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July 23, 2002
LIC-02-0065

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

References: 1. Docket No. 50-285

**SUBJECT: Fort Calhoun Station Unit No. 1 License Amendment Request,
"Steam and Feedwater Systems"**

Pursuant to 10 CFR 50.90, Omaha Public Power District (OPPD) hereby requests the following amendment to Fort Calhoun Station (FCS) Technical Specifications 2.5. This proposed amendment will: (1) remove the requirement to demonstrate operability of redundant auxiliary feedwater system components, and (2) provide an allowed outage time to restore operability of the emergency feedwater storage tank. The proposed changes will minimize the unnecessary entry of Technical Specification 2.0.1 (General Requirements) and bring the FCS auxiliary feedwater specifications into closer alignment with the Improved Standard Technical Specifications. Each of these revisions is modeled after the improved standard Technical Specifications.

Attachment 1 provides the No Significant Hazards Evaluation and the technical bases for this requested change to the Technical Specifications. Attachment 2 contains a marked-up and clean version reflecting the requested Technical Specification and Basis changes.

OPPD requests approval of the proposed amendment by January 15, 2003. Once approved, the amendment shall be implemented within 120 days.

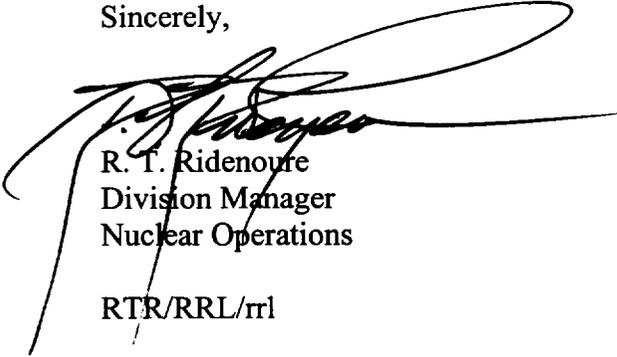
I declare under penalty of perjury that the foregoing is true and correct. (Executed on July 23, 2002)

Accl

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If you have any questions or require additional information, please contact Dr. R. L. Jaworski at (402) 533-6833.

Sincerely,



R. T. Ridenoure
Division Manager
Nuclear Operations

RTR/RRL/rri

Attachments:

1. Fort Calhoun Station's Evaluation
2. Markup of Technical Specification Pages

- c: E. W. Merschoff, NRC Regional Administrator, Region IV
A. B. Wang, NRC Project Manager
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Winston & Strawn

ATTACHMENT 1

Fort Calhoun Station's Evaluation for Amendment of Operating License

- 1.0 INTRODUCTION
- 2.0 DESCRIPTION OF PROPOSED AMENDMENT
- 3.0 BACKGROUND
- 4.0 REGULATORY REQUIREMENTS & GUIDANCE
- 5.0 TECHNICAL ANALYSIS
- 6.0 REGULATORY ANALYSIS
- 7.0 NO SIGNIFICANT HAZARDS CONSIDERATION (NSHC)
- 8.0 ENVIRONMENTAL CONSIDERATION
- 9.0 PRECEDENCE
- 10.0 REFERENCES

Fort Calhoun Station's Evaluation for Amendment of Operating License

1.0 INTRODUCTION

This letter is a request to amend Operating License DPR-40 for Fort Calhoun Station Unit No. 1.

The proposed change will revise Fort Calhoun Station (FCS) Technical Specifications 2.5. These changes are intended to (1) remove the requirement to demonstrate operability of redundant auxiliary feedwater system components, and (2) provide an allowed outage time to restore operability of the emergency feedwater storage tank. Each of these revisions are modeled after the improved standard Technical Specifications.

2.0 DESCRIPTION OF PROPOSED AMENDMENT

The proposed changes to Technical Specifications Section 2.5 will minimize the unnecessary entry of Technical Specification 2.0.1 (motherhood) and bring the FCS auxiliary feedwater (AFW) specifications into closer alignment with the Improved Standard Technical Specifications. The requirement to “demonstrate operability,” which has been interpreted as physically operating the redundant component is being removed and replaced with the requirements of the Improved Standard Technical Specifications. An allowed outage time or time to restore operability is also being added. These changes were made to prevent unnecessary perturbations of the plant and Technical Specification systems, specifically during conditions when one component is known to be inoperable. This amendment seeks to take advantage of the requirements in the Improved Standard Technical Specifications, Reference 10.1. The applicable modes and entry conditions are not being changed.

3.0 BACKGROUND

This proposal resulted from a FCS Condition Report corrective action which identified that non-compliance with these Technical Specifications caused the entry into specification 2.0.1 and any required reports. Presently, Technical Specifications Sections 2.5(1) and 2.5(2) do not address allowed outage time and provide no time for restoration of operability.

4.0 REGULATORY REQUIREMENTS & GUIDANCE

The proposed Technical Specifications Section 2.5 satisfies the regulatory requirements for equipment required for auxiliary feedwater per 10 CFR Part 50.34, NUREG-0635,

"NRC Requirements for Auxiliary Feedwater Systems," and NUREG-0737, "Clarification of TMI Action Plan Requirements". These changes will ensure that proper limiting conditions for operation are entered for equipment or functional inoperability.

5.0 TECHNICAL ANALYSIS

5.1 Design Basis

The proposed changes to Technical Specifications Section 2.5 will clarify the scope, allowed outage times, and actions required for the auxiliary feedwater system. These proposed changes have no affect upon design basis.

6.0 REGULATORY ANALYSIS

The present Technical Specification Sections 2.5(1) and 2.5(2) have no provisions for restoration of operability or a defined allowed outage time. The proposed changes to Technical Specifications Section 2.5(1), 2.5(2) and 2.5(3) will clarify the scope, allowed outage times, and actions required for the auxiliary feedwater system. The changes will provide clearer identification of: (1) required operability status, (2) allowed outage time or time to restore operability, and (3) the required actions for various conditions of inoperability. These proposed changes have no affect upon design basis. The proposed clarification of allowed outage times are consistent with those established in standard Technical Specifications (Reference 10.1 and 10.2).

The "applicability" section of Technical Specification 2.5 is being revised to be more consistent with the Improved Standard Technical Specifications. FCS Technical Specification 2.1.1 establishes the modes and conditions when the steam generators are relied upon for heat removal from the reactor coolant system. The modes as defined for FCS are slightly different than those defined in standard technical specification, and this is reflected in the proposed change.

The proposed amendment addresses the allowed outage times and completion times for restoration of equipment. The allowed outage time for Technical Specification 2.5(1) remains at 24 hours and is not being changed. However, to minimize the need to enter Technical Specification 2.0.1, requirements are provided and action statements for restoration of the system established for conditions when the 24 hour LCO is not met. The seven day completion time for an inoperable steam supply is reasonable based on the following reasons: the redundant steam supplies to the turbine driven AFW pump; the availability of the operable motor driven AFW pump; and the low probability of an event requiring the inoperable steam supply to the turbine driven AFW pump. The times for this specification are consistent with those established in Improved Standard Technical Specifications and FCS Technical Specification 2.0.1, which is presently invoked if operability is not restored. This proposed change is also supported by the discussion on

availability and reliability in Section 9.4.6 of the FCS Updated Safety Analysis Report (USAR). Thus, this change is “administrative” in nature.

The proposed allowed outage time of four hours for Technical Specification 2.5(3) is the same as that provided in NUREG-1432 for this emergency water source and is reasonable for Fort Calhoun Station based upon operating experience and the low probability of occurrence, and the redundancy of backup water sources. The 24 hours for restoration of equipment operability is identical to those established in NUREG-1432, and is reasonable for Fort Calhoun Station based upon operating experience, low probability of occurrence, and the redundancy of backup water sources. Alternate water sources are the condensate system, demineralized water, and the outside condensate storage tank. In an emergency such that these alternate sources are not available, makeup water can be obtained from the raw water system. The subsequent shutdown/cool times are consistent with those established in Improved Standard Technical Specifications and FCS Technical Specification 2.0.1, which is presently invoked if operability is not restored. This proposed change is also supported by the discussion on availability and reliability in Section 9.4.6 of the FCS USAR. Thus, this change is “administrative” in nature.

Technical Specification 2.5(1) now refers to AFW “train” rather than AFW “pump” and therefore Technical Specification 2.5(3) is no longer required and will be deleted. Technical Specification 2.5(3) establishes requirements for those valves, interlocks, and piping required to function during accident conditions associated with, and necessary for the AFW pumps to be operable. The operability requirements now established in specifications 2.5(1) and (2) make this specification redundant. Removal of this specification will also minimize confusion regarding the applicability of this specification.

The proposed Technical Specification 2.5(4) includes the conditions for operability. This was necessitated because of the changes to the applicability statement for Technical Specification 2.5.

The Basis Section for Technical Specification 2.5 was also changed to reflect these proposed changes and provide explanations for new terminology. An explanation as to when the steam generators and when the turbine driven AFW pump is needed was added. An explanation as to why there should be no mode changes with no operable AFW pumps was also provided.

In conclusion, based on the considerations discussed above, (1) there is 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.

7.0 NO SIGNIFICANT HAZARDS CONSIDERATION

Omaha Public Power District 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," as discussed below:

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

Response: No.

The proposed changes to Technical Specifications Sections 2.5 establish an allowed outage time and actions required for restoring operability. The proposed Technical Specifications address the regulatory requirements for equipment required for Auxiliary Feedwater Systems per NUREG-0635. The change will ensure that proper Limiting Conditions for Operation are entered for equipment or functional inoperability. There are no physical alterations being made to the Auxiliary Feedwater System or related systems. Therefore, the proposed changes do not involve a significant increase in the probability or consequences of an accident previously evaluated.

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

Response: No.

The proposed changes will not result in any physical alterations to the Auxiliary Feedwater System, any plant configuration, systems, equipment, or operational characteristics. There will be no changes in operating modes, or safety limits, or instrument limits. With the proposed changes in place, Technical Specifications will retain requirements for the Auxiliary Feedwater System. Therefore, 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 clarify the regulatory requirements for the Auxiliary Feedwater System as defined by NUREG-0635 and NUREG-0737. The times established are identical to those invoked by the present Technical Specifications or to those previously reviewed and approved for use by the NRC. The proposed

changes will not alter any physical or operational characteristics of the Auxiliary Feedwater System and associated systems and equipment. Therefore, the proposed changes do not involve a reduction in a margin of safety.

Based on the above, Omaha Public Power District concludes that the proposed amendment presents no significant hazards consideration under the standards set forth in 10 CFR 50.92(c), and, accordingly, a finding of "no significant hazards consideration" is justified.

8.0 ENVIRONMENTAL CONSIDERATION

Based on the above considerations, the proposed amendment does not involve and will not result in a condition which significantly alters the impact of Fort Calhoun Station on the environment. Thus, the proposed changes meet the eligibility criteria for categorical exclusion set forth in 10 CFR Part 51.22(c)(9), and, pursuant to 10 CFR Part 51.22(b), no environmental assessment need be prepared.

9.0 PRECEDENCE

The proposed Technical Specifications are patterned after the Improved Standard Technical Specifications as described in NUREG-1432, "Standard Technical Specifications, Combustion Engineering Plants" Reference 10.1. The NRC has approved specifications very similar to these proposed changes for Palisades Nuclear Power Plant and Calvert Cliffs Unit 1 and 2. These proposed specifications are also similar to Standard Technical Specifications as described in NUREG-0212, "Standard Technical Specifications for Combustion Engineering Plants" Reference 10.2

10.0 REFERENCES

- 10.1 NUREG-1432, "Standard Technical Specifications, Combustion Engineering Plants"
- 10.2 NUREG-0212, Revision 2, "Standard Technical Specifications for Combustion Engineering Pressurized Water Reactors"
- 10.3 NUREG-0737, "Clarification of TMI Action Plan Requirements"
- 10.4 NUREG-0635, "NRC Requirements for Auxiliary Feedwater Systems"
- 10.5 Title 10, Code of Federal Regulations, Part 50.34
- 10.6 FCS USAR Section 9.4 "Auxiliary Feedwater System"

ATTACHMENT 2

Markup of Technical Specification Pages

TECHNICAL SPECIFICATIONS

2.0 LIMITING CONDITIONS FOR OPERATION

2.5 Steam and Feedwater Systems

Applicability

~~Applies to the operating status of the steam and feedwater systems.~~ When steam generators are relied upon for reactor coolant system heat removal.

NOTE:

When heating the reactor coolant above 300°F the steam driven auxiliary feedwater (AFW) pump is only required to be OPERABLE prior to making the reactor critical.

Objective

To define certain conditions for the steam and feedwater system necessary to assure adequate decay heat removal.

Specifications

~~The reactor coolant shall not be heated above 300°F unless the following conditions are met:~~

- (1) Two AFW trains shall be OPERABLE when T_{cold} is above 300°F.
 - A. With one steam supply to the turbine driven AFW pump inoperable, restore the steam supply to OPERABLE status within 7 days and within ten days from discovery of failure to meet the LCO. ~~The motor driven auxiliary feedwater pump is operable. The reactor shall not be made critical unless the steam driven auxiliary feedwater pump is operable. During modes 1 and 2, one auxiliary feedwater pump may be inoperable for up to 24 hours, provided that the redundant component shall be tested to demonstrate operability.~~
 - B. With one AFW train inoperable for reasons other than condition A, restore the AFW train to OPERABLE status within 24 hours.
 - C. If the required action and associated completion times of condition A or B are not met, then the unit shall be placed in MODE 2 in 6 hours, in MODE 3 in the next 6 hours, and less than 300°F without reliance on the steam generators for decay heat removal within the next 18 hours.
 - D. With both AFW trains inoperable, then initiate actions to restore one AFW train to OPERABLE status immediately. Technical Specification (TS) 2.0.1 and all TS actions requiring MODE changes are suspended until one AFW train is restored to OPERABLE status.
- (2) The motor driven pump is required to be OPERABLE when T_{cold} is below 300°F and the steam generators are relied upon for heat removal. With the motor driven AFW train inoperable, then initiate actions to restore one AFW train to OPERABLE status immediately. Technical Specification (TS) 2.0.1 and all TS actions requiring MODE changes are suspended until one AFW train is restored to OPERABLE status.
- (23) A minimum of 55,000 gallons of water in the emergency feedwater storage tank (EFWST) and a backup water supply to the emergency feedwater storage tank shall be available. With the

TECHNICAL SPECIFICATIONS

EFWST inoperable, verify operability of the backup water supply within four hours and once per 12 hours thereafter, and restore the EFWST to OPERABLE status within 24 hours. If these action requirements cannot be satisfied, then the unit shall be placed in at least MODE 3 within 6 hours, and less than 300°F without reliance on the steam generators for decay heat removal within the next 18 hours.

- (3) ~~All valves, interlocks and piping associated with the above components required to function during accident conditions are operable. Manual valves that could interrupt auxiliary feedwater flow to the steam generators shall be locked in the required position to ensure a flow path to the steam generators.~~
- (4) The main steam stop valves are ~~operable~~ OPERABLE when T_{cold} is above 300°F and capable of closing in four seconds or less under no-flow conditions.

Basis

A reactor shutdown from power requires a removal of core decay heat. Immediate decay heat removal requirements are normally satisfied by the steam bypass to the condenser. Therefore, core decay heat can be continuously dissipated via the steam bypass to the condenser as long as feedwater to the steam generator is available. Normally, the capability to supply feedwater to the steam generators is provided by operation of the turbine cycle feedwater system. In the unlikely event of complete loss of electrical power to the station, decay heat removal is by steam discharge to the atmosphere via the main steam safety and atmospheric dump valves. Either auxiliary feed pump

2.0 **LIMITING CONDITIONS FOR OPERATION**

2.5 **Steam and Feedwater Systems**

can supply sufficient feedwater for removal of decay heat from the plant. Technical Specification 2.1.1 establishes when the steam generators are required for heat removal. Each train includes the pump, piping, instruments, and controls to ensure the availability of an OPERABLE flow path capable of taking suction from the EFWST and delivering water to the steam generators. The ten day completion time for 2.5(1)A provides a limit on the maximum time allowed for any combination of conditions to be inoperable during any continuous failure to meet the LCO. With one of the required AFW trains inoperable, actions must be taken to restore OPERABLE status within 24 hours. With no AFW trains OPERABLE the unit is in a seriously degraded condition with no safety related means for conducting a cooldown, and only limited means for conducting cooldown with nonsafety grade equipment. In such a condition the unit should not be perturbed by any action, including a power change, that might result in a trip.

The minimum amount of water in the emergency feedwater storage tank is the amount needed for 8 hours of such operation. The tank can be resupplied with water from the raw water system.⁽¹⁾

A closure time of 4 seconds for the main steam stop valves is considered adequate time and was selected as being consistent with expected response time for instrumentation as detailed in the steam line break analysis.⁽²⁾⁽³⁾

References

- (1) USAR, Section 9.4.6
- (2) USAR, Section 10.3
- (3) USAR, Section 14.12

Proposed
Technical Specification Pages

TECHNICAL SPECIFICATIONS

2.0 **LIMITING CONDITIONS FOR OPERATION**

2.5 **Steam and Feedwater Systems**

Applicability

When the steam generators are relied upon for reactor coolant system heat removal.

NOTE:

When heating the reactor coolant above 300°F the steam driven auxiliary feedwater (AFW) pump is only required to be OPERABLE prior to making the reactor critical.

Objective

To define certain conditions for the steam and feedwater system necessary to assure adequate decay heat removal.

Specifications

- (1) Two AFW trains shall be OPERABLE when T_{cold} is above 300°F.
 - A. With one steam supply to the turbine driven AFW pump inoperable, restore the steam supply to OPERABLE status within 7 days and within ten days from discovery of failure to meet the LCO.
 - B. With one AFW train inoperable for reasons other than condition A, restore AFW train to OPERABLE status within 24 hours.
 - C. If the required action and associated completion times of condition A or B are not met, then the unit shall be placed in MODE 2 in 6 hours, in MODE 3 in the next 6 hours, and less than 300°F without reliance on the steam generators for decay heat removal within the next 18 hours.
 - D. With both AFW trains inoperable, then initiate actions to restore one AFW train to OPERABLE status immediately. Technical Specification (TS) 2.0.1 and all TS actions requiring MODE changes are suspended until one AFW train is restored to OPERABLE status.
- (2) The motor driven pump is required to be OPERABLE when T_{cold} is below 300°F and the steam generators are relied upon for heat removal. With the motor driven AFW train inoperable, then initiate actions to restore one AFW train to OPERABLE status immediately. Technical Specification (TS) 2.0.1 and all TS actions requiring MODE changes are suspended until one AFW train is restored to OPERABLE status.
- (3) A minimum of 55,000 gallons of water in the emergency feedwater storage tank (EFWST) and a backup water supply to the emergency feedwater storage tank shall be available. With the EFWST inoperable verify operability of the backup water supply within four hours and once per 12 hours thereafter, and restore the EFWST to OPERABLE status within 24 hours. If these action requirements cannot be satisfied, then the unit shall be placed in at least MODE 3 within 6 hours, and less than 300°F without reliance on the steam generators for decay heat removal within the next 18 hours.
- (4) The main steam stop valves are OPERABLE when T_{cold} is above 300°F and capable of closing in four seconds or less under no-flow conditions.

TECHNICAL SPECIFICATIONS

2.0 LIMITING CONDITIONS FOR OPERATION

2.5 Steam and Feedwater Systems

Basis

A reactor shutdown from power requires a removal of core decay heat. Immediate decay heat removal requirements are normally satisfied by the steam bypass to the condenser. Therefore, core decay heat can be continuously dissipated via the steam bypass to the condenser as long as feedwater to the steam generator is available. Normally, the capability to supply feedwater to the steam generators is provided by operation of the turbine cycle feedwater system. In the unlikely event of complete loss of electrical power to the station, decay heat removal is by steam discharge to the atmosphere via the main steam safety and atmospheric dump valves. Either auxiliary feed pump can supply sufficient feedwater for removal of decay heat from the plant. Technical Specification 2.1.1 establishes when the steam generators are required for heat removal. Each train includes the pump, piping, instruments, and controls to ensure the availability of an OPERABLE flow path capable of taking suction from the EFWST and delivering water to the steam generators. The ten day completion time for 2.5(1)A provides a limit on the maximum time allowed for any combination of conditions to be inoperable during any continuous failure to meet the LCO. With one of the required AFW trains inoperable, actions must be taken to restore OPERABLE status within 24 hours. With no AFW trains OPERABLE the unit is in a seriously degraded condition with no safety related means for conducting a cooldown, and only limited means for conducting cooldown with nonsafety grade equipment. In such a condition the unit should not be perturbed by any action, including a power change, that might result in a trip.

The minimum amount of water in the emergency feedwater storage tank is the amount needed for 8 hours of such operation. The tank can be resupplied with water from the raw water system.⁽¹⁾

A closure time of 4 seconds for the main steam stop valves is considered adequate time and was selected as being consistent with expected response time for instrumentation as detailed in the steam line break analysis.⁽²⁾⁽³⁾

References

- (1) USAR, Section 9.4.6
- (2) USAR, Section 10.3
- (3) USAR, Section 14.12