



444 South 16th Street Mall  
Omaha NE 68102-2247

April 10, 2002  
LIC-02-0044

U.S. Nuclear Regulatory Commission  
ATTN.: Document Control Desk  
Washington, DC 20555-0001

Reference: 1. Docket No. 50-285  
2. Fort Calhoun Station Unit No. 1 License Amendment Request,  
"Allowance to Perform Recirculation Actuation Logic Channel Functional  
Test," dated April 1, 2002 (LIC-02-0040)

**SUBJECT: Revision to Fort Calhoun Station Unit No. 1 License Amendment  
Request, "Allowance to Perform Recirculation Actuation Logic  
Channel Functional Test"**

Pursuant to 10 CFR 50.90, Omaha Public Power District (OPPD) hereby transmits a complete revision to its application for exigent amendment to the Fort Calhoun Station Unit 1 (FCS) Operating License, superseding that submitted as Reference 2. Further engineering analysis has revealed an improved approach to the issues described in Reference 2. Attachment 1 provides the No Significant Hazards Evaluation and the technical bases for this requested change to the Technical Specifications (TS). Attachments 2 and 3 contain a marked-up and clean typed version reflecting the requested Technical Specification and Basis changes. This letter requests the same change in specifications as requested in Reference 2; only the basis section has been modified to reflect an alternate approach of performing the associated surveillance testing. The exigency and why it could not have been avoided are addressed in Attachment 4 pursuant to 10 CFR 50.91(a)(6)(vi).

The proposed amendment adds an allowance to perform the surveillance test of Table 3-2, Item 20 (Recirculation Actuation Logic Channel Functional Test) under administrative controls while components in excess of those allowed by Conditions a, b, d, and e of Technical Specification (TS) 2.3(2) are inoperable provided they are returned to operable status within one hour. This allowance applies only to the remainder of Cycle 20 and the entirety of Cycle 21.

The proposed license amendment is needed to maintain compliance with TS 2.3(2) during surveillance testing using dedicated operator actions. TS 2.3(2) only permits one of its listed conditions to be true at any one time. Current performance of the surveillance test of Table 3-2, Item 20 requires entry into TS 2.0.1(1) since components in excess of those allowed by Conditions a, b, d, and e of TS 2.3(2) would be inoperable. Entry into TS 2.0.1(1) requires that

A001

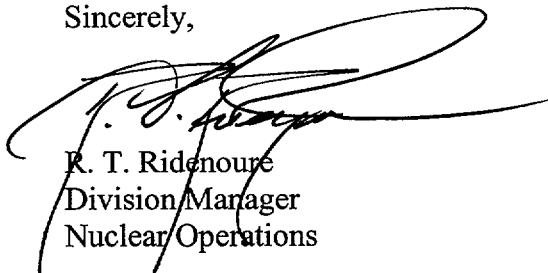
FCS be placed in at least hot shutdown within 6 hours, in at least subcritical and less than 300°F within the next 6 hours, and in at least cold shutdown within the following 30 hours. If the Recirculation Actuation Logic Channel Functional Test cannot be performed, this will ultimately necessitate a unit shutdown per TS 2.15.

OPPD requests approval of the proposed license amendment on an exigent basis and issuance of the amendment no later than April 19, 2002.

I declare under penalty of perjury that the forgoing is true and correct. (Executed on April 10, 2002.)

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

Sincerely,



R. T. Ridenoure  
Division Manager  
Nuclear Operations

RTR/TRB/trb

Attachments

1. Fort Calhoun Station's Revised Evaluation for Amendment of Operating License
2. Mark-up of Technical Specifications
3. Clean Version of Technical Specifications
4. Explanation of the Exigency and Why the Situation Could Not Have Been Avoided

c: E. W. Merschoff, NRC Regional Administrator, Region IV  
A. B. Wang, NRC Project Manager  
W. C. Walker, NRC Senior Resident Inspector  
Division Administrator, Public Health Assurance, State of Nebraska  
Winston & Strawn

**Attachment 1**

**Fort Calhoun Station's Revised Evaluation  
For  
Allowance to Perform Recirculation Actuation Logic Channel Functional Test**

- 1.0 INTRODUCTION
- 2.0 DESCRIPTION OF PROPOSED AMENDMENT
- 3.0 BACKGROUND
- 4.0 REGULATORY REQUIREMENTS AND 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

## 1.0 INTRODUCTION

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

Omaha Public Power District (OPPD) proposes to add an allowance to perform the surveillance testing of Table 3-2, Item 20 (Recirculation Actuation Logic Channel Functional Test) under administrative controls while components in excess of those allowed by Conditions a, b, d, and e of Technical Specification (TS) 2.3(2) are inoperable provided they are returned to operable status within one hour. This allowance applies only to the remainder of Cycle 20 and the entirety of Cycle 21. This change is being proposed to allow the performance of the Recirculation Actuation Logic Channel Functional Test without violating Technical Specifications or necessitating a unit shutdown due to inability to perform the test.

## 2.0 DESCRIPTION OF PROPOSED AMENDMENT

The proposed changes are as follows:

- (1) Add the following item "i" to TS 2.3(2), page 2-21: "Components in excess of those allowed by Conditions a, b, d, and e may be inoperable provided they are returned to operable status within 1 hour when performing the quarterly recirculation actuation logic channel functional test (Table 3-2 item 20) under administrative controls. This allowance applies only to the remaining portion of Cycle 20 and all of Cycle 21."
- (2) Add the following to the corresponding Basis text describing actions to be taken due to inoperability of system components: "Components in excess of those allowed by Conditions a, b, d, and e may be inoperable provided they are returned to operable status within 1 hour when performing the quarterly recirculation actuation logic channel functional test (Table 3-2 item 20) under administrative controls. This allowance applies only to the remaining portion of Cycle 20 and all of Cycle 21. This prevents violating Technical Specifications or necessitating a unit shutdown due to inability to perform the quarterly recirculation actuation logic channel functional test. These administrative controls consist of stationing three dedicated operators at the Engineered Safeguards Features (ESF) panel controls in the control room. In this way, the following conditions are maintained and actions can be rapidly performed should a valid ESF actuation occur:
  - the appropriate Safety Injection Refueling Water Tank (SIRWT) to Safety Injection (SI) and Containment Spray (CS) pumps suction valve control switch is maintained in the OPEN position (spring-return switch),

- the appropriate SI and CS pumps to SIRWT recirculation minimum flow valve control switch is maintained in the OPEN position (spring-return switch),
- the appropriate Recirculation Actuation Signal (RAS) lockout relays and initiating signal can be rapidly reset,
- the appropriate SI and CS pumps to SIRWT recirculation minimum flow valve control switch can be rapidly returned to the AUTO position,
- the appropriate SIRWT to SI and CS pumps suction valve control switch can be rapidly returned to the AUTO position, and
- the appropriate Containment Sump to SI and CS pumps suction valve control switch can be rapidly returned to the AUTO position.

The appropriate SI and CS pumps to SIRWT recirculation minimum flow valve control switch and the appropriate SIRWT to SI and CS pumps suction valve control switch are held in the OPEN position during the test to enhance the reliability of the appropriate SI and CS pumps by maintaining the associated valves open.”

### 3.0 BACKGROUND

The proposed amendment adds an allowance to perform the surveillance test of Table 3-2, Item 20 (Recirculation Actuation Logic Channel Functional Test) under administrative controls while components in excess of those allowed by Conditions a, b, d, and e of Technical Specification (TS) 2.3(2) are inoperable provided they are returned to operable status within one hour. This allowance applies only to the remainder of Cycle 20 and the entirety of Cycle 21.

The proposed license amendment is needed to maintain compliance with TS 2.3(2) during surveillance testing. TS 2.3(2) only permits one of its listed conditions to be true at any one time. Current performance of the surveillance test of Table 3-2, Item 20 requires entry into TS 2.0.1(1) since components in excess of those allowed by Conditions a, b, d, and e of TS 2.3(2) would be inoperable. Entry into TS 2.0.1(1) requires that FCS to be placed in at least hot shutdown within 6 hours, in at least subcritical and less than 300°F within the next 6 hours, and in at least cold shutdown within the following 30 hours. If the Recirculation Actuation Logic Channel Functional Test cannot be performed, this will ultimately necessitate a unit shutdown per TS 2.15.

FCS was licensed for full power operation in 1973 by the NRC. The Emergency Core Cooling System (ECCS) was designed with three HPSI pumps and two LPSI pumps that have a common recirculation minimum flow header to the SIRWT. During a Loss Of Coolant Accident (LOCA), or other accidents which generate a Safety Injection Actuation Signal (SIAS), the HPSI and LPSI pumps start and pressurize their injection headers. If Reactor Coolant System (RCS) pressure is higher than the shutoff head of these pumps, a single recirculation minimum flow line provides sufficient flow to allow all five pumps to operate without damage to the pumps.

After an accident that allows injection into the RCS, the recirculation actuation signal (RAS) automatically switches the HPSI and CS pump suction to the containment sump when the water level in the SIRWT falls to a preset level. At this time, the flow path from the containment sump is opened, the SIRWT flow path is closed, the LPSI pumps are stopped automatically, and water is recirculated from the containment sump by the HPSI and CS pumps.

The recirculation minimum flow line to the SIRWT is isolated by two valves in series to prevent depositing potentially contaminated water into a tank outside of the reactor containment building. These valves are normally open and fail open on loss of air or loss of 125 VDC power. These valves perform a passive safety function in the OPEN position. The valves are designed to provide a recirculation minimum flow path from the SI and CS pumps to the SIRWT to prevent deadheading the pumps during SI and CS. These valves also perform an active safety function in the closed position to isolate the SIRWT on a RAS signal. This effectively prevents depositing potentially radioactive water into a tank outside the containment building. At this stage of the accident, isolation of the recirculation minimum flow path is not a concern with respect to pump operability since reactor coolant pressure would be well below the pump's discharge head and a minimum flow rate would be achieved.

During the Recirculation Actuation Logic Channel Functional Test, a RAS signal is generated and one of the recirculation minimum flow valves closes. Until a recent NRC inspection, OPPD thought that an operator could be used during the test to ensure that in the event of an ESF actuation the test could be rapidly terminated and the recirculation minimum flow valve opened to allow a minimum flow path for the HPSI and LPSI pumps. The actions required to be performed to allow the recirculation minimum flow valve to open can be rapidly performed by one dedicated operator in less than one minute. During the NRC Safety System Design and Performance Capability (SSDPC) inspection in February 2002, station personnel were informed that manual actions could not be used in lieu of automatic actions to maintain equipment operable without prior NRC approval. A comprehensive review was conducted of plant procedures that used manual actions in place of automatic actions in order to allow equipment to remain operable. The quarterly Recirculation Actuation Logic Channel Functional Test is the only test identified to date in this review requiring a Technical Specification change to perform. A test of one of the two channels was due to be performed on March 21, 2002, and will exceed its surveillance interval and extension on April 21, 2002. The station is currently scheduled to begin a 30 day refueling outage on May 3, 2002.

FCS has previously credited the use of dedicated operators to allow the tested equipment to remain operable. In upgrading the procedure to eliminate this practice, this channel functional test was identified as a procedure that could not be performed without seeking NRC approval for some change to the testing methodology. A number of possible solutions have been proposed, but in the short term this proposed amendment was determined to be the most viable approach. This amendment would allow the continued

testing of the logic channels using an improved methodology (i.e., one that does not isolate the recirculation minimum flow path) for a limited time to allow careful consideration of the appropriate approach to any permanent changes to the Technical Specifications or the plant.

The one hour completion time is considered sufficient time to perform the quarterly Recirculation Actuation Logic Channel Functional Test. Additionally, the one hour completion time ensures that prompt action is taken to restore the required ECCS capacity. The one hour completion time allowed to satisfy ECCS requirements is acceptable based on the small probability of an event occurring during this time interval that the test is performed and the desire to minimize plant shutdown transients.

OPPD requests that this allowance be in place for the remainder of Cycle 20 and all of Cycle 21. A modification to the plant may not be desirable. A permanent change to the technical specifications may be the best solution. A permanent change will require additional technical work and the necessary time for review by the NRC staff. This review and comment period generally takes several months. OPPD plans to advise the NRC of the permanent resolution and/or submit an appropriate License Amendment Request no later than January 31, 2003.

#### 4.0 REGULATORY REQUIREMENTS AND GUIDANCE

FCS was licensed for construction prior to May 21, 1971, and at that time committed to the preliminary General Design Criteria (GDC). These preliminary design criteria are contained in the FCS Updated Safety Analysis Report (USAR) Appendix G.

This activity complies with FCS Design Criterion 44, "Emergency Core Cooling Systems Capability," which is similar to 10 CFR 50 Appendix A GDC 35, "Emergency Core Cooling." FCS Design Criterion 44 states that at least two emergency core cooling systems, preferably of different design principles, each with a capability for accomplishing abundant emergency core cooling, shall be provided. Each emergency core cooling system and the core shall be designed to prevent fuel and clad damage that would interfere with the emergency core cooling function and to limit the clad metal-water reaction to negligible amounts for all sizes of breaks in the reactor coolant pressure boundary, including the double-ended rupture of the largest pipe. The performance of each emergency core cooling system shall be evaluated conservatively in each area of uncertainty. The systems shall not share active components and shall not share other features or components unless it can be demonstrated that (a) the capability of the shared feature or component to perform its required function can be readily ascertained during reactor operation, (b) failure of the shared feature or component does not initiate a loss-of-coolant accident, and (c) capability of the shared feature or component to perform its required function is not impaired by the effects of a loss-of-coolant accident and is not lost during the entire period this function is required following the accident.

This activity also complies with FCS Design Criterion 46, "Testing of Emergency Core Cooling Systems Components," which states that design provisions shall be made so that active components of the emergency core cooling systems, such as pumps and valves, can be tested periodically for operability and required functional performance. This activity also complies with FCS Design Criterion 47, "Testing of Emergency Core Cooling Systems," which states that a capability shall be provided to test periodically the delivery capability of the emergency core cooling systems at a location as close to the core as practical. This activity also complies with FCS Design Criterion 48, "Testing of Operational Sequence of Emergency Core Cooling Systems," which states that a capability shall be provided to test under conditions as close to design as practical the full operational sequence that would bring the emergency core cooling systems into action, including the transfer to alternate power sources. These FCS Design Criteria are similar to 10 CFR 50 Appendix A GDC 37, "Testing of Emergency Core Cooling System."

This activity also complies with FCS Design Criterion 52, "Containment Heat Removal Systems," which is similar to 10 CFR 50 Appendix A GDC 38, "Containment Heat Removal." FCS Design Criterion 52 states that where active heat removal systems are needed under accident conditions to prevent exceeding containment design pressure, at least two systems, preferably of different principles, each with full capacity, shall be provided.

This activity also complies with FCS Design Criterion 59, "Testing of Containment Pressure-Reducing Systems Components," which states that the containment pressure reducing systems shall be designed so that active components, such as pumps and valves, can be tested periodically for operability and required functional performance. This activity also complies with FCS Design Criterion 60, "Testing of Containment Spray Systems," which states that a capability shall be provided to test periodically the delivery capability of the containment spray system at a position as close to the spray nozzles as is practical. This activity also complies with FCS Design Criterion 61, "Testing of Operational Sequence of Containment Pressure-Reducing Systems," which states that a capability shall be provided to test under conditions as close to the design as practical the full operational sequence that would bring the containment pressure-reducing systems into action, including the transfer to alternate power sources. These FCS Design Criteria are similar to 10 CFR 50 Appendix A GDC 40, "Testing of Containment Heat Removal System."

All of these FCS Design Criteria will continue to be satisfied after the change is made to provide the allowance to perform the quarterly surveillance test of Table 3-2, Item 20 (Recirculation Actuation Logic Channel Functional Test) under administrative controls while components in excess of those allowed by Conditions a, b, d, and e of Technical Specification (TS) 2.3(2) are inoperable provided they are returned to operable status within one hour. This allowance applies only to the remaining portion of Cycle 20 and all of Cycle 21.



## 5.0 TECHNICAL ANALYSIS

### Evaluation

Operating any centrifugal pump at shutoff head with the recirculation minimum flow path isolated will eventually cause overheating, cavitation, and excessive pump vibration. All of these can cause damage and failure of the pump. The Recirculation Actuation Logic Channel Functional Test methodology will be revised to ensure the recirculation minimum flow path remains available throughout the test.

The test procedure requires the use of two dedicated operators who are briefed on the actions required to maintain recirculation minimum flow and SIRWT suction alignment to the SI and CS pumps during the RAS testing. A third dedicated operator is also assigned and briefed on the actions to implement the appropriate restorative actions if a valid ESF actuation occurs. The appropriate steps within the Recirculation Actuation Logic Channel Functional Test procedure provide directions for this third operator to reset three lockout relays, thus returning the tested train to normal. It should also be noted that if a recirculation minimum flow valve or SIRWT to SI and CS pumps suction valve control switch is inadvertently released, the switch can be rapidly returned to the OPEN position, thus reopening the affected valve and returning it to the open position.

In order to assess the adequacy of operator action as a substitute for an automatic operation function when performing the Recirculation Actuation Logic Channel Functional Test, the following factors were evaluated:

- the length of time for an operator to complete the manual actions,
- the length of time within which manual actions must be completed to ensure equipment availability, and
- the risk associated with performing the manual actions. This includes assessment of the complexity of tasks and the probability of failure.

### Risk Evaluation

In accordance with 10 CFR 50.65(a)(4), the risk associated with performing the Recirculation Actuation Logic Channel Functional Test using dedicated operators has been determined to be small. This considers the function of the dedicated operators performing manual actions as part of the test to maintain system availability for the injection phase.

The operator actions to hold the appropriate SIRWT to SI and CS pumps suction valve control switch and the appropriate SI and CS pumps to SIRWT recirculation minimum flow valve control switch in the OPEN position, thus maintaining the recirculation minimum flow path open, are judged to be highly reliable. Additionally, if either operator fails to maintain his valve open, the single action of returning the switch to the OPEN position is sufficient to immediately recover and restore the valve to the open position.

These two operators perform no active restoration functions, therefore, the risk is less than that evaluated in Reference 2. Therefore, the conclusion of the qualitative risk assessment is that the performance of the Recirculation Actuation Logic Channel Functional Test is a low risk evolution.

### Conclusion

Crediting dedicated operators to perform manual actions to maintain system availability during the performance of the Recirculation Actuation Logic Channel Functional Test is considered acceptable. This conclusion is based on a risk evaluation that concluded the risk of performance of the Recirculation Actuation Logic Channel Functional Test using dedicated operators is small due to the short duration of the test, the high reliability of the operator actions, and the recoverable nature of the operator actions.

### USAR Chapter 14 Accident Analysis Review

An evaluation was performed on the impact of manual operator actions to maintain system availability on the USAR Chapter 14 safety analysis and is summarized as follows:

For the purposes of comparison with the USAR Chapter 14 safety analysis, performance of the Recirculation Actuation Logic Channel Functional Test requires the use of a dedicated operator to hold open the SIRWT to SI and CS pumps suction valve control switch until the RAS relays have been reset. If it is postulated the operator fails to hold the valve open, then one train of HPSI, LPSI, and CS is rendered inoperable. Loss of one train of HPSI, LPSI, and CS is equivalent to loss of off-site power and the failure of one diesel to start. This scenario has been previously evaluated and meets the ECCS design basis. One train of HPSI, LPSI, and CS will remain available and satisfy their design function. USAR Chapter 14 safety analyses in the most limiting cases only assumes one train of HPSI, LPSI, and CS. A second dedicated operator's responsibility is to maintain recirculation minimum flow to the SIRWT. A third dedicated operator is also assigned and briefed on the actions to implement the appropriate restorative actions if a valid ESF actuation occurs.

The performance of these activities has no effect on any accident scenario. This is because maintenance of pump suction and recirculation minimum flow to the SIRWT has no impact on the injection flow paths into the reactor coolant system (RCS). If the RCS pressure is below the HPSI and LPSI pumps shutoff head pressure, then injection will not be affected. CS is not affected since CS pump start is initiated by a containment spray actuation signal (CSAS) and delivery into containment will occur with a containment pressure lower than the CS pump shutoff head pressure.

## 6.0 REGULATORY ANALYSIS

The proposed amendment gives an allowance to perform the quarterly surveillance test of Table 3-2, Item 20 (Recirculation Actuation Logic Channel Functional Test) under

administrative controls while components in excess of those allowed by Conditions a, b, d, and e of Technical Specification (TS) 2.3(2) are inoperable provided they are returned to operable status within one hour. This complies with the regulatory requirements in FCS Design Criteria 44, 46, 47, 48, 52, 59, 60, and 61 by continuing to prevent fuel and clad damage and prevent containment overpressurization, while allowing for proper surveillance testing of Emergency Core Cooling Systems and Containment Heat Removal and Pressure-Reducing Systems. This allowance applies only to the remaining portion of Cycle 20 and all of Cycle 21. Crediting dedicated operators to perform manual actions to maintain system availability during the performance of the Recirculation Actuation Logic Channel Functional Test is considered acceptable. The one hour completion time is considered sufficient time to perform the quarterly Recirculation Actuation Logic Channel Functional Test. Additionally, the one hour completion time ensures that prompt action is taken to restore the required ECCS capacity. The one hour completion time allowed to satisfy ECCS requirements is acceptable based on the small probability of an event occurring during this time interval that the test is performed and the desire to minimize plant shutdown transients.

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

OPPD has evaluated whether or not a significant hazards consideration is involved with the proposed amendment(s) 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.

Allowing performance of the quarterly surveillance test of Table 3-2, Item 20 (Recirculation Actuation Logic Channel Functional Test) under administrative controls while components in excess of those allowed by Conditions a, b, d, and e of Technical Specification (TS) 2.3(2) are inoperable provided they are returned to operable status within one hour will not affect the probability of any accident since the performance of the Recirculation Actuation Logic Channel Functional Test is not identified as the initiator of any analyzed event. This allowance applies only to the remaining portion of Cycle 20 and all of Cycle 21. The proposed change will still require that the surveillance test be performed and the required ECCS systems to be available. The one hour completion time is considered sufficient time to perform the quarterly Recirculation Actuation Logic Channel Functional Test. Additionally, the

one hour completion time ensures that prompt action is taken to restore the required ECCS capacity. The administrative controls in place will ensure that all required ECCS components remain available with compensatory dedicated operators. This change will not alter assumptions relative to the mitigation of an accident or transient event. The performance of this activity has no effect on any accident scenario. Therefore, the proposed change does not involve a significant increase in the 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.

These proposed changes do not involve a physical alteration of the plant (no new or different type of equipment will be installed) or change the methods governing plant operation. The proposed change does not involve any physical changes to plant systems, structures or components (SSCs) or the manner in which these SSCs are operated, maintained, modified or inspected. Therefore, these changes do not create the possibility of a new or different kind of accident from any accident previously evaluated.

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

Response: No.

The operator actions to hold the appropriate SIRWT to SI and CS pumps suction valve control switch and the appropriate SI and CS pumps to SIRWT recirculation minimum flow valve control switch in the OPEN position, thus maintaining the recirculation minimum flow path open, are judged to be highly reliable. Additionally, if either operator fails to maintain his valve open, the single action of returning the switch to the OPEN position is sufficient to immediately recover and restore the valve to the open position. Therefore, the conclusion of the qualitative risk assessment is that the performance of the Recirculation Actuation Logic Channel Functional Test is a low risk evolution. The proposed change does not affect the frequency of the Recirculation Actuation Logic Channel Functional Test. The administrative controls in place will ensure that all required ECCS components remain available. The minimum numbers of ECCS components required by the FCS accident analyses remain available with compensatory dedicated operators. The proposed change will not significantly impact the availability or reliability of the plant's systems or their ability to respond to plant transients and accidents. The one hour completion time allowed to satisfy ECCS requirements is acceptable based on the small probability of an event occurring during this time interval that the test is performed and the desire to minimize plant shutdown transients. The performance of this activity has no effect on any accident scenario. Therefore, the proposed changes do not involve a significant reduction in a margin of safety.

Based on the above, OPPD 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

The proposed amendment adds an allowance to perform the surveillance testing of Table 3-2, Item 20 (Recirculation Actuation Logic Channel Functional Test) under administrative controls while components in excess of those allowed by Conditions a, b, d, and e of Technical Specification (TS) 2.3(2) are inoperable provided they are returned to operable status within one hour. This allowance applies only to the remainder of Cycle 20 and the entirety of Cycle 21. The changes meet the eligibility criteria for categorical exclusion set forth in 10 CFR 51.22(c)(9) for the following reasons:

- As demonstrated in Section 7.0, the proposed amendment does not involve a significant hazards consideration.
- The proposed amendment does not result in a significant change in the types or increase in the amounts of any effluents that may be released off-site. Also, the TS change does not introduce any new effluents or significantly increase the quantities of existing effluents. As such, the change cannot significantly affect the types or amounts of any effluents that may be released off-site.
- The proposed amendment does not result in a significant increase in individual or cumulative occupational radiation exposure. The proposed change does not result in any physical plant changes. No new surveillance requirements are anticipated as a result of these changes that would require additional personnel entry into radiation controlled areas. Therefore, the amendment has no significant effect on either 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.

## 9.0 PRECEDENCE

NRC issuance of an amendment to the Indian Point Unit 2 Facility Operating License to specify operator actions for performance of degraded voltage and undervoltage trip surveillance tests, dated December 28, 2000 (TAC No. MA6236).

## 10.0 REFERENCES

- 10.1 Fort Calhoun Station Updated Safety Analysis Report, Section 14.15.1
- 10.2 Fort Calhoun Station Updated Safety Analysis Report, Section 6.2.3.1

- 10.3 Fort Calhoun Station Updated Safety Analysis Report, Section 14.15.3
- 10.4 Fort Calhoun Station Updated Safety Analysis Report, Appendix K

**Attachment 2**

**Markup of  
Technical Specification Pages  
&  
Bases Pages**

## TECHNICAL SPECIFICATIONS

### 2.0 **LIMITING CONDITIONS FOR OPERATION**

#### 2.3 **Emergency Core Cooling System** (Continued)

##### (2) **Modification of Minimum Requirements**

During power operation, the Minimum Requirements may be modified to allow one of the following conditions to be true at any one time. If the system is not restored to meet the minimum requirements within the time period specified below, the reactor shall be placed in a hot shutdown condition within 12 hours. If the minimum requirements are not met within an additional 48 hours the reactor shall be placed in a cold shutdown condition within 24 hours.

- a. One low-pressure safety injection pump may be inoperable provided the pump is restored to operable status within 24 hours.
- b. One high-pressure safety injection pump may be inoperable provided the pump is restored to operable status within 24 hours.
- c. One shutdown heat exchanger may be inoperable for a period of no more than 24 hours.
- d. Any valves, interlocks or piping directly associated with one of the above components and required to function during accident conditions shall be deemed to be part of that component and shall meet the same requirements as listed for that component.
- e. Any valve, interlock or piping associated with the safety injection and shutdown cooling system which is not covered under d. above but which is required to function during accident conditions may be inoperable for a period of no more than 24 hours.
- f. One safety injection tank may be inoperable for reasons other than g. or h. below for a period of no more than 24 hours.
- g. Level and/or pressure instrumentation on one safety injection tank may be inoperable for a period of 72 hours.
- h. One safety injection tank may be inoperable due to boron concentration not within limits for a period of no more than 72 hours.
- i. Components in excess of those allowed by Conditions a, b, d, and e may be inoperable provided they are returned to operable status within 1 hour when performing the quarterly recirculation actuation logic channel functional test (Table 3-2 item 20) under administrative controls. This allowance applies only to the remaining portion of Cycle 20 and all of Cycle 21.



## TECHNICAL SPECIFICATIONS

### 2.0 **LIMITING CONDITIONS FOR OPERATION**

#### 2.3 **Emergency Core Cooling System (Continued)**

Components in excess of those allowed by Conditions a, b, d, and e may be inoperable provided they are returned to operable status within 1 hour when performing the quarterly recirculation actuation logic channel functional test (Table 3-2 item 20) under administrative controls. This allowance applies only to the remaining portion of Cycle 20 and all of Cycle 21. This prevents violating Technical Specifications or necessitating a unit shutdown due to inability to perform the quarterly recirculation actuation logic channel functional test. These administrative controls consist of stationing three dedicated operators at the Engineered Safeguards Features (ESF) panel controls in the control room. In this way, the following conditions are maintained and actions can be rapidly performed should a valid ESF actuation occur:

- the appropriate Safety Injection Refueling Water Tank (SIRWT) to Safety Injection (SI) and Containment Spray (CS) pumps suction valve control switch is maintained in the OPEN position (spring-return switch),
- the appropriate SI and CS pumps to SIRWT recirculation minimum flow valve control switch is maintained in the OPEN position (spring-return switch),
- the appropriate Recirculation Actuation Signal (RAS) lockout relays and initiating signal can be rapidly reset,
- the appropriate SI and CS pumps to SIRWT recirculation minimum flow valve control switch can be rapidly returned to the AUTO position,
- the appropriate SIRWT to SI and CS pumps suction valve control switch can be rapidly returned to the AUTO position, and
- the appropriate Containment Sump to SI and CS pumps suction valve control switch can be rapidly returned to the AUTO position.

The appropriate SI and CS pumps to SIRWT recirculation minimum flow valve control switch and the appropriate SIRWT to SI and CS pumps suction valve control switch are held in the OPEN position during the test to enhance the reliability of the appropriate SI and CS pumps by maintaining the associated valves open.

#### **References**

- (1) USAR, Section 14.15.1
- (2) USAR, Section 6.2.3.1
- (3) USAR, Section 14.15.3
- (4) USAR, Appendix K
- (5) Omaha Public Power District's Submittal, December 1, 1976
- (6) Technical Specification 2.1.2, Figure 2-1B
- (7) USAR, Section 4.4.3

**Attachment 3**

**Retyped**  
**Technical Specification Pages**  
**&**  
**Bases Pages**

## TECHNICAL SPECIFICATIONS

### 2.0 **LIMITING CONDITIONS FOR OPERATION**

#### 2.3 **Emergency Core Cooling System** (Continued)

##### (2) **Modification of Minimum Requirements**

During power operation, the Minimum Requirements may be modified to allow one of the following conditions to be true at any one time. If the system is not restored to meet the minimum requirements within the time period specified below, the reactor shall be placed in a hot shutdown condition within 12 hours. If the minimum requirements are not met within an additional 48 hours the reactor shall be placed in a cold shutdown condition within 24 hours.

- a. One low-pressure safety injection pump may be inoperable provided the pump is restored to operable status within 24 hours.
- b. One high-pressure safety injection pump may be inoperable provided the pump is restored to operable status within 24 hours.
- c. One shutdown heat exchanger may be inoperable for a period of no more than 24 hours.
- d. Any valves, interlocks or piping directly associated with one of the above components and required to function during accident conditions shall be deemed to be part of that component and shall meet the same requirements as listed for that component.
- e. Any valve, interlock or piping associated with the safety injection and shutdown cooling system which is not covered under d. above but which is required to function during accident conditions may be inoperable for a period of no more than 24 hours.
- f. One safety injection tank may be inoperable for reasons other than g. or h. below for a period of no more than 24 hours.
- g. Level and/or pressure instrumentation on one safety injection tank may be inoperable for a period of 72 hours.
- h. One safety injection tank may be inoperable due to boron concentration not within limits for a period of no more than 72 hours.
- i. Components in excess of those allowed by Conditions a, b, d, and e may be inoperable provided they are returned to operable status within 1 hour when performing the quarterly recirculation actuation logic channel functional test (Table 3-2 item 20) under administrative controls. This allowance applies only to the remaining portion of Cycle 20 and all of Cycle 21.

## TECHNICAL SPECIFICATIONS

### 2.0 **LIMITING CONDITIONS FOR OPERATION**

#### 2.3 Emergency Core Cooling System (Continued)

Components in excess of those allowed by Conditions a, b, d, and e may be inoperable provided they are returned to operable status within 1 hour when performing the quarterly recirculation actuation logic channel functional test (Table 3-2 item 20) under administrative controls. This allowance applies only to the remaining portion of Cycle 20 and all of Cycle 21. This prevents violating Technical Specifications or necessitating a unit shutdown due to inability to perform the quarterly recirculation actuation logic channel functional test. These administrative controls consist of stationing three dedicated operators at the Engineered Safeguards Features (ESF) panel controls in the control room. In this way, the following conditions are maintained and actions can be rapidly performed should a valid ESF actuation occur:

- the appropriate Safety Injection Refueling Water Tank (SIRWT) to Safety Injection (SI) and Containment Spray (CS) pumps suction valve control switch is maintained in the OPEN position (spring-return switch),
- the appropriate SI and CS pumps to SIRWT recirculation minimum flow valve control switch is maintained in the OPEN position (spring-return switch),
- the appropriate Recirculation Actuation Signal (RAS) lockout relays and initiating signal can be rapidly reset,
- the appropriate SI and CS pumps to SIRWT recirculation minimum flow valve control switch can be rapidly returned to the AUTO position,
- the appropriate SIRWT to SI and CS pumps suction valve control switch can be rapidly returned to the AUTO position, and
- the appropriate Containment Sump to SI and CS pumps suction valve control switch can be rapidly returned to the AUTO position.

The appropriate SI and CS pumps to SIRWT recirculation minimum flow valve control switch and the appropriate SIRWT to SI and CS pumps suction valve control switch are held in the OPEN position during the test to enhance the reliability of the appropriate SI and CS pumps by maintaining the associated valves open.

#### References

- (1) USAR, Section 14.15.1
- (2) USAR, Section 6.2.3.1
- (3) USAR, Section 14.15.3
- (4) USAR, Appendix K
- (5) Omaha Public Power District's Submittal, December 1, 1976
- (6) Technical Specification 2.1.2, Figure 2-1B
- (7) USAR, Section 4.4.3

## **Attachment 4**

### **Explanation of the Exigency and Why the Situation Could Not Have Been Avoided**

Fort Calhoun Station (FCS) was licensed for full power operation in 1973 by the NRC. The Emergency Core Cooling System (ECCS) was designed with three High Pressure Safety Injection (HPSI) pumps and two Low Pressure Safety Injection (LPSI) pumps that have a common recirculation minimum flow header. During a Loss Of Coolant Accident (LOCA), or other accidents that generate a Safety Injection Actuation Signal (SIAS), the HPSI and LPSI pumps start and pressurize their injection headers. If Reactor Coolant System (RCS) pressure is higher than the shutoff head of these pumps, a single recirculation minimum flow line provides sufficient flow to allow all five pumps to operate without damage to the pumps.

After an accident that allows injection into the RCS, the recirculation actuation signal (RAS) automatically switches the HPSI pump suction to the containment sump when the water level in the Safety Injection Refueling Water Tank (SIRWT) falls to a preset level. At this time, the flow path from the containment sump is opened, the SIRWT flow path is closed, LPSI pumps are stopped automatically, and water is recirculated from the containment sump by the HPSI pumps. The recirculation minimum flow line to the SIRWT is isolated by two valves in series to prevent depositing potentially contaminated water into a tank outside of the containment building.

During the Recirculation Actuation Logic Channel Functional Test, a RAS signal is generated and one of the recirculation minimum flow valves closes. Until a recent NRC inspection, it was thought that an operator could be used during the test to ensure that in the event of an ESF actuation the test could be rapidly terminated and the recirculation minimum flow valve opened to allow a minimum flow path for the HPSI and LPSI pumps. The actions required to be performed to allow the recirculation minimum flow valves to open can be rapidly performed by one dedicated operator in less than one minute. During the NRC Safety System Design and Performance Capability (SSDPC) inspection in February 2002, station personnel were informed that manual operator actions could not be used in lieu of automatic actions to maintain equipment operable without prior NRC approval. A comprehensive review was conducted of plant procedures that used manual actions in place of automatic actions in order to allow equipment to remain operable. The quarterly Recirculation Actuation Logic Channel Functional Test is the only test identified to date in this review requiring a Technical Specification change to perform. A test of one of the two channels was due to be performed on March 21, 2002, and will exceed its surveillance interval and extension on April 21, 2002. On March 26, 2002, the need for an exigent Technical Specification change was identified. The station is currently scheduled to begin a 30 day refueling

outage on May 3, 2002. Therefore, OPPD requests approval of the proposed license amendment on an exigent basis.

FCS has been actively working to correct those procedures that are affected by the inspection finding. FCS plans to modify the Recirculation Actuation Logic Channel Functional Test to ensure that the recirculation minimum flow path is not isolated during the test. However, NRC approval of this change is required. There is not an acceptable corrective action identified at this point that will not require prior NRC permission to implement for the quarterly Recirculation Actuation Logic Channel Functional Test. Generally, modifications to the RAS circuits may only be completed during a refueling outage.

Modifications to ECCS actuation circuits (RAS) or modifications to ECCS systems are only made after careful consideration of the full implications of the modification evaluation of alternatives and complete understanding of the effects upon the station. With less than four weeks available prior to the start of the next refueling outage, insufficient time is available to design, evaluate, and complete any modifications to the system. Moreover, a modification to the plant may not be desirable. A permanent change to the technical specifications may be the best solution. A permanent change will require additional technical work and the necessary time for review by the NRC staff. This review and comment period generally takes several months.

Additionally, a test of one of the two channels was due to be performed on March 21, 2002, and will exceed its surveillance interval and extension on April 21, 2002. If the test cannot be performed by April 21, 2002, this will necessitate a unit shutdown.

OPPD will continue to actively pursue a permanent solution to this issue until a final resolution is reached.