TREAT AS
SENSITIVE
INFORMATION

AmerenUE
Callaway Plant

PO Box 620
Fulton, MO 65251

October 27, 2004

U.S. Nuclear Regulatory Commission
Attn: Document Control Desk
Mail Stop P1-137
Washington, DC 20555-0001

Ladies and Gentlemen: ULNRC-05071

DOCKET NUMBER 50-483
CALLAWAY PLANT
UNION ELECTRIC COMPANY
PROPOSED REVISIONS TO TECHNICAL SPECIFICATION 3.7.3 "MAIN FEEDWATER ISOLATION VALVES (MFIVs)" TO ADD THE MAIN FEEDWATER REGULATING VALVES (MFRVs) AND MFRV BYPASS VALVES (MFRVBVs) AND TO EXTEND THE MFIV ALLOWED OUTAGE TIME

Pursuant to 10 CFR 50.90, AmerenUE, requests an amendment to the Facility Operating License No. NPF-30 for Callaway Plant. The amendment application would revise Technical Specifications (TS) 3.7.3, "Main Feedwater Isolation Valves (MFIVs)," to add the main feedwater regulating valves (MFRVs) and the MFRV bypass valves (MFRVBVs). In addition, the allowed outage time for the MFIVs is extended. These revisions adopt the NUREG-1431, Standard Technical Specifications for Westinghouse Plants, Revision 3, version of TS 3.7.3.

The appropriate TS Bases changes for the proposed specification revisions are included for information and reflect the proposed changes.

Attachment 1 to this submittal provides the required Affidavit. Attachment 2 provides a detailed description, safety analysis of the proposed changes, and the Callaway determination that the proposed change does not involve a significant hazard consideration. Attachment 3 provides the existing TS pages marked-up to show the proposed change. Attachment 4 provides a clean copy of the proposed Technical Specification pages. Attachment 5 provides the existing TS Bases pages marked-up to show the proposed changes (for information only). Finally, Attachment 6 provides FSAR revisions to incorporate the proposed changes (for information only).

A001

This letter identifies actions committed to by AmerenUE and Callaway Plant in this submittal. Other statements are provided for information purposes and are not considered to be commitments. A summary of the regulatory commitments included in this submittal is provided in Attachment 7.

This amendment application was approved by the Callaway Plant Review Committee and the Nuclear Safety Review Board. It has been determined that this amendment application does not involve a significant hazard consideration as determined per 10 CFR 50.92. In addition, pursuant to 10 CFR 51.22(b), no environmental assessment need be prepared in connection with the issuance of this amendment.

AmerenUE requests approval of this proposed License Amendment by July 15, 2005. The approved amendment will be implemented within 90 days of approval.

Pursuant to 10 CFR 50.91(b)(1), AmerenUE is providing the State of Missouri with a copy of this proposed amendment.

If you should have any questions on the above or attached, please contact Dave Shafer at (314) 554-3104 or Dwyla Walker at (314) 554-2126.

Very truly yours,

Keith D. Young
Manager, Regulatory Affairs

DJW/jdg

Attachments:
1) Affidavit
2) Evaluation
3) Markup of Technical Specification pages
4) Retyped Technical Specification pages
5) Markup of Technical Specification Bases pages (for information only)
6) Markup of Callaway FSAR pages (for information only)
7) Summary of Regulatory Commitments

cc: U.S. Nuclear Regulatory Commission (Original and 1 copy)
Attn: Document Control Desk
Mail Stop P1-137
Washington, DC 20555-0001

Mr. Bruce S. Mallett
Regional Administrator
U.S. Nuclear Regulatory Commission
Region IV
611 Ryan Plaza Drive, Suite 400
Arlington, TX 76011-4005

Senior Resident Inspector
Callaway Resident Office
U.S. Nuclear Regulatory Commission
8201 NRC Road
Steedman, MO 65077

Mr. Jack N. Donohew (2 copies)
Licensing Project Manager, Callaway Plant
Office of Nuclear Reactor Regulation
U. S. Nuclear Regulatory Commission
Mail Stop 7E1
Washington, DC 20555-2738

Missouri Public Service Commission
Governor Office Building
200 Madison Street
PO Box 360
Jefferson City, MO 65102-0360

Deputy Director
Department of Natural Resources
P.O. Box 176
Jefferson City, MO 65102

ULNRC-05071
October 27, 2004

STATE OF MISSOURI)
) SS
CALLAWAY COUNTY)

Keith D. Young of lawful age, being first duly sworn upon oath says that he is Manager - Regulatory Affairs, for Union Electric Company; that he has read the foregoing document and knows the content thereof; that he has executed the same for and on behalf of said company 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 Keith D. Young
Keith D. Young
Manager, Regulatory Affairs

SUBSCRIBED and sworn to before me this 27 day of OCTOBER, 2004

Lori L. Twillman

LORI L. TWILLMAN
Notary Public - Notary Seal
STATE OF MISSOURI
Callaway County
My Commission Expires: Aug. 3, 2007

ULNRC-05071

ATTACHMENT 2

EVALUATION

PROPOSED REVISIONS TO TECHNICAL SPECIFICATION 3.7.3 "MAINFEEDWATER ISOLATION VALVES (MFIVs)" TO ADD THE MAIN FEEDWATER REGULATING VALVES (MFRVs) AND MFRV BYPASS VALVES (MFRVBVs) AND TO EXTEND THE MFIV ALLOWED OUTAGE TIME

TABLE OF CONTENTS

EVALUATION

1.0 DESCRIPTION

This letter is a request to amend Operating License NPF-30 for the Callaway Plant. Revisions to the Technical Specifications (TS) are made to add the main feedwater regulation valves and their associated bypass valves to TS 3.7.3, "Main Feedwater Isolation Valves (MFIVs)". In addition, the allowed outage time for the MFIVs is extended. These revisions adopt the NUREG-1431, Standard Technical Specifications for Westinghouse Plants, Revision 3, version of TS 3.7.3.

2.0 PROPOSED CHANGES

This amendment application would revise TS 3.7.3 to add the main feedwater regulation valves and their associated bypass valves and to extend the allowed outage time for the MFIVs. TS 3.7.3 is retitled to "Main Feedwater Isolation Valves (MFIVs) and Main Feedwater Regulating Valves (MRFVs) and Main Feedwater Regulating Valve Bypass Valves (MFRVBVs)". TS 3.7.3 LCO, APPLICABILITY, ACTIONS, and SURVEILLANCE REQUIREMENTS are revised to incorporate the main feedwater regulating valves and the MFRV bypass valves. The APPLICABILITY is revised so that Callaway Plant specific valve configurations are addressed. Current ACTION B is revised to ACTION E and new ACTIONS B, C, and D are incorporated. Current ACTION A is revised so that REQUIRED ACTION A.1 has a COMPLETION TIME of 72 hours rather than 4 hours. CONDITION C is revised from the NUREG-1431, Standard Technical Specifications for Westinghouse Plants, Revision 3, version of TS 3.7.3, so that the acronym for the MFRV bypass valves is stated. These revisions adopt the NUREG-1431, Standard Technical Specifications for Westinghouse Plants, Revision 3, version of TS 3.7.3. Attachment 3 provides the existing TS pages with the proposed markups.

Technical Specification Bases and FSAR changes are also attached to reflect the proposed changes. Attachment 5 provides the existing TS Bases pages marked-up to show the proposed changes (for information only). Attachment 6 provides FSAR revisions to incorporate the proposed changes (for information only).

3.0 BACKGROUND

Each of four steam generator feedwater lines contains a MFIV and a MFRV in series. Each MFRV has an associated bypass valve in parallel with it. The MFIV and MFRV are in a different flow path than the MFIV and MFRVBV. As shown in Reference 8.7, an MFIV can not be isolated with closed manual valves; the MFRV can be

isolated upstream by a closed manual valve; and the MFRVBV can be isolated both upstream and downstream with a closed manual valve.

The MFIVs isolate main feedwater flow to the secondary side of the steam generators following a high energy line break (HELB). Credit is taken in the accident analyses for the MFIVs to close on demand.

The MFRVs and MFRVBVs function to control feedwater flow to the steam generators. The safety function of the MFRVs and MFRV bypass valves is credited in the accident analyses to provide a backup to the MFIVs for the potential failure of an MFIV to close.

3.1 MFIVs, MFRVs, and MFRV Bypass Valves

The MFIVs are 14-inch gate valves with system-medium actuators. The MFIV actuators consist of two separate system-medium actuation trains each receiving an actuation signal from one of the redundant Engineered Safety Feature Actuation System (ESFAS) channels. The assumed single active failure of one of the redundant MFIV actuation trains will not prevent the MFIVs from closing. The MFIVs are located outside, but close to containment. The MFIVs are located upstream of the auxiliary feedwater (AFW) injection point so that AFW may be supplied to the steam generators following MFIV closure.

In addition to the MFIVs, check valves inside containment are available. The check valves isolate the feedwater lines, penetrating containment, and ensure the pressure boundary of any intact loop not receiving auxiliary feedwater.

The MFRVs are air-operated angle valves that control feedwater flow to the steam generators between approximately 20% and full power. The MFRV bypass valves are air-operated globe valves used to control flow to the steam generator up to approximately 25% power. The MFRVs and MFRVBVs are located in the turbine building.

The MFIVs, MFRVs, and MFRVBVs are described in Callaway FSAR Section 10.4.7.

3.2 NUREG-1431, Standard Technical Specification for Westinghouse Plants 3.7.3

The NUREG-1431, Standard Technical Specification (STS) for Westinghouse Plants 3.7.3 for MFIVs provides a Completion Time of 72 hours for one or more MFIVs inoperable and an 8 hour Completion Time for two valves in the same flow path inoperable. The extended Completion Time (with respect to the current Callaway TS value of 4 hours) was based primarily on the addition of the MFRVs to the specification and taking credit for the ability of the MFRVs to perform the feedwater isolation function. The STS Bases indicates that the 72 hour Completion Time for the MFIVs

takes into account the redundancy afforded by the feedwater regulation valves and the low probability of an event occurring during this time period that would require isolation of the main feedwater flow paths. The STS Bases states the 72 hours is reasonable based on operating experience. The STS Bases also states that an 8 hour Completion Time for two valves in the same flow path inoperable is reasonable based on operating experience to complete the actions required to isolate the affected flowpath. Two inoperable valves in the same flow path is treated the same as a loss of the isolation capability of this flow path. For each feedwater line there are two flow paths, defined as flow through the MFRV/MFIV and flow through the MFRVBV/MFIV. Because the MFIV, MFRV, and MFRVBV are of different designs, a common mode failure of the valves in same flow path is not likely. However, under these conditions, affected valves in each flow path must be restored to OPERABLE status, or the affected flow path isolated within 8 hours. AmerenUE concurs with the above completion times as being reasonable.

During the Callaway TS conversion to the NUREG-1431 STS format, the STS version of TS 3.7.3 was evaluated to determine whether it should be adopted. Because proper operation of the MFIVs is assumed, the functions performed by the MFRVs and MFRVBVs are considered backup and diverse functions to the MFIVs. The MFRVs and MFRVBVs were not incorporated into TS 3.7.3.

As identified during preparation of the steam generator replacement modification and associated accident analyses, Callaway Plant now proposes to incorporate the MFRVs and MFRVBVs into TS 3.7.3 and to extend the allowed outage time for the MFIVs from 4 hours to 72 hours.

4.0 TECHNICAL ANALYSIS

The MFIVs isolate main feedwater (MFW) flow to the secondary side of the steam generators (SGs) following a high energy line break (HELB). The MFRVs and MFRVBVs function to control feedwater flow to the SGs. The safety function of the MFRVs and MFRVBVs is to provide backup isolation of MFW flow to the secondary side of the SGs following an HELB. Because an earthquake is not assumed to occur coincident with a spontaneous break of safety-related secondary piping, loss of the non-safety grade MFRVs and MFRVBVs is not assumed. If the single active failure postulated for a secondary pipe break is the failure of a safety grade MFIV to close, then credit is taken for closing or isolating the non-safety grade MFRVs or MFRVBVs. The MFRVs and MFRVBVs are highly reliable backups to the MFIVs.

Closure of the MFIVs or the MFRVs and MFRVBVs terminates flow to the SGs, terminating the event for feedwater line breaks (FLB) occurring upstream of the MFIVs or MFRVs. The consequences of events occurring in the main steam lines or in the MFW lines downstream from the MFIVs are mitigated by their closure. Closure of the MFIVs or MFRVs and MFRVBVs, effectively terminates the addition of feedwater to an

affected steam generator, limiting the mass and energy release for steam line breaks (SLBs) or FLBs inside containment, and reducing the cooldown effects of SLBs.

The MFIVs and the main feedwater check valves isolate the non-safety related portions from the safety related portions of the system. In the event of a feedwater pipe rupture in the non-safety portion of the system, the check valves close to terminate the loss of fluid from the secondary side. In the event of a secondary side pipe rupture inside containment, the MFIVs limit the quantity of high energy fluid that enters containment through the break. The MFIV check valves provide a pressure boundary for the controlled addition of auxiliary feedwater (AFW) to the intact loops.

The MFIVs or the MFRVs and MFRVBVs close on receipt of any safety injection signal, a Tavg – Low coincident with reactor trip (P-4), a low-low SG level, or SG water level – high high signal. The MFIVs may also be actuated manually. Credit is taken in the accident analyses for the MFIVs to close on demand. However, the MFRVs and MFRVBVs are provided as a highly reliable backup in the unlikely event a mechanical failure prevented the primary isolation valves from fully closing. Therefore, the MFRVs and MFRVBVs are fully capable of mitigating the design basis events.

The GDC-4 design basis of the MFIVs is established by the analyses for large SLBs. It is also influenced by the accident analysis for the large FLB. Closure of the MFIVs may also be relied on to terminate an SLB for core response analysis and the excess feedwater event upon the receipt of a SG water level – high high signal.

The proposed LCO requires that four MFIVs and four MFRVs and four MFRVBVs be OPERABLE. The MFIVs and MFRVs and MFRVBVs are considered OPERABLE when isolation times are within limits when given an isolation actuation signal and they are capable of closing on an isolation actuation signal. For the MFIVs the manual fast close handswitch in the Control Room provides an acceptable actuation signal. For the MFRVs and MFRVBVs, actuation of solenoids locally at the MFRVs and MFRVBVs constitutes an acceptable simulated actuation signal. For the MFRVs and MFRVBVs, the LCO requires only that the trip close function is OPERABLE. No OPERABILITY requirements are imposed on the analog controls shown in Reference 8.6.

The current LCO ensures that the MFIVs will isolate MFW flow to the SGs following an FLB or main steam line break. The MFRVs and MFRVBVs are expected to be available as highly reliable backups to the MFIVs. The availability of the MFRVs and MFRVBVs to perform the backup isolation function is assured by the new requirements contained in the proposed TS change. Because the TS requirements provide assurance that MFRVs and MFRVBVs can perform the required isolation function, a 72 hour Completion Time for one or more MFIVs inoperable is warranted.

The Completion Times (72 hours for one or more MFIVs, one or more MFRVs, or one or more MFRVBVs inoperable and 8 hours for two valves in the same flow path

inoperable) are reasonable, based on operating experience and the low probability of an event occurring during this time period that would require isolation of the MFW flow paths. The extension of the Completion Time for inoperable MFIVs could prevent an unnecessary plant shutdown transient or prevent a feedwater transient due to a less than adequate time allowed for a repair.

In summary, the proposed increase in the Completion Time for inoperable MFIVs is justified based on the redundancy afforded by the MFRVs and MFRVBVs to terminate SLB and FLB events. The new TS surveillance requirements for the MFRVs and MFRVBVs demonstrate their ability to initiate closure on the same actuation signals and with the same closure time requirements as the MFIVs.

Per Reference 8.5, if it is necessary to adjust stem packing to stop packing leakage and if a required stroke test is not practical in the current plant MODE, it should be shown by analysis that the packing adjustment is within torque limits specified by the manufacturer for the existing configuration of packing, and that the performance parameters of the valve are not adversely affected. A confirmatory test must be performed at the first available opportunity when plant conditions allow testing. Packing adjustments beyond the manufacturer's limits may not be performed without (1) an engineering analysis and (2) input from the manufacturer, unless tests can be performed after adjustments.

5.0 REGULATORY SAFETY ANALYSIS

5.1 No Significant Hazards Consideration

This amendment application would revise TS 3.7.3 to add the main feedwater regulating valves and MFRV bypass valves and to extend the allowed outage time for the MFIVs. AmerenUE has evaluated whether or not a significant hazards consideration is involved with the proposed changes by focusing on the three standards set forth in 10 CFR 50.92(c) as discussed below:

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

   Response: No.

   The proposed changes add the MFRVs and MFRVBVs to TS 3.7.3 and extend the Completion Time for one or more MFIVs inoperable from 4 hours to 72 hours. Extending the Completion Time is not an accident initiator and thus does not change the probability that an accident will occur. However, it could potentially ffect the consequences of an accident if an accident occurred during the

extended unavailability of the inoperable MFIV. The increase in time that the MFIV is unavailable is small and the probability of an event occurring during this time period which would require isolation of the MFW flow paths is low. Moreover, the redundancy provided by the MFRVs and MFRVBVs, which have the same actuation signals and closure time requirements as the MFIVs, provides adequate assurance that automatic feedwater isolation will occur if called upon.

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

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

   Response: No.

   Closure of the MFIVs is required to mitigate the consequences of the Main Steam Line Break and Main Feedwater Line Break accidents. The MFRVs and MFRVBVs provide a diverse backup to this function. The proposed changes do not create the possibility of a new or different kind of accident from any previously evaluated.

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

   Response: No.

   The proposed changes do not revise any Technical Specification Limit or accident analysis assumption. Therefore, it does not involve a reduction in a margin of safety.

CONCLUSION

Based on the above evaluations, AmerenUE concludes that the activities associated with the changes described above present no significant hazards consideration under the standards set forth in 10 CFR 50.92 and accordingly, a finding by the NRC of no significant hazards consideration is justified.

5.2 Applicable Regulatory Requirements/Criteria

10CFR50, Appendix A, General Design Criteria (GDC) 4, "Structures, systems, and components important to safety shall be designed to accommodate the effects of and to be compatible with the environmental conditions associated with 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, and 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 for the piping."

GDC 16, "Reactor containment and associated systems shall be provided to establish an essentially leak-tight barrier against the uncontrolled release of radioactivity to the environment and to assure that the containment design conditions important to safety are not exceeded for as long as postulated accident conditions require."

GDC 50, "The reactor containment structure, including access openings, penetrations, and the containment heat removal system shall be designed so that the containment structure and its internal compartments can accommodate, without exceeding the design leakage rate and, with sufficient margin, the calculated pressure and temperature conditions resulting from any loss-of-coolant accident. This margin shall reflect consideration of (1) the effects of potential energy sources which have not been included in the determination of the peak conditions, such as energy in steam generators and energy from metal water and other chemical reactions that may result from degraded emergency core cooling functioning, (2) the limited experience and experimental data available for defining accident phenomena and containment responses, and (3) the conservatism of the calculational model and input parameters."

GDC 53, "The reactor containment shall be designed to permit (1) appropriate periodic inspection of all important areas, such as penetrations, (2) an appropriate surveillance program, and (3) periodic testing at containment design pressure of the leaktightness of penetrations which have resilient seals and expansion bellows."

GDC 54, "Piping systems penetrating primary reactor containment shall be provided with leak detection, isolation, and containment capabilities having redundancy, reliability, and performance capabilities which reflect the importance to safety of isolating these piping systems. Such piping systems shall be designed with a capability to test periodically the operability of the isolation valves and associated apparatus and to determine if valve leakage is within acceptable limits."

GDC 57, "Each line that penetrates primary reactor containment and is neither part of the reactor coolant pressure boundary nor connected directly to the containment atmosphere shall have at least one containment isolation valve which shall be either automatic, or locked closed, or capable of remote manual operation. This valve shall be outside the containment and located as close to the containment as practical. A simple check valve may not be used as the automatic isolation valve."

U. S. NRC Regulatory Guide (RG) 1.22 is NRC guidance for ensuring the adequacy of protection system actuation functions through periodic testing.

Analysis

The specification of concern helps assure compliance with GDC 4 such that, in the event of a Main Feedwater Line break or Main Steam Line Break inside containment, the containment will be appropriately isolated to prevent additional mass and energy from being delivered to the steam generators. The containment isolation/integrity provisions of GDC 16, GDC 50, GDC 53, GDC 54 and GDC 57 are not applicable to secondary pipe breaks but to a spectrum of Loss of Coolant Accidents (LOCAs). The extended Completion Time (72 hours) for MFIVs, MFRVs, and MFRVBVs is consistent with the containment isolation requirements of TS 3.6.3, Condition C and thus does not impact these GDCs.

The proposed change adopts the NRC approved NUREG-1431 version of TS 3.7.3 which extends the Completion Time for one or more Main Feedwater Isolation Valves (MFIVs), MFRVs, or MFRV bypass valves inoperable from 4 hours 72 hours. This change does not effect the compliance with any of the above General Design Criteria. The change does not affect the commitment to Regulatory Guide 1.22 as documented in FSAR Section Appendix 3A.

6.0 ENVIRONMENTAL CONSIDERATION

AmerenUE has determined that the proposed amendment would change requirements with respect to the installation or use of a facility component located within the restricted area, as defined in 10 CFR 20, or would change an inspection or surveillance requirement. AmerenUE has evaluated the proposed changes and has determined that the changes do 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.

As discussed above, the proposed changes do not involve a significant hazards consideration and the analysis demonstrates that the consequences from the postulated accidents are well within the 10 CFR 100 limits. Accordingly, the proposed changes 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.

7.0 PRECEDENTS

There is precedent for adding the MFRVs and MFRVBVs to TS 3.7.3 and for extending the allowed outage time for the MFIVs. TXU Power Company operating licenses for the Comanche Peak Steam Electric Station (CPSES) Units 1 and 2 have been

amended to add the feedwater control valves to the 3.7.3 Specification and to extend the Completion Time to 72 hours for the feedwater isolation valves. TXU Power Company Facility Operating Licenses No. NPF-87 and No. NPF-89 for Comanche Peak Units 1 and 2 were amended with license amendment No. 97 on June 26, 2002.

8.0 REFERENCES

8.1 Callaway Plant Technical Specification, 3.7.3, Main Feedwater Isolation Valves (MFIVs).

8.2 FSAR Section 10.4.7, Condensate and Feedwater System.

8.3 FSAR Section 6.2, Containment Systems.

8.4 FSAR Section 15, Accident Analysis.

8.5 NUREG-1482, "Guidelines for Inservice Testing at Nuclear Power Plants."

8.6 FSAR Figure 7.2-1, Sheets 13 and 14.

8.7 FSAR Figure 10.4-6, Sheets 1 and 2.

ULNRC- 05071

ATTACHMENT 3

MARKUP OF TECHNICAL SPECIFICATION PAGES

3.7 PLANT SYSTEMS

3.7.3 ~~Main Feedwater Isolation Valves (MFIVs)~~ INSERT B

LCO 3.7.3 Four MFIVs shall be OPERABLE. INSERT C

APPLICABILITY: ~~MODES 1, 2, and 3.~~ INSERT C1

OL 1252

ACTIONS

NOTE
Separate Condition entry is allowed for each valve.

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. One or more MFIVs inoperable.	A.1 Close MFIV.	~~8~~ 72 hours
	AND	
	A.2 Verify MFIV is closed.	Once per 7 days
INSERT D		
~~B.~~ E. Required Action and associated Completion Time not met.	~~B.1~~ E.1 Be in MODE 3.	6 hours
	AND	
	~~B.2~~ E.2 Be in MODE 4.	12 hours

OL-1252

INSERT A

MFIVs and MFRVs and MFRV Bypass Valves

INSERT B

Main Feedwater Isolation Valves (MFIVs) and Main Feedwater Regulating Valves (MFRVs) and Main Feedwater Regulating Valve Bypass Valves (MFRVBVs)

INSERT C

, four MFRVs, and four MFRVBVs

INSERT C1

MODES 1, 2, and 3 except when:

a. MFIV is closed and de-activated; or

b. MFRV is closed and de-activated or closed and isolated by a closed manual valve; or

c. MFRVBV is closed and de-activated, or closed and isolated by a closed manual valve, or isolated by two closed manual valves.

OL-1252

INSERT D

B. One or more MFRVs inoperable.	B.1 Close or isolate MFRV. AND B.2 Verify MFRV is closed or isolated.	72 hours Once per 7 days
C. One or more MFRVBVs inoperable.	C.1 Close or isolate bypass valve. AND C.2 Verify bypass valve is closed or isolated.	72 hours Once per 7 days
D. Two valves in the same flow path inoperable.	D.1 Isolate affected flow path.	8 hours

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.7.3.1	NOTE Only required to be performed in MODES 1 and 2. Verify the closure time of each MFIV is ≤ 15 seconds. INSERT E	In accordance with the Inservice Testing Program
SR 3.7.3.2	NOTE Only required to be performed in MODES 1 and 2. Verify each MFIV actuates to the isolation position on an actual or simulated actuation signal.	18 months

OL 1252

OL-1252

INSERT E

, MFRV and MFRVBV

ULNRC- 05071

ATTACHMENT 4

RETYPED TECHNICAL SPECIFICATION PAGES

3.7 PLANT SYSTEMS

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

LCO 3.7.3 Four MFIVs, four MFRVs, and four MFRVBVs shall be OPERABLE.

APPLICABILITY: MODES 1, 2, and 3 except when:

a. MFIV is closed and de-activated; or
b. MFRV is closed and de-activated or closed and isolated by a closed manual valve; or
c. MFRVBV is closed and de-activated, or closed and isolated by a closed manual valve, or isolated by two closed manual valves.

ACTIONS

NOTE

Separate Condition entry is allowed for each valve.

CONDITION	REQUIRED ACTION		COMPLETION TIME
A. One or more MFIVs inoperable.	A.1	Close MFIV.	72 hours
	AND		
	A.2	Verify MFIV is closed.	Once per 7 days
B. One or more MFRVs inoperable.	B.1	Close or isolate MFRV.	72 hours
	AND		
	B.2	Verify MFRV is closed or isolated.	Once per 7 days
C. One or more MFRVBVs inoperable.	C.1	Close or isolate bypass valve.	72 hours
	AND		
	C.2	Verify bypass valve is closed or isolated.	Once per 7 days

(continued)

ULNRC- 05071

ATTACHMENT 5

PROPOSED TECHNICAL SPECIFICATION BASES CHANGES

(for information only)

B 3.7 PLANT SYSTEMS

B 3.7.3 ~~Main Feedwater Isolation Valves (MFIVs)~~ ← INSERT E

BASES

BACKGROUND

The MFIVs isolate main feedwater (MFW) flow to the secondary side of the steam generators following a high energy line break (HELB). The MFRVs and MFRVBVs function to control feedwater flow to the SGs. INSERT A1

The MFIV is a 14-inch gate valve with a system-medium actuator. The assumed single active failure of one of the redundant MFIV actuation trains will not prevent the MFIV from closing. INSERT A

Closure of the MFIVs terminates flow to the steam generators, terminating the event for feedwater line breaks (FWLBs) occurring upstream of the MFIVs. INSERT A The consequences of events occurring in the main steam lines or in the MFW lines downstream from the MFIVs will be mitigated by their closure. Closure of the MFIVs effectively terminates the addition of feedwater to an affected steam generator, limiting the mass and energy release for steam line breaks (SLBs) or FWLBs inside containment, and reducing the cooldown effects for SLBs.

TSB CN 04-012

The MFIVs isolate the nonsafety related portions from the safety related portions of the system. In the event of a secondary side pipe rupture inside containment, the valves limit the quantity of high energy fluid that enters containment through the break, and provide a pressure boundary for the controlled addition of auxiliary feedwater (AFW) to the intact loops. INSERT B1

One MFIV ~~is~~ INSERT C located on each MFW line, outside but close to containment. INSERT B The MFIVs are located upstream of the AFW injection point so that AFW may be supplied to the steam generators following MFIV closure. The piping volume from these valves to the steam generators is accounted for in calculating mass and energy releases, and purged and refilled prior to AFW reaching the steam generator following either an SLB or FWLB. INSERT D

The MFIVs close on receipt of any safety injection signal, a T_{avg} - Low coincident with reactor trip (P-4), a low-low steam generator level, or steam generator water level - high high signal. ~~They~~ MFIVs may also be actuated manually. In addition to the MFIVs, a check valve inside containment is available. The check valve isolates the feedwater line penetrating containment and ensures the pressure boundary of any intact loop not receiving auxiliary feedwater.

The MFIV actuators consist of two separate system-medium actuation trains each receiving an actuation signal from one of the redundant

(continued)

OL-1252 TS Bases

INSERT A

or MFRVs and MFRVBVs

INSERT A1

and provide backup isolation of MFW flow in the event an MFIV fails to close. Because an earthquake is not assumed to occur coincident with a spontaneous break of safety related secondary piping, loss of the non-safety grade MFRVs and MFRVBVs is not assumed. If the single active failure postulated for a secondary pipe break is the failure of a safety grade MFIV to close, then credit is taken for closing the non-safety grade MFRVs and MFRVBVs.

INSERT B

or MFRV and MFRVBV

INSERT B1

The MFRV Bypass valves are located in six inch lines that bypass flow around the MFRVs during low power operation. As shown in Reference 6, an MFIV can not be isolated with closed manual valves; the MFRV can be isolated upstream by a closed manual valve; and the MFRVBV can be isolated both upstream and downstream with a closed manual valve.

INSERT C

and one MFRV are

INSERT D

and MFRVs and MFRVBVs

INSERT E

Main Feedwater Isolation Valves (MFIVs) and Main Feedwater Regulating Valves (MFRVs) and Main Feedwater Regulating Valve Bypass Valves (MFRVBVs)

INSERT F

MFIVs and MFRVs and MFRV Bypass Valves

BASES

BACKGROUND (continued)

ESFAS channels. A single active failure in one power train would not prevent the other power train from functioning. The MFIVs provide the primary success path for events requiring feedwater isolation and isolation of non-safety-related portions from the safety-related portion of the system, such as, for auxiliary feedwater addition.

INSERT G2

A description of the MFIVs and MFRVs and MFRVBVs is found in the FSAR, Section 10.4.7 (Ref. 1).

APPLICABLE SAFETY ANALYSES

Credit is taken in accident analysis for the MFIVs to close on demand. The function of the MFRVs and associated bypass valves as discussed in the accident analysis is to provide a diverse backup function to the MFIVs for the potential failure of an MFIV to close even though the MFRVs are located in the non-safety-related portion of the feedwater system. Further assurance of feedwater flow termination is provided by the SGFP trip function; however, ~~this~~ SGFP trip is not credited in accident analysis. The accident analysis credits the main feedwater check valves as backup to the MFIVs to prevent SG blowdown for pipe ruptures in the non-seismic Category I portions of the feedwater system outside containment.

INSERT G1

TSB CN 04-012

Criterion 3 of 10 CFR 50.36(c)(2)(ii) indicates that components that are part of the primary success path and that actuate to mitigate an event that presents a challenge to a fission product barrier should be in Technical Specifications. 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 the event remains within appropriate acceptance criteria. The primary success path does not include backup and diverse equipment. The MFIVs, with their dual-redundant actuation trains, are the primary success path for feedwater isolation. ~~The MFIVs, bypass valves, and the SGFP trip function are backup and diverse equipment. Therefore, only the MFIVs are incorporated into Technical Specifications.~~

INSERT G

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

LCO

This LCO ensures that the MFIVs will isolate MFW flow to the steam generators, following an FWLB or main steam line break. ~~These valves~~ The MFIVs will also isolate the nonsafety related portions from the safety related portions of the system.

INSERT D

INSERT D

INSERT H

This LCO requires that four MFIVs be OPERABLE. The MFIVs are considered OPERABLE when isolation times are within limits when given ~~a fast close signal~~ INSERT H2 and they are capable of closing on an isolation actuation signal. INSERT H1

(continued)

OL-1252 TS Bases

INSERT G

The MFRVs and MFRVBVs are backup and diverse equipment. The MFRVs and MFRVBVs satisfy Criterion 4 of 10 CFR 50.36 (c)(2)(ii).

INSERT G1

redundant trains/components

INSERT G2

The MFRV and MFRVBV actuators consist of two separate actuation trains each receiving an actuation signal from one of the redundant ESFAS channels. Both trains are required to actuate to close the valve.

INSERT H

and four MFRVs and four MFRVBVs

INSERT H1

For the MFRVs and MFRVBVs, the LCO requires only that the trip close function is OPERABLE. No OPERABILITY requirements are imposed on the analog controls shown on Reference 5.

INSERT H2

an isolation actuation signal

BASES

LCO (continued)

Failure to meet the LCO requirements can result in additional mass and energy being released to containment following an SLB or FWLB inside containment. A feedwater isolation signal on high steam generator level is relied on to terminate an excess feedwater flow event.

APPLICABILITY

The MFIVs must be OPERABLE whenever there is significant mass and energy in the Reactor Coolant System and steam generators. This ensures that, in the event of an HELB, a single failure cannot result in the blowdown of more than one steam generator. In MODES 1, 2, and 3, the MFIVs are required to be OPERABLE to limit the amount of available fluid that could be added to containment in the case of a secondary system pipe break inside containment. ~~When the MFIVs are closed they are performing their safety function.~~

INSERT D

INSERT I

In MODES 4, 5, and 6, steam generator energy is low. Therefore, the MFIVs are not required to mitigate the effects of a feedwater or steamline break in these MODES.

ACTIONS

The ACTIONS table is modified by a Note indicating that separate Condition entry is allowed for each valve.

TSB CN 04-012

A.1 and A.2

With one MFIV in one or more flow paths inoperable, action must be taken to restore the affected valves to OPERABLE status, or to close ~~or isolate~~ inoperable affected valves within ~~4~~ 72 hours. When these valves are closed, they are performing their required safety function.

INSERT J

The ~~4~~ 72 hour Completion Time takes into account the redundancy afforded by the dual-redundant actuation trains on the MFIVs and the low probability of an event occurring during this time period that would require isolation of the MFW flow paths. The ~~4~~ 72 hour Completion Time is reasonable, based on operating experience.

Inoperable MFIVs that are closed must be verified on a periodic basis that they are closed. This is necessary to ensure 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.

INSERT J1

INSERT K

(continued)

OL-1252 TS Bases

INSERT I

Exceptions to the APPLICABILITY are allowed for the following cases where the valve is assured of performing its safety function (Reference 6):

a. When the MFIV is closed and de-activated, it is performing its safety function. Requiring the valve closed and de-activated provides dual assurance that it is performing its safety function. When the valve is de-activated, power is removed from the actuation solenoids on the valves.

b. When the MFRV is closed and de-activated or is closed and isolated by a closed manual valve, it is performing its safety function. Requiring the valve closed and de-activated provides dual assurance that it is performing its safety function. When the valve is de-activated, power is removed from the actuation solenoids on the valves. Requiring the valve closed and isolated by a closed manual valve also provides dual assurance that it is performing its safety function.

c. When the MFRVBV is closed and de-activated, or is closed and isolated by a closed manual valve, or is isolated by two closed manual valves, it is performing its safety function. Requiring the valve closed and de-activated provides dual assurance that it is performing its safety function. When the valve is de-activated, power is removed from the actuation solenoids on the valves. Requiring the valve closed and isolated by a closed manual valve also provides dual assurance that it is performing its safety function. Finally, there is dual assurance that the safety function is being performed when the MFRVBV is isolated by two closed manual valves.

INSERT J

, the redundancy afforded by the remaining OPERABLE valves,

INSERT J1

If the MFIVs are closed and de-activated, this LCO does not apply as discussed in the Applicability section of these Bases.

OL-1252 TS Bases

INSERT K

B.1 and B.2

With one MFRV in one or more flow paths inoperable, action must be taken to restore the affected valves to OPERABLE status, or to close or to isolate inoperable affected valves within 72 hours. When these valves are closed or isolated, they are performing their required safety function.

The 72 hour Completion Time takes into account the redundancy afforded by the remaining OPERABLE valves and the low probability of an event occurring during this time period that would require isolation of the MFW flow paths. The 72 hour Completion Time is reasonable, based on operating experience.

Inoperable MFRVs, 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 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 the valves are closed or isolated. If the MFRVs are closed and de-activated, or closed and isolated by a closed manual valve, this LCO does not apply as discussed in the Applicability section of these Bases.

C.1 and C.2

With one MFRVBV in one or more flow paths inoperable, action must be taken to restore the affected valves to OPERABLE status, or to close or to isolate inoperable affected valves within 72 hours. When these valves are closed or isolated, they are performing their required safety function.

The 72 hour Completion Time takes into account the redundancy afforded by the remaining OPERABLE valves and the low probability of an event occurring during this time period that would require isolation of the MFW flow paths. The 72 hour Completion Time is reasonable, based on operating experience.

Inoperable MFRVBVs 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 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. If the MFRVBVs are closed and de-activated, or closed and isolated by a closed manual valve, or isolated by two closed manual valves, this LCO does not apply as discussed in the Applicability section of these Bases.

INSERT K continued

D.1

Two inoperable valves in the same flow path is treated the same as a loss of the isolation capability of this flow path. For each feedwater line there are two flow paths, defined as flow through the MFRV/MFIV and flow through the MFRVBV/MFIV. Because the MFIV, MFRV, and MFRVBV are of different designs, a common mode failure of the valves in the same flow path is not likely. However, under these conditions, affected valves in each flow path must be restored to OPERABLE status, or the affected flow path isolated within 8 hours. This action returns the system to the condition where at least one valve in each flow path is performing the required safety function. The 8 hour Completion Time is reasonable, based on operating experience, to complete the actions required to close the MFIV or MFRV and MFRVBV, or otherwise isolate the affected flow path.

BASES

ACTIONS (continued)

E.1 E.2

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

INSERT D

If the MFIV(s) cannot be restored to OPERABLE status, or 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 in at least 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 full power conditions in an orderly manner and without challenging unit systems.

SURVEILLANCE REQUIREMENTS

SR 3.7.3.1

INSERT L

INSERT AN

This SR verifies that the closure time of each MFIV is ≤ 15 seconds from each actuation train when tested pursuant to the Inservice Testing Program. The MFIV closure time is assumed in the accident and containment analyses. This Surveillance is normally performed upon returning the unit to operation following a refueling outage. ~~These valves~~ The MFIVs and MFRVs should not be tested at power since even a part stroke exercise increases the risk of a valve closure with the unit generating power.

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

TSB CN 04-012

This test is conducted in MODE 3 with the unit at nominal operating temperature and pressure, as discussed in Reference 2. 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 3.7.3.2

INSERT AN

INSERT O

This SR verifies that each MFIV is capable of closure on an actual or simulated actuation signal. ~~The manual fast close handswitch in the Control Room provides an acceptable actuation signal. Each actuation train must be tested separately.~~ This Surveillance is normally performed upon returning the unit to operation following a refueling outage in conjunction with SR 3.7.3.1. However, it is acceptable to perform this surveillance individually.

INSERT AN

The frequency of MFIV testing is every 18 months. The 18 month Frequency for testing is based on the refueling cycle. This Frequency is acceptable from a reliability standpoint. This SR is modified by a NOTE that allows entry into and operation in MODE 3 prior to performing the SR.

(continued)

OL-1252 TS Bases

INSERT L

, MFRV, and MFRVBV

INSERT M

Per Reference 4, if it is necessary to adjust stem packing to stop packing leakage and if a required stroke test is not practical in the current plant MODE, it should be shown by analysis that the packing adjustment is within torque limits specified by the manufacturer for the existing configuration of packing, and that the performance parameters of the valve are not adversely affected. A confirmatory test must be performed at the first available opportunity when plant conditions allow testing. Packing adjustments beyond the manufacturer's limits may not be performed without (1) an engineering analysis and (2) input from the manufacturer, unless tests can be performed after adjustments.

INSERT AN

and MFRV and MFRVBV

INSERT O

For the MFIVs the manual fast close handswitch in the Control Room provides an acceptable actuation signal. Each actuation train must be tested separately. For the MFRVs and the MFRVBVs, actuation of solenoids locally at the MFRVs and MFRVBVs constitutes an acceptable simulated actuation signal.

BASES

SURVEILLANCE REQUIREMENTS

SR 3.7.3.2 (continued)

This allows a delay of testing until MODE 3, to establish conditions consistent with those necessary to perform SR 3.7.3.1 and SR 3.7.3.2 concurrently.

REFERENCES

1. FSAR, Section 10.4.7, Condensate and Feedwater System.
2. ASME, Boiler and Pressure Vessel Code, Section XI.
3. FSAR, Table 7.3-14, NSSS Instrument Operating Conditions for Isolation Functions.

INSERT N

TSB CN 04-012

OL-1252 TS Bases

INSERT N

4. NUREG-1482, "Guidelines for Inservice Testing at Nuclear Power Plants."
5. FSAR Figure 7.2-1, Sheets 13 and 14.
6. FSAR Figure 10.4-6, Sheets 1 and 2.

ULNRC- 05071

ATTACHMENT 6

PROPOSED CALLAWAY FSAR CHANGES

(for information only)

e. Feedwater control valves (actual full closure)

f. Main feedwater pump trip solenoids

g. Reactor coolant pump seal water return valves (actual full closure)

h. Eight selected slave relays

The justifications for not testing the above items at full power are discussed below.

a. Manual actuation switches for RTS and ESFAS

These would cause initiation of their protection system function at power, causing plant upset and/or reactor trip. It should be noted that the reactor trip function that is derived from the automatic safety injection signal is tested at power in the same manner as the other analog signals and as described in Section 7.2.2.2.3. The processing of these signals in the solid state protection system wherein their channel orientation converts to a logic train orientation is tested at power by the built-in semiautomatic test provisions of the solid state protection system. The reactor trip breakers are tested at power, as discussed in Section 7.2.2.2.3.

b. Main turbine trip system

Testing of the main turbine trip function under power operation is discussed in Section 10.2.3.6.

c. Closing the main steam isolation valves

See Table 7.1-3.

d. Closing the main feedwater isolation valves

See Table 7.1-3.

FSAR CN 04-040

INSERT A

e. Closing the feedwater control valves

These valves are routinely tested during refueling outages. To close them at power would adversely affect the operability of the plant. The verification of operability of feedwater control valves at power is ensured by confirmation of proper operation of the steam generator water level control system. The actuation function of the solenoids, which provides the closing function, is periodically tested at power, as discussed in Section 7.3. The operability of the slave relay which actuates the solenoid, which is the actuating device, is verified during this test. Although the closing of these control valves is blocked when the slave relay is tested, all

FSAR CN 04-040

functions are tested to ensure that no electrical malfunctions have occurred which could defeat the protective function. It is noted that the solenoids work on the de-energize-to-actuate principle. The feedwater control valves will fail closed on the loss of electrical power to both of the solenoids or loss of air pressure.

Based on the above, the testing of the isolating function of feedwater control valves meets the guidelines of Regulatory Position D.4 of Regulatory Guide 1.22.

f. Main feedwater pump trip solenoids

No credit is taken for the automatic tripping of the feedwater pumps, and, therefore, this function does not require periodic testing.

g. Reactor coolant pump seal water return valves

Seal water return line isolation valves are routinely tested during refueling outages. Closure of these valves during operation would cause the seal water system relief valve to lift, with the possibility of valve chatter. Valve chatter could damage this relief valve. Testing of these valves at power could cause equipment damage. Therefore, these valves will be tested during scheduled refueling outages. Thus, the guidelines of Regulatory Position D.4 of Regulatory Guide 1.22 are met.

h. Eight selected slave relays

Slave relays K602, K620 (turbine trip circuitry only; main feedwater pump trip solenoid circuitry is excluded as discussed in f above), K622, K624, K630, K740, K741, and K750 and their actuated equipment will be tested at least once per 18 months during refueling and during each cold shutdown exceeding 24 hours unless they have been tested within the previous 92 days. Justification for the extended test interval is based on plant operational concerns and was presented in detail in References 3 and 5.

7.1.2.6 Conformance to IEEE Standards

7.1.2.6.1 Conformance to IEEE Standard 379-1972

The principles described in IEEE Standard 379-1972 were used in the design of the solid state protection system. The system complies with the intent of this standard and the additional guidance of Regulatory Guide 1.53, although the formal analyses have not been documented exactly as outlined. Westinghouse has gone beyond the required analyses and has performed a fault tree analysis (Ref. 4).

FSAR CN 04-040

INSERT A

The actuation function for these valves and their associated solenoids are routinely tested during refueling outages. To close the valves at power would adversely affect the operation of the plant. The operability of the slave relays which actuate the solenoids is verified at power. The closing of these control valves is blocked when the slave relay is tested. It is noted that the solenoids work on the de-energize-to-actuate principle. The feedwater control valves will fail closed on the loss of electrical power to both of the solenoids.

for design data. Safety-related feedwater piping materials are discussed in Section 10.3.6.

MAIN FEEDWATER PIPING - Feedwater is supplied to the four steam generators by four 14-inch carbon steel lines. Each of the lines is anchored at the containment wall and has sufficient flexibility to provide for relative movement of the steam generators due to thermal expansion. The main feedwater line and associated branch lines between the containment penetration and the torsional restraint upstream of the MFIV are designed to meet the "no break zone" criteria, as described in NRC BTP MEB-3-1 (refer to Section 3.6).

MAIN FEEDWATER ISOLATION VALVES - One main feedwater isolation valve (MFIV) is installed in each of the four main feedwater lines outside the containment and downstream of the feedwater control valve. The MFIVs are installed to prevent uncontrolled blowdown from any steam generator in the event of a feedwater pipe rupture in the turbine building. The main feedwater check valve provides backup isolation. The MFIVs isolate the nonsafety-related portions from the safety-related portions of the system. In the event of a secondary cycle pipe rupture inside the containment, the MFIV limits the quantity of high energy fluid that enters the containment through the broken loop and provides a pressure boundary for the controlled addition of auxiliary feedwater to the three intact loops. The valves are bi-directional, double disc, parallel slide gate valves. The MFIV actuators utilize two separate actuation trains, which are energized from separate Class 1 E sources. Energy for closing an MFIV is provided by the process fluid (feedwater), which is admitted to the volume above the actuator piston (upper piston chamber) to close the valve. The MFIV actuators utilize six solenoid valves, three solenoids per actuation train, to perform their safety design functions. Process fluid will be directed to the actuator upper piston chamber (to close the valve) by two parrallel trains consisting of one two-way solenoid valve and one three-way solenoid valve in series. For emergency closure, both upper piston chamber solenoid valves within an actuation train must be de-energized. Once the two upper piston chamber solenoids within an actuation train de-energize, they open to admit process fluid from the valve bonnet chamber to the actuator upper piston chamber. The actuator lower piston chamber is vented through a two-way solenoid valve and a three-way solenoid valve connected in parallel to the actuator lower piston chamber, which are in a de-energized state (vented position). After a thirty-second time delay both actuator lower piston chamber solenoid valves will energize, isolating the lower piston chamber. Isolating the lower piston chamber will prevent any leakage of process fluid from either the piston rings of the stem seal from venting through the lower piston chamber to the condenser.

MAIN FEEDWATER CONTROL VALVES AND CONTROL BYPASS VALVES - The MF control valves are air-operated angle valves which automatically control feedwater between 20 percent and full power. The bypass control valves are air-operated globe valves, which are used during startup up to 25-percent power. The MF control valves and bypass control valves are located in the turbine building.

FSAR CN 04-040

(also known as main feedwater regulating valves)

TABLE 10.4-6 CONDENSATE AND FEEDWATER SYSTEM DESIGN DATA

Main Feedwater Piping (Safety-Related Portion)	
Design (VWO) flowrate, lb/hr	15,960,000
Number of lines	4
Nominal size, in.	14
Schedule	80
Design pressure, psig	1,185
Design temperature, F	450
Design code	ASME Section III, Class 2
Seismic design	Category I
Feedwater Isolation Valves	
Number per main feedwater line	1
Closing time, sec	15
Body design pressure, psig	1,950
Design temperature, F	450
Design code	ASME Section III, Class 2
Seismic design	Category I
Feedwater Control Valves	
Number per main feedwater line	1
Closing time, sec	~~5~~ 15
Design code	ASME Section III, Class 3
Seismic design	None

FSAR CN 04-040

ULNRC- 05071

ATTACHMENT 7

SUMMARY OF REGULATORY COMMITMENTS

SUMMARY OF REGULATORY COMMITMENTS

The following table identifies those actions committed to by AmerenUE, Callaway Plant in this document. Any other statements in this submittal are provided for information purposes and are not considered to be commitments. Please direct questions regarding these commitments to Mr. Dave E. Shafer, Superintendent, Licensing at AmerenUE, (314) 554-3104.

COMMITMENT	Due Date/Event
The approved amendment will be implemented within 90 days of approval. This means that all required procedure and document revisions shall be completed within 90 days of approval	90 days
The associated FSAR and TS Bases revisions, as approved by plant review programs performed under 10 CFR 50.59, 10 CFR 50.71(e), and TS 5.5.5, will be incorporated into the next licensing document regulatory update.	Next licensing document regulatory update