WOLF CREEK
NUCLEAR OPERATING CORPORATION

Terry J. Garrett
Vice President Engineering

March 3, 2010
ET 10-0010

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

Subject: Docket No. 50-482: Revision to Technical Specification 3.3.2, "Engineered Safety Feature Actuation System (ESFAS) Instrumentation," Auxiliary Feedwater – Trip of All Main Feedwater Pumps

Gentlemen:

Pursuant to 10 CFR 50.90, Wolf Creek Nuclear Operating Corporation (WCNOC) hereby requests an amendment to Renewed Facility Operating License No. NPF-42 for the Wolf Creek Generating Station (WCGS). The proposed amendment would modify Technical Specification (TS) 3.3.2, ESFAS Instrumentation, Condition J, for the start of the motor driven auxiliary feedwater (AFW) pumps on the trip of both main feedwater (MFW) pumps. The proposed TS changes will allow two channels on one MFW pump to be inoperable in MODE 1 for up to 4 hours during the process of removing the pump from service or placing the pump in service and will provide a TS Condition that addresses more than one inoperable channel.

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, proposed changes to the TS Bases, 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.

It has been determined that this amendment application does not involve a significant hazard consideration as determined per 10 CFR 50.92. Pursuant to 10 CFR 51.22(b), no environmental impact statement or environmental assessment needs to be prepared in connection with the issuance of this amendment.

This amendment application was reviewed by the Plant Safety Review Committee. In accordance with 10 CFR 50.91, a copy of this amendment application, with attachments, is being provided to the designated Kansas State official.

A001
NRR

On March 2, 2010, WCGS experienced a reactor trip at 1458 CST. The trip was caused by the loss of the "A" MFW pump. The cause of the loss of the MFW pump was due to the loss of 120 VAC non-safety instrument inverter PN09. PN09 supplies the MFW pump speed control circuitry. The return to full power operation will require implementation of this proposed TS change. No operational experience such as starting both MFW pumps in MODE 2 or placing both MFW pumps in a tripped condition exists for WCGS because of plant design or operational constraints. Failure to issue the proposed amendments would impact the increase in power output up to the plant's licensed power level. WCNOC determined that this TS issue was applicable to WCGS with the issuance of operating experience from another plant and in discussions with other STARS plants on January 21, 2010. WCNOC was in the process of preparing and submitting a routine request based on refueling outage plans at the time. Therefore, WCNOC is requesting that this amendment request be approved for WCGS on an emergency basis in accordance with 10 CFR 50.91(a)(5) to allow the plant to return to full power after plant startup from the unexpected reactor trip.

There are no commitments associated with this submittal. If you have any questions concerning this matter, please contact me at (620) 364-4084, or Mr. Richard D. Flannigan, Manager Regulatory Affairs, at (620) 364-4117.

Sincerely,

Terry J. Garrett

TJG/rlt

Attachments: I Evaluation
II Proposed Technical Specification Changes (Mark-up)
III Revised Technical Specification Pages
IV Proposed TS Bases Changes (for information only)

cc: E. E. Collins (NRC), w/a
T. A. Conley (KDHE), w/a
G. B. Miller (NRC), w/a
B. K. Singal (NRC), w/a
Senior Resident Inspector (NRC), w/a

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 3rd day of March, 2010.

NOTARY PUBLIC OFFICIAL SEAL STATE OF KANSAS
RHONDA L. TIEMEYER
MY COMMISSION EXPIRES
January 11, 2014

Rhonda L. Tiemeyer
Notary Public

Expiration Date January 11, 2014

EVALUATION

1.0 SUMMARY DESCRIPTION

2.0 DETAILED DESCRIPTION

3.0 TECHNICAL EVALUATION

4.0 REGULATORY EVALUATION

- 4.1 Applicable Regulatory Requirements/Criteria
- 4.2 Precedent
- 4.3 Significant Hazards Consideration
- 4.4 Conclusion

5.0 ENVIRONMENTAL CONSIDERATION

6.0 REFERENCES

EVALUATION

1.0 SUMMARY DESCRIPTION

The amendment application proposes changes to the Wolf Creek Generating Station (WCGS) Technical Specifications Limiting Condition for Operation (LCO) of Technical Specification (TS) 3.3.2, "Engineered Safety Feature Actuation System (ESFAS) Instrumentation." Wolf Creek Nuclear Operating Corporation (WCNOC) is proposing to modify Technical Specification (TS) 3.3.2, ESFAS Instrumentation, Condition J, for the start of the motor driven auxiliary feedwater (AFW) pumps on the trip of all main feedwater (MFW) pumps. The proposed TS changes will allow two channels on one MFW pump to be inoperable in MODE 1 for up to 4 hours during the process of removing the pump from service or placing the pump in service and will provide a TS Condition that addresses more than one inoperable channel.

2.0 DETAILED DESCRIPTION

Proposed changes to the TSs are as follows:

- Modify LCO 3.3.2, Condition J to read:

  "One or more Main Feedwater Pump trip channel(s) inoperable."

- Modify the Note to LCO 3.3.2, Required Actions J.1 and J.2:

  1. One inoperable channel may be bypassed for up to 2 hours for surveillance testing of other channels

- Add a new Note to LCO 3.3.2, Required Actions J.1 and J.2:

  2. Two channels on one main feedwater pump may be inoperable in MODE 1 for up to 4 hours during the process of removing the pump from service or placing the pump in service.

Industry operating experience, OE30255 (Reference 1 dated December 16, 2009) identified that a design feature of each main feedwater (MFW) pump can provide a status indication that the MFW pump is in service when the MFW pump may not actually be supplying water to the steam generator. In this condition, if the MFW pump in service tripped, the motor driven AFW pumps would not receive an auto-start signal as required by the WCGS Technical Specifications. A MFW pump is in service when the pump's stop valves are open, the governor control valves are either in manual or automatic control and feedwater is being supplied to the steam generators.

The operating experience provided reference to Watts Bar Nuclear Plant licensee event reports for a similar event. Further research identified the August 7, 2008, the Nuclear Regulatory Commission (NRC) issued Watts Bar Nuclear Plant – NRC Integrated Inspection Report 05000390/2008003 (Reference 2). In that report, the NRC informed Tennessee Valley Authority (TVA) that plant operation did not conform to TS 3.3.2 Function 6.3, Trip of All Turbine Driven Main Feedwater Pumps, when a non-operating MFW pump is reset within the Limiting Condition for Operation (LCO) Applicability. TVA had considered the associated AFW auto-start channel (the Watts Bar design has one Function 6.e. channel per MFW pump) OPERABLE; however, NRC informed TVA that a non-operating MFW pump in the reset condition impacts

OPERABILITY of the AFW auto-start channel due to the false (i.e., invalid) indication of the MFW pump status.

A review of the above operating experience determined that the design and normal operation of the MFW pumps at WCGS could result in a condition that does not conform to the WCGS TS Table 3.3.2-1, Function 6.g., Trip of All Main Feedwater Pumps, based on the NRC position as described in Reference 1. The proposed change will permanently address this startup and shutdown issue for WCGS.

3.0 TECHNICAL EVALUATION

The function of the Condensate and Feedwater System is to supply a sufficient quantity of feedwater to the steam generator secondary side inlet during normal operating conditions and to guarantee that feedwater will not be delivered to the steam generators when feedwater isolation is required. The condensate pumps take suction from the condenser hotwell and the MFW pumps deliver water to the steam generators at elevated temperatures and pressures. Additional information can be found in Updated Safety Analysis Report (USAR) Section 10.4.7, "Condensate and Feedwater System."

The Auxiliary Feedwater (AFW) System automatically supplies feedwater to the steam generators to remove decay heat from the Reactor Coolant System upon the loss of normal feedwater supply. The motor driven AFW pumps start automatically on steam generator water level – low-low in any steam generator, on trip of both MFW pumps, upon actuation of AMSAC, and on actuation by the LOCA sequence or shutdown sequencer. The turbine driven AFW pump is automatically started by steam generator water level – low-low in any two steam generators, 4.16 kv safety related bus NB01 or NB02 undervoltage, and upon actuation of AMSAC. All three AFW trains can also be manually actuated. Additional information can be found in USAR Section 10.4.9, "Auxiliary Feedwater System."

A trip of both MFW pumps is an indication of a loss of MFW and the subsequent need for some method of decay heat and sensible heat removal to bring the reactor back to no load temperature and pressure. Each turbine driven MFW pump is equipped with two pressure switches (that provide one actuation signal in separation group 1 and one in separation group 4) on the oil line for the speed control system. These pressure switches (FCPSL0025, FCPSL0026, FCPSL0125, and FCPSL0126) measure hydraulic trip header pressure for the MFW pump turbine stop valve control fluid. When a feedwater pump turbine trip signal is received by the turbine, the hydraulic trip fluid pressure is vented and the pressure switches detect the low pressure condition. A low pressure signal from either of these pressure switches indicates a trip of that pump's turbine. Two OPERABLE channels per MFW pump satisfy redundancy requirements with one-out-of-two logic in the same separation group on both pumps required for signal actuation. A trip of both MFW pumps starts the motor driven AFW pumps. This actuation function is item 6.g in TS Table 3.3.2-1.

Function 6.g must be OPERABLE in MODE 1. This anticipatory trip results in the intact steam generators being provided with water to serve as the heat sink to remove reactor decay heat and sensible heat in the event of an accident. In MODE 2, AFW actuation due to a trip of all MFW pumps is normally blocked. Blocking of this trip function is permitted just before shutdown of the last operating MFW pump and the restoration of this trip function just after the first MFW pump is put into service following SR 3.3.2.8. In MODES 3, 4, and 5, the MFW pumps are normally shut down, and thus pump trip is not indicative of a condition requiring automatic AFW initiation.

During low-power plant startup operations, or during operation with one MFW pump secured at reduced power levels (typically less than 65% rated thermal power), only one MFW pump is feeding flow to the steam generators. Typically, the other MFW pump turbine is placed a "Reset" condition with its stop valves open and just prior to placing the MFW in service. This condition utilizes hydraulic trip fluid to keep the stop valves open, which appears to reflect an operating MFW pump to the hydraulic pressure switches. In the event that the operating MFW pump turbine receives a trip signal, all main feedwater flow would cease, but since the off-line MFW pump turbine is in the "Reset" condition, the Function 6.g actuation logic would not be satisfied, and an auto-start signal to the motor driven AFW pumps would not be initiated.

A low MFW pump hydraulic oil pressure is a "direct" indication that the MFW turbine is tripped but an "indirect" indication of the MFW pump capability to supply feedwater to the steam generators. The MFW pump turbine hydraulic oil pressure provides a false indication of an MFW pump's capability to supply feedwater to the steam generators when the MFW pump turbine is "Reset" in MODE 1 but the pump is not actively supplying flow to the steam generators. This situation is routinely created during normal plant startup when one MFW pump is in operation but the other MFW pump turbine has been "Reset" for various maintenance and operational activities. Based on the position in Reference 2, when the MFW pump turbine has been "Reset" but is not providing flow to the steam generators, both pressure channels for that pump should be considered inoperable. With both channels inoperable, LCO 3.0.3 would be required to be entered since there is no Condition for two channels inoperable on the same MFW pump (separate Condition entry for Condition J would allow separate entries for one inoperable channel per MFW pump).

During the process of removing a MFW pump from service in MODE 1 and prior to placing a MFW pump into service in MODES 1 and 2, its turbine control circuitry is placed in a "Reset" condition (FCHIS0018 on MFW pump 'A', FCHIS0118 on MFW pump 'B') such that the two oil pressure switch channels (FCPSL0025 and FCPSL0026 on MFW pump 'A', FCPSL0125 and FCPSL0126 on MFW pump 'B') on that pump continue to experience oil pressures indicative of an operating pump and, therefore, would not satisfy the AFW start function actuation logic (one tripped channel on each MFW pump in the same separation group will initiate an auxiliary feedwater actuation signal to start the motor driven AFW pumps). This ESFAS function (TS Table 3.3.2-1, Function 6.g) is an anticipatory start signal for which no credit is taken in any safety analysis. The safety analyses credit actuation of the motor driven AFW pumps upon a low-low steam generator water level signal in any steam generator and after a safety injection signal.

<u>Proposed change to LCO 3.3.2, Condition J</u>

The proposed change will revise Condition J to "One or more Main Feedwater Pump trip channel(s) inoperable."

This change will accurately reflect the plant design of two pressure switches (that provide one actuation signal in separation group 1 and one in separation group 4) on the oil line for the speed control system. Two OPERABLE channels per MFW pump satisfy redundancy requirements with one-out-of-two logic in the same separation group on both pumps required for signal actuation. A trip of both MFW pumps starts the motor driven AFW pumps. With both channels inoperable, LCO 3.0.3 would be required to be entered since there is no Condition for two channels inoperable on the same MFW pump (separate Condition entry for Condition J would allow separate entries for one inoperable channel per MFW pump).

Modify the Note to LCO 3.3.2, Required Actions J.1 and J.2:

The proposed change modifes the existing Note to Note 1 and specifies that one inoperable channel may be bypassed for up to 2 hours for surveillance testing of other channels.

This change reflects the changes to the Condition for one or more main feedwater pump trip channel(s) inoperable.

Add a new Note to LCO 3.3.2, Required Actions J.1 and J.2:

The proposed change adds a new Note 2 that state: "Two channels on one main feedwater pump may be inoperable in MODE 1 for up to 4 hours during the process of removing the pump from service or placing the pump in service."

When placing a second MFW pump in service in MODE 1, the MFW pump turbine is "Reset" but is not providing flow to the steam generators. Both pressure channels for that MFW pump should be considered inoperable. With both channels inoperable, LCO 3.0.3 would be required to be entered since there is no Condition for two channels inoperable on the same MFW pump (separate Condition entry for Condition J would allow separate entries for one inoperable channel per MFW pump). This new Note allows the suspension of the Completion Time clocks for Required Actions J.1 and J.2 until after the 4 hour allowance has expired. The new Note allows the necessary time to place the MFW pump in service while in MODE 1.

4. REGULATORY EVALUATION

4.1 Applicable Regulatory Requirements/Criteria

Section 182a of the Atomic Energy Act requires applicants for nuclear power plant operating licenses to include TSs as part of the license. The Commission's regulatory requirements related to the content of the TSs are contained in Title 10, *Code of Federal Regulations* (10 CFR), Part 50, Section 50.36, "Technical Specifications." The TS requirements in 10 CFR 50.36 include the following categories: (1) safety limits, limiting safety systems settings and control settings, (2) limiting conditions for operation, (3) surveillance requirements (SRs), (4) design features, and (5) administrative controls. The requirements for the auto-start of the motor driven AFW pumps resulting from a loss of all MFW pumps are included in the TSs.

As stated in 10 CFR 50.59(c)(1)(i), a licensee is required to submit a license amendment pursuant to 10 CFR 50.90 if a change to the TS is required. Furthermore, the requirements of 10 CFR 50.59 necessitate that the NRC approve the TS changes before the changes are implemented. WCNOC's submittal meets the requirements of 10 CFR 50.59(c)(1)(i) and 10 CFR 50.90.

General Design Criterion (GDC) 13 "Instrumentation and Control," of Appendix A "General Design Criteria for Nuclear Power Plants," to 10 CFR Part 50 requires, among other things, that instrumentation be provided to monitor variables and systems and that controls be provided to maintain these variables and systems within prescribed operating ranges. The proposed operational change continues to provide system monitoring and proper actuation to satisfy the anticipatory trip function. No changes are proposed to the safety related instrumentation.

GDC 20 through 29, "Protection and Reactivity Control Systems," of Appendix A, "General Design Criteria," to 10 CFR Part 50, provides the expectations for protection systems associated with reactor operation.

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.

The proposed change does not alter the ability for the ESFAS actuation functions to actuate. The proposed operational allowance is consistent with the WCGS design and analysis and ensures proper actuation to satisfy the anticipatory trip function. Therefore, requirements and the recommendations of these regulations and guidance continue to be met with the proposed change.

4.2 Precedent

Amendment No. 75 to Facility Operating License No. NPF-90 for Watts Bar Nuclear Plant, Unit 1, was issued March 4, 2009, ADAMS Accession Number ML090480566. Sections 3.4 and 3.5 of the NRC Safety Evaluation in that amendment are applicable to the proposed changes regarding the new Note for TS 3.3.2 Required Actions J.1 and J.2 and to the revised Condition J wording (i.e., one or more inoperable channels). Watts Bar letter WBN-TS-08-07 dated February 11, 2009 answered an NRC Request for Additional Information requesting additional discussion and justification for the 4 hour time allowance outside of the Condition J Completion Time clocks. The Watts Bar Nuclear Plant design has one Function 6.e. channel per MFW pump

Amendment No. 312 to Facility Operating License No. DPR-77 and Amendment No. 319 to Facility Operating License No. DPR-79 for the Sequoyah Nuclear Plant (SQN), Units 1 and 2, respectively, was issued August 29, 2008. The amendment approved changes to the action statement for less than the minimum number of channels operable and the mode of applicability for ESFAS Functional Unit 6.f of Table 3.3-3 regarding the AFW System start upon trip of the MFW pumps. TVA requested that this amendment be treated as an emergency amendment.

4.3 Significant Hazards Consideration

The amendment application proposes changes to the Wolf Creek Generating Station (WCGS) Technical Specifications Limiting Condition for Operation (LCO) of Technical Specification (TS) 3.3.2, "Engineered Safety Feature Actuation System (ESFAS) Instrumentation." Wolf Creek Nuclear Operating Corporation (WCNOC) is proposing to modify Technical Specification (TS) 3.3.2, ESFAS Instrumentation, Condition J, for the start of the motor driven auxiliary feedwater (AFW) pumps on the trip of all main feedwater (MFW) pumps. The proposed TS changes will allow two channels on one MFW pump to be inoperable in MODE 1 for up to 4 hours during the process of removing the pump from service or placing the pump in service and will provide a TS Condition that addresses more than one inoperable channel.

WCNOC has evaluated whether or not a significant hazards consideration is involved with the proposed amendment by focusing on the three standards set forth in 10 CFR 50.92, Issuance of Amendment:

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

   Response: No

   The design basis events which impose initiation of the AFW System requirements are loss of normal main feedwater, main feed line or main steam line break, loss of offsite power, and small break loss of coolant accident. These design bases event evaluations assume actuation of the AFW System due to loss of offsite power signal, steam generator water level - low-low or a safety injection signal. The anticipatory motor driven AFW pump auto-start signals from the MFW pumps are not credited in any design basis accidents and are, therefore, not part of the primary success path for postulated accident mitigation as defined by 10 CFR 50.36(c)(2)(ii), Criterion 3. Modifying MODE 1 Completion Time clock activation requirements and providing a Condition and Required Actions for more than one inoperable channel for this function will not impact any previously evaluated design basis accidents.

   Therefore, the proposed change does 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 previously evaluated?

   Response: No

   The proposed changes to the TSs allow two anticipatory motor driven AFW pump start channels to be inoperable in MODE 1 for up to 4 hours during the process of removing a MFW pump from service or placing a MFW pump in service. This change involves an anticipatory motor driven AFW pump auto-start function that is not credited in the accident analysis. The proposed change only affects the Completion Time clock activitation requirements for this auto-start function and the Required Actions to be taken for channel inoperabilities within this ESFAS function. The proposed change does not affect the ESFAS functions that actuate AFW due to loss of offsite power, steam generator water level – low-low or a safety injection signal.

   Therefore, the proposed change does not create the possibility of a new or different kind of accident from any previously evaluated.

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

   Response: No

   The proposed changes to the TSs involves the automatic start of the AFW pumps due to trip of both MFW pumps which is not an assumed start signal for design basis events. This change does not modify any values or limits involved in a safety related function or accident analysis.

Therefore, the proposed change does not involve a significant reduction in a margin of safety.

4.4 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. ENVIRONMENTAL CONSIDERATION

A review has determined that the proposed amendment would change a requirement with respect to 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. However, the proposed amendment does not involve (i) a significant hazards consideration, (ii) a significant change in the types or a 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 amendment meets the eligibility criterion for categorical exclusion set forth in 10 CFR 51.22(c)(9). Therefore, pursuant to 10 CFR 51.22(b), no environmental impact statement or environmental assessment need be prepared in connection with the proposed amendment.

6. REFERENCES

1. OE30225, "Main Feedwater Pump "Reset" design feature provides incorrect Main Feedwater Pump Status to Emergency Feedwater Pump Initiation Circuitry Resulting in missed Technical Specification requirements," Oconee Nuclear Station, December 16, 2009.

2. NRC letter, "Watts Bar Nuclear Plant – NRC Integrated Inspection Report 05000390/2008003 and 05000391/2008003 and Annual Assessment Meeting Summary," August 7, 2008.

Proposed Technical Specification Changes (Mark-up)

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
or more J. One Main Feedwater Pump trip channel (s) inoperable.	1. One ----------NOTE---------- (s) The inoperable channel may be bypassed for up to 2 hours for surveillance testing of other channels. ---------- INSERT 3.3-26 J.1 Place channel in trip. (s) OR J.2 Be in MODE 3.	 1 hour 7 hours
K. One channel inoperable.	----------NOTE---------- One additional channel may be tripped for up to 12 hours for surveillance testing. ---------- K.1 Place channel in bypass. OR K.2.1 Be in MODE 3. AND K.2.2 Be in MODE 5.	 72 hours 78 hours 108 hours

(continued)

INSERT 3.3-26

2. Two channels on one main feedwater pump may be inoperable in MODE 1 for up to 4 hours during the process of removing the pump from service or placing the pump in service.

No changes this page - for information only

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.

Revised Technical Specification Pages

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
J. One or more Main Feedwater Pump trip channel(s) inoperable.	----------NOTES---------- 1. One inoperable channel may be bypassed for up to 2 hours for surveillance testing of other channels. 2. Two channels on one main feedwater pump may be inoperable in MODE 1 for up to 4 hours during the process of removing the pump from service or placing the pump in service. ---------- J.1 Place channel(s) in trip. OR J.2 Be in MODE 3.	 1 hour 7 hours
K. One channel inoperable.	----------NOTE---------- One additional channel may be tripped for up to 12 hours for surveillance testing. ---------- K.1 Place channel in bypass. OR K.2.1 Be in MODE 3. AND K.2.2 Be in MODE 5.	 72 hours 78 hours 108 hours

(continued)

Proposed TS Bases Changes (for information only)

BASES

ACTIONS

I.1 and I.2 (continued)

The allowed Completion Time of Required Action I.2 is reasonable, based on operating experience, to reach MODE 3 from full power conditions in an orderly manner and without challenging unit systems. In MODE 3, these Functions are no longer required OPERABLE.

The Required Actions are modified by a Note that allows the inoperable channel to be bypassed for up to 12 hours for surveillance testing of other channels. The 72 hours allowed to place the inoperable channel in the tripped condition, and the 12 hours allowed for a second channel to be in the bypassed condition for testing, are justified in Reference 12.

J.1 and J.2

If one or more channel(s) are inoperable,

Condition J applies to the AFW pump start on trip of all MFW pumps.

This action addresses the train orientation of the BOP ESFAS for the auto start function of the AFW System on loss of all MFW pumps. The OPERABILITY of the AFW System must be assured by allowing automatic start of the AFW System pumps. ~~If a channel is inoperable,~~ 1 hour is allowed to place the channel(s) in the tripped condition. If the channel cannot be tripped in 1 hour, 6 additional hours are allowed to place the unit in MODE 3. The allowed Completion Time of 6 hours is reasonable, based on operating experience, to reach MODE 3 from full power conditions in an orderly manner and without challenging unit systems. In MODE 3, the unit does not have any analyzed transients or conditions that require the explicit use of the protection function noted above. The Required Actions are modified by ~~a Note that allows the~~ two Notes. Note 1 allows one inoperable channel to be bypassed for up to 2 hours for surveillance testing of other channels.

INSERT B 3.3.2-42

K.1, K.2.1, and K.2.2

Condition K applies to the RWST Level - Low Low Coincident with Safety Injection Function.

RWST Level - Low Low Coincident with SI provides actuation of switchover to the containment recirculation sumps. Note that this Function requires the bistables to energize to perform their required

INSERT B 3.3.2-42

Note 2 allows both oil pressure channels on one MFW pump to be inoperable in MODE 1 for up to 4 hours prior to starting the Completion Time clocks for Required Actions J.1 and J.2 during the process of removing the pump from service or placing the pump in service. A MFW pump is in service when the pump's stop valves are open, the governor control valves are either in manual or automatic control, and feedwater is being supplied to the steam generators (i.e., the MFW pump is at the required operating speed). One MFW pump may be in service in MODE 1 at reduced power levels if the other MFW pump has been removed from service for maintenance or has not yet been placed into service during power ascension. During the process of removing a MFW pump from service and prior to placing a MFW pump into service, its control circuitry is placed in a reset condition such that the two oil pressure switch channels on that pump continue to experience oil pressures indicative of an operating pump and, therefore, would not satisfy the AFW start function actuation logic (one tripped channel on each MFW pump in the same separation group will initiate an auxiliary feedwater actuation). This ESFAS actuation function is an anticipatory start signal for which no credit is taken in any safety analysis. The safety analyses credit actuation of the motor driven AFW pumps upon a low-low steam generator water level signal in any steam generator and after a safety injection signal. The time allowance of 4 hours is reasonable based on operating experience that this activity can be accomplished in this time period, and the credited accident mitigation functions are still available and unaffected by this Note. Note 2 allows for continued plant operation if one MFW pump must be taken out of service in MODE 1 or has not yet been place into service in MODE 1.