7.2

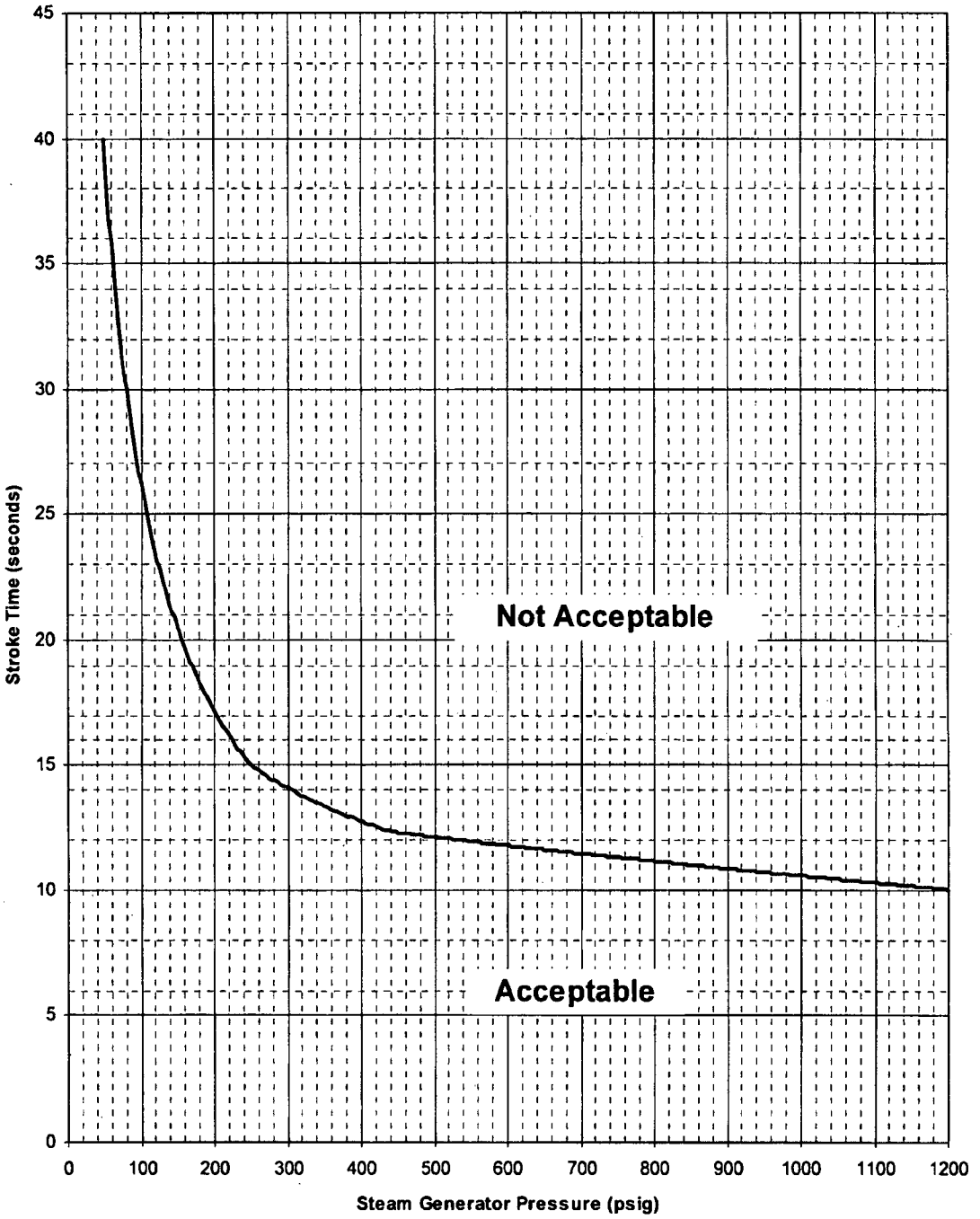

Figure B 3.7.2-1
MSIV Isolation Time vs. Steam Generator Pressure

BASES

ACTIONS A.1 and A.2 (continued)

does not apply. To achieve this status, the unit must be placed in at least MODE 3 within 6 hours, and in MODE 5 within 36 hours. The allowed Completion Times are reasonable, based on operating experience, to reach the required unit conditions from full power conditions in an orderly manner and without challenging unit systems.

SURVEILLANCE REQUIREMENTS SR 3.7.18.1

This SR verifies that the secondary specific activity is within the limits of the accident analysis. A gamma isotopic analysis of the secondary coolant, which determines DOSE EQUIVALENT I-131, confirms the validity of the safety analysis assumptions as to the source terms in post accident releases. It also serves to identify and trend any unusual isotopic concentrations that might indicate changes in reactor coolant activity or LEAKAGE. The 31 day Frequency is based on the detection of increasing trends of the level of DOSE EQUIVALENT I-131, and allows for appropriate action to be taken to maintain levels below the LCO limit.

REFERENCES

1. 10 CFR 100.11.
2. USAR, Chapter 15.

INSERT B 3.7.18-3

INSERT B 3.7.18-3
B 3.7 PLANT SYSTEMS

B 3.7.19 Secondary System Isolation Valves (SSIVs)

BASES

BACKGROUND

Closure of secondary system isolation valves (SSIVs) ensures that the assumptions used in the plant accident and containment analyses remain valid. In accident conditions, SSIVs close to terminate the blowdown from the faulted steam generator and isolate the intact steam generators, and to isolate the plant secondary side in order to prevent possible diversion of auxiliary feedwater flow.

The accident analyses assume that the steam generators are isolated after receiving an isolation signal. Following receipt of the steam line isolation signal (SLIS) and auxiliary feedwater actuation signal (AFAS), the intact steam generators are assumed to be isolated, except for the steam supply valves to the turbine-driven auxiliary feedwater pump (governed by LCO 3.7.5, "Auxiliary Feedwater (AFW) System"). There are also analysis cases that evaluate the single failure of a main steam or main feedwater isolation valve. In addition to the valves governed by LCO 3.7.2, "Main Steam Isolation Valves (MSIVs) and MSIV Valve Bypass Valves," and LCO 3.7.3, "Main Feedwater Isolation Valves (MFIVs) and Main Feedwater Regulating Valves (MFRVs) and MFRV Bypass Valves," the analysis assumptions require that the steam generator blowdown and sample line isolation valves are closed.

When plant accident conditions require delivery of auxiliary feedwater, the normally closed steam supply isolation valves to the turbine-driven auxiliary feedwater pump (TDAFP) open on an AFAS. This ensures availability of the TDAFP. The AFAS also closes the steam generator blowdown and sample isolation valves in order to isolate the plant's secondary side.

The Steam Generator Blowdown System (SGBS) helps to maintain the steam generator secondary side water within chemical specifications. Heat is recovered from the blowdown and returned to the feedwater system. Portions of the SGBS are safety related and are required to function following a design basis accident.

BASES

BACKROUND (continued)

One blowdown isolation valve (SGBIV) is installed in each of the four blowdown lines outside the containment. These valves prevent uncontrolled blowdown from more than one steam generator and isolate non-safety related portions from the safety related portions of the system. These valves are air-operated globe valves which fail closed. For emergency closure, either of two safety related solenoid valves is de-energized to dump air supplied to the valve actuator. The electrical solenoid valves are energized from separate Class 1E sources and are closed upon receipt of an steam generator blowdown and sample isolation (AFAS) signal.

The SGBS also includes safety related steam generator blowdown sample isolation valves (SGBSIVs). Three SGBSIVs are installed in each of the sample line flow paths for each steam generator. Two valves are located inside the containment (one from each sample point), and one valve is located outside containment. The SGBSIVs prevent uncontrolled blowdown from more than one steam generator and isolate the non-safety related portions from the safety related portions of the system. The SGBSIVs are solenoid-operated globe valves which fail closed. The inside containment solenoid valves are energized from separate Class IE sources from the outside containment solenoid valves. These valves are also closed upon receipt of an steam generator blowdown and sample isolation (AFAS) signal.

The main steam and related secondary side lines are automatically isolated upon receipt of an SLIS or feedwater isolation signal (FWIS). The diverse parameters sensed to initiate an SLIS are low steam line pressure, high negative steam pressure rate, and high containment pressure (Hi-2).

A FWIS is generated by a safety injection signal (SIS), reactor trip with low Tave, steam generator water level high-high, or steam generator water level low-low. The diverse parameters sensed to initiate an SIS are low steam line pressure, low pressurizer pressure, and high containment pressure (Hi-1).

Descriptions of SSIVs are found in the USAR, Section 10.4.7 (Ref. 1), Section 10.4.8 (Ref. 2), and Section 10.3 (Ref. 3).

APPLICABLE SAFETY ANALYSES

The accident analysis assume that the steam generators are isolated after receiving an isolation signal as discussed in the Background section. Further discussion can be found in the USAR, Chapters 6 and 15.

The SSIVs function to ensure the primary success path for steam line and feed line isolation and for delivery of required auxiliary feedwater flow and, therefore, satisfy Criterion 3 of 10 CFR 50.36(c)(2)(ii).

INSERT B 3.7.18-3

BASES

LCO

This LCO provides assurance that SSIVs will isolate the plant's secondary side, following a main feed line or main steam line break and ensures the required flow of auxiliary feedwater to the intact steam generators. Secondary system isolation valves are considered OPERABLE when their isolation times are within limits and they are capable of closing on an isolation actuation signal.

Secondary system isolation valves include the SGBIVs (BMHV0001, BMHV0002, BMHV0003, and BMHV0004) and the SGBSIVs (BMHV0019, BMHV0020, BMHV0021, BMHV0022, BMHV0065, BMHV0066, BMHV0067, BMHV0068, BMHV0035, BMHV0036, BMHV0037, and BMHV0038).

APPLICABILITY

The SSIVs must be OPERABLE in MODES 1, 2, and 3, when there is significant mass and energy in the Reactor Coolant System (RCS) and steam generators. When the SSIVs are closed and de-activated, or closed and isolated by a closed manual valve, or the flow path is isolated by a combination of closed manual valve(s) and closed de-activated automatic valve(s), they are performing the specified safety function of isolating the plant's secondary side.

In MODES 4, 5, and 6, the steam generator energy is low. Therefore, the SSIVs are not required for isolation of potential high energy secondary system pipe breaks in these MODES.

ACTIONS

The ACTIONS are modified by a Note to provide clarification that, for this LCO, separate Condition entry is allowed for each SSIV. This is acceptable, since the Required Actions for each Condition provide appropriate compensatory actions for each inoperable SSIV. Complying with the Required Actions may allow for continued operation, and subsequent inoperable SSIVs are governed by subsequent Condition entry and application of associated Required Actions.

A second Note has been added to allow SSIVs to be unisolated intermittently under administrative controls. These administrative controls consist of stationing a dedicated operator at the valve controls, who is in continuous communication with the control room. In this way, the SSIV can be rapidly isolated when the need for secondary system isolation is indicated.

INSERT B 3.7.18-3

BASES

ACTIONS

A.1 and A.2

With one or more SSIVs inoperable, action must be taken to restore the affected valves to OPERABLE status, or to close or isolate inoperable valves within 7 days. When these valves are closed or isolated, they are performing their specified safety function.

The 7 day Completion Time takes into account the low probability of an event occurring during this time period that would require isolation of the plant's secondary side. The 7 day Completion Time is reasonable, based on operating experience.

Inoperable SSIVs that are closed or isolated must be verified on a periodic basis that they are closed or isolated. This is necessary to ensure that the assumptions in the accident analyses remain valid. The 7 day Completion Time is reasonable based on engineering judgment, in view of valve status indications in the control room, and other administrative controls, to ensure that these valves are in the closed position or isolated.

B.1 and B.2

If the Required Action and associated Completion Time of Condition A is not met, the unit must be placed in a MODE in which the LCO does not apply. To achieve this status, the unit must be placed at least in MODE 3 within 6 hours, and in MODE 4 within 12 hours. The allowed Completion Times are reasonable, based on operating experience, to reach the required unit conditions in an orderly manner and without challenging unit systems.

SURVEILLANCE REQUIREMENTS

SR 3.7.19.1

This SR verifies the proper alignment for required automatic SSIVs in the flow path that are used to isolate the plant's secondary side. The SSIV is allowed to be in a nonaccident position provided the valve will automatically reposition within the proper stroke time. This SR does not require any testing or valve manipulation. Rather, it involves verification, through a system walkdown (which may include the use of local or remote indicators), that valves capable of being mispositioned are in the correct position.

The 31 day Frequency is based on engineering judgment, is consistent with the procedural controls governing valve operation, and ensures correct valve positions.

INSERT B 3.7.18-3

BASES

SURVEILLANCE REQUIREMENTS (continued)

SR 3.7.19.2

This SR verifies that the isolation time of each required automatic SSIV is within limits when tested pursuant to the Inservice Testing Program. The specific limits are documented in the Inservice Testing Program. The SSIV isolation times are less than or equal to those assumed in the accident and containment analyses. The SR is performed only for required SSIVs. An exception is made for the steam generator chemical addition injection isolation valves which are not included in the Inservice Testing Program. These valves are passive, with multiple isolation valves in their flow path.

For the required SSIVs, performance of this Surveillance is routinely done during plant operation (or as required for post-maintenance testing), but it may also be required to be performed upon returning the unit to operation following a refueling outage.

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

SR 3.7.19.3

This SR verifies that each required automatic SSIV in the flow path is capable of closure on an actual or simulated actuation signal. This Surveillance is routinely performed during plant operation, but may also be performed upon returning the unit to operation following a refueling outage.

The Frequency for this SR is 18 months.

REFERENCES

1. USAR, Section 10.4.7.
2. USAR, Section 10.4.8.
3. USAR, Section 10.3.

LIST OF REGULATORY COMMITMENTS

The following table identifies those actions committed to by WCNOC in this document. Any other statements in this submittal are provided for information purposes and are not considered to be regulatory commitments.

REGULATORY COMMITMENTS	DUE DATE / EVENT
Once approved, the amendment will be implemented prior to startup from Refueling Outage 17.	Prior to startup from Refueling Outage 17