



UNITED STATES
NUCLEAR REGULATORY COMMISSION
WASHINGTON, D.C. 20555-0001

May 14, 2010

Mr. David J. Bannister
Vice President and CNO
Omaha Public Power District
Fort Calhoun Station
444 South 16th St. Mall
Omaha, NE 68102-2247

SUBJECT: FORT CALHOUN STATION, UNIT NO. 1 - ISSUANCE OF AMENDMENT RE:
REVISION TO TECHNICAL SPECIFICATION SECTIONS 2.0.1 AND 2.7 FOR
INOPERABLE SYSTEM, SUBSYSTEM, OR COMPONENT DUE TO
INOPERABLE POWER SOURCE AND DELETION OF DIESEL GENERATOR
SURVEILLANCE REQUIREMENT 3.7(1)e (TAC NO. ME1484)

Dear Mr. Bannister:

The U.S. Nuclear Regulatory Commission (NRC) has issued the enclosed Amendment No. 264 to Renewed Facility Operating License No. DPR-40 for the Fort Calhoun Station, Unit No. 1. The amendment consists of changes to the Technical Specifications (TSs) in response to your application dated May 29, 2009.

The amendment modifies the TSs as follows: (1) revises the definition for Operable-Operability; (2) modifies the provisions under which equipment may be considered operable when either its normal or emergency power source is inoperable; (3) deletes TS limiting condition for operation (LCO) 2.0.1(2); (4) deletes diesel generator Surveillance Requirement 3.7(1)e; and (5) relocates the guidance for inoperable power supplies and verifying the operability of redundant components into the LCO for electrical equipment 2.7, "Electrical Systems."

A copy of the related Safety Evaluation is also enclosed. The Notice of Issuance will be included in the Commission's next biweekly *Federal Register* notice.

Sincerely,

A handwritten signature in black ink, appearing to read "Lynnea E. Wilkins".

Lynnea E. Wilkins, Project Manager
Plant Licensing Branch IV
Division of Operating Reactor Licensing
Office of Nuclear Reactor Regulation

Docket No. 50-285

Enclosures:

1. Amendment No. 264 to DPR-40
2. Safety Evaluation

cc w/encls: Distribution via Listserv



UNITED STATES
NUCLEAR REGULATORY COMMISSION
WASHINGTON, D.C. 20555-0001

OMAHA PUBLIC POWER DISTRICT

DOCKET NO. 50-285

FORT CALHOUN STATION, UNIT NO. 1

AMENDMENT TO RENEWED FACILITY OPERATING LICENSE

Amendment No. 264
Renewed License No. DPR-40

1. The Nuclear Regulatory Commission (the Commission) has found that:
 - A. The application for amendment by the Omaha Public Power District (the licensee), dated May 29, 2009, complies with the standards and requirements of the Atomic Energy Act of 1954, as amended (the Act), and the Commission's rules and regulations set forth in 10 CFR Chapter I;
 - B. The facility will operate in conformity with the application, the provisions of the Act, and the rules and regulations of the Commission;
 - C. There is reasonable assurance (i) that the activities authorized by this amendment can be conducted without endangering the health and safety of the public, and (ii) that such activities will be conducted in compliance with the Commission's regulations;
 - D. The issuance of this license amendment will not be inimical to the common defense and security or to the health and safety of the public; and
 - E. The issuance of this amendment is in accordance with 10 CFR Part 51 of the Commission's regulations and all applicable requirements have been satisfied.

2. Accordingly, Renewed Facility Operating License No. DPR-40 is amended by changes as indicated in the attachment to this license amendment, and paragraph 3.B. of Renewed Facility Operating License No. DPR-40 is hereby amended to read as follows:

B. Technical Specifications

The Technical Specifications contained in Appendix A, as revised through Amendment No. 264, are hereby incorporated in the license. The licensee shall operate the facility in accordance with the Technical Specifications.

3. The license amendment is effective as of its date of issuance and shall be implemented within 120 days from the date of issuance.

FOR THE NUCLEAR REGULATORY COMMISSION



Michael T. Markley, Chief
Plant Licensing Branch IV
Division of Operating Reactor Licensing
Office of Nuclear Reactor Regulation

Attachment:
Changes to the Renewed Facility
Operating License No. DPR-40
and Technical Specifications

Date of Issuance: May 14, 2010

ATTACHMENT TO LICENSE AMENDMENT NO. 264

RENEWED FACILITY OPERATING LICENSE NO. DPR-40

DOCKET NO. 50-285

Replace the following pages of the Renewed Facility Operating License No. DPR-40 and the Appendix A Technical Specifications with the attached revised pages. The revised pages are identified by amendment number and contain vertical lines indicating the areas of change.

License Page

REMOVE

INSERT

-3-

-3-

Technical Specifications

REMOVE

INSERT

Definitions – Page 5

Definitions – Page 5

2.0 – Page 1

2.0 – Page 1

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- (4) Pursuant to the Act and 10 CFR Parts 30, 40 and 70, to receive, possess, and use in amounts as required any byproduct, source, or special nuclear material without restriction to chemical or physical form for sample analysis or instrument calibration or when associated with radioactive apparatus or components;
 - (5) Pursuant to the Act and 10 CFR Parts 30 and 70, to possess, but not separate, such byproduct and special nuclear materials as may be produced by operation of the facility.
3. This renewed license shall be deemed to contain and is subject to the conditions specified in the following Commission regulations in 10 CFR Chapter I: Part 20, Section 30.34 of Part 30, Section 40.41 of Part 40, Section 50.54 and 50.59 of Part 50, and Section 70.32 of Part 70; and is, subject to all applicable provisions of the Act and to the rules, regulations, and orders of the Commission now or hereafter in effect; and is subject to the additional conditions specified or incorporated below:

A. Maximum Power Level

Omaha Public Power District is authorized to operate the Fort Calhoun Station, Unit 1, at steady state reactor core power levels not in excess of 1500 megawatts thermal (rate power).

B. Technical Specifications

The Technical Specifications contained in Appendix A, as revised through Amendment No. 264 are hereby incorporated in the license. Omaha Public Power District shall operate the facility in accordance with the Technical Specifications.

C. Security and Safeguards Contingency Plans

The Omaha Public Power District shall fully implement and maintain in effect all provisions of the Commission-approved physical security, training and qualification, and safeguards contingency plans including amendments made pursuant to provisions of the Miscellaneous Amendments and Search Requirements revisions to 10 CFR 73.55 (51 FR 27817 and 27822) and to the authority of 10 CFR 50.90 and 10 CFR 50.54(p). The plans, which contain Safeguards Information protected under 10 CFR 73.21, are entitled: "Fort Calhoun Station Security Plan, Training and Qualification Plan, Safeguards Contingency Plan," submitted by letter dated May 19, 2006.

TECHNICAL SPECIFICATION

DEFINITIONS

MISCELLANEOUS DEFINITIONS

Operable - Operability

A system, subsystem, train, component or device shall be OPERABLE or have OPERABILITY when it is capable of performing its specified safety function(s) and when all necessary attendant instrumentation, controls, normal or emergency electrical power sources, cooling and seal water, lubrication, and other auxiliary equipment that are required for the system, subsystem, train, component or device to perform its specified safety function(s) are also capable of performing their related support function(s).

In Operation

A system or component is IN OPERATION if it is OPERABLE and is performing its design function.

CEA's

All full length shutdown and regulating control rods.

Non-trippable (NT) CEA's

CEA's which are non-trippable.

Containment Integrity

Containment integrity is defined to exist when all of the following are met:

- (1) All nonautomatic containment isolation valves which are not required to be open during accident conditions and blind flanges, except for valves that are open under administrative control as permitted by Specification 2.6(1)a, are closed.
- (2) The equipment hatch is properly closed and sealed.
- (3) The personnel air lock satisfies Specification 2.6(1)b.
- (4) All automatic containment Isolation valves are operable, locked closed, or deactivated and secured in their closed position (or isolated by locked closed valves or blind flanges as permitted by a limiting condition for operation).
- (5) The uncontrolled containment leakage satisfies Specification 3.5, and
- (6) The sealing mechanism associated with each penetration (e.g., welds, bellows or O-rings) is operable.

TECHNICAL SPECIFICATIONS

2.0 LIMITING CONDITIONS FOR OPERATION

2.0.1 General Requirements

Applicability

Applies to the operable status of all systems, subsystems, trains, components, or devices covered by the Limiting Conditions for Operation.

Objective

To specify corrective measures to be employed for system conditions not covered by or in excess of the Limiting Conditions for Operation.

Specification

- (1) In the event a Limiting Condition for Operation and/or associated action requirements cannot be satisfied because of circumstances in excess of those addressed in the specification, the unit shall be placed in at least HOT SHUTDOWN within 6 hours, in at least subcritical and $< 300^{\circ}\text{F}$ within the next 6 hours, and in at least COLD SHUTDOWN within the following 30 hours, unless corrective measures are completed that permit operation under the permissible action requirements for the specified time interval as measured from initial discovery or until the reactor is placed in an Operating Mode in which the specification is not applicable. Exceptions to these requirements shall be stated in the individual specifications.
- (2) When one or more required snubbers are unable to perform their associated support function(s), any affected supported LCO(s) are not required to be declared not met solely for this reason if risk is assessed and managed, and:
 - a. the snubbers not able to perform their associated support function(s) are associated with only one train or subsystem of a multiple train or subsystem supported system or are associated with a single train or subsystem supported system and are able to perform their associated support function within 72 hours; or
 - b. the snubbers not able to perform their associated support function(s) are associated with more than one train or subsystem of a multiple train or subsystem supported system and are able to perform their associated support function within 12 hours.

At the end of the specified period the required snubbers must be able to perform their associated support function(s), or the affected supported system LCO(s) shall be declared not met.

TECHNICAL SPECIFICATIONS

2.0 LIMITING CONDITIONS FOR OPERATION

2.0.1 General Requirements (Continued)

Basis

- (1) This specification delineates corrective measures to be taken for circumstances not directly provided for in the system specific specifications and whose occurrence would violate the intent of the specification. For example, Specification 2.3 requires each Low Pressure Safety Injection (LPSI) pump to be operable and provides explicit corrective measures to be followed if one pump is inoperable. Under the terms of Specification 2.0.1(1), if more than one LPSI pump is inoperable, the unit must be placed in at least HOT SHUTDOWN within 6 hours, in at least subcritical and < 300°F within the following 6 hours, and in at least COLD SHUTDOWN within the following 30 hours, unless at least one LPSI pump were restored to operability. It is assumed that the unit is brought to the required mode within the required times by promptly initiating and carrying out the appropriate measures required by the specification.
- (2) LCO 2.0.1(2) establishes conditions under which systems are considered to remain capable of performing their intended safety function when associated snubbers are not capable of providing their associated support function(s). This LCO states that the supported system is not considered to be inoperable solely due to one or more snubbers not capable of performing their associated support function(s). This is appropriate because a limited length of time is allowed for maintenance, testing, or repair of one or more snubbers not capable of performing their associated support function(s) and appropriate compensatory measures are specified in the snubber requirements, which are located outside of the Technical Specifications (TS) under licensee control. The snubber requirements do not meet the criteria in 10 CFR 50.36(c)(2)(ii), and, as such, are appropriate for control by the licensee.

If the allowed time expires and the snubber(s) are unable to perform their associated support function(s), the affected supported system's LCO(s) must be declared not met and the Conditions and Required Actions entered.

LCO 2.0.1(2)a applies when one or more snubbers are not capable of providing their associated support function(s) to a single train or subsystem of a multiple train or subsystem supported system or to a single train or subsystem supported system. LCO 2.0.1(2)a allows 72 hours to restore the snubber(s) before declaring the supported system inoperable. The 72-hour Completion Time is reasonable based on the low probability of a seismic event concurrent with an event that would require operation of the supported system occurring while the snubber(s) are not capable of performing their associated support function and due to the availability of the redundant train of the supported system.

TECHNICAL SPECIFICATIONS

2.0 LIMITING CONDITIONS FOR OPERATION

2.0.1 General Requirements (Continued)

LCO 2.0.1(2)b applies when one or more snubbers are not capable of providing their associated support function(s) to more than one train or subsystem of a multiple train or subsystem supported system. LCO 2.0.1(2)b allows 12 hours to restore the snubber(s) before declaring the supported system inoperable. The 12-hour Completion Time is reasonable based on the low probability of a seismic event concurrent with an event that would require operation of the supported system occurring while the snubber(s) are not capable of performing their associated support function. |

LCO 2.0.1(2) requires that risk be assessed and managed. Industry and NRC guidance on the implementation of 10 CFR 50.65(a)(4) (the Maintenance Rule) does not address seismic risk. However, use of LCO 2.0.1(2) should be considered with respect to other plant maintenance activities, and integrated into the existing Maintenance Rule process to the extent possible so that maintenance on any unaffected train or subsystem is properly controlled, and emergent issues are properly addressed. The risk assessment need not be quantified, but may be a qualitative awareness of the vulnerability of systems and components when one or more snubbers are not able to perform their associated support function. |

TECHNICAL SPECIFICATIONS

2.0 LIMITING CONDITIONS FOR OPERATION

2.7 Electrical Systems

Applicability

Applies to the availability of electrical power for the operation of plant components.

Objective

To define those conditions of electrical power availability necessary to provide for safe reactor operation and the continuing availability of engineered safety features.

Specifications

(1) Minimum Requirements

The reactor shall not be heated up or maintained at temperatures above 300°F unless the following electrical systems are operable:

- a. Unit auxiliary power transformers T1A-1 or T1A-2 (4,160 V).
- b. House service transformers T1A-3 and T1A-4 (4,160 V).
- c. 4,160 V engineered safety feature buses 1A3 and 1A4.
- d. 4,160 V/480 V Transformers T1B-3A, T1B-3B, T1B-3C, T1B-4A, T1B-4B, T1B-4C.
- e. 480 V distribution buses 1B3A, 1B3A-4A, 1B4A, 1B3B, 1B3B-4B, 1B4B, 1B3C, 1B3C-4C, 1B4C.
- f. MCC No. 3A1, 3A2, 3B1, 3C1, 3C2, 4A1, 4A2, 4B1, 4C1 and 4C2.
- g. 125 V d-c buses No. 1 and 2 (Panels EE-8F and EE-8G).
- h. 125 V d-c distribution panels AI-41A and AI-41B.
- i. 120V a-c instrument buses A, B, C, and D (Panels AI-40-A, B, C and D).
- j. Two (2) 125 V d-c bus No. 1 required inverters: (A and C), or (A and associated swing inverter), or (C and associated swing inverter) AND;
Two (2) 125 V d-c bus No. 2 required inverters: (B and D), or (B and associated swing inverter), or (D and associated swing inverter).
- k. Station batteries No. 1 and 2 (EE-8A and EE-8B) including one battery charger on each 125 V d-c bus No. 1 and 2 (EE-8F and EE-8G).
- l. Two emergency diesel generators (DG-1 and DG-2).
- m. One diesel fuel oil storage system containing a minimum volume of 16,000 gallons of diesel fuel in FO-1, and a minimum volume of 10,000 gallons of diesel fuel in FO-10.
- n. Lubricating oil inventory for each DG is \geq 500 gallons.
- o. Each required starting air receiver bank pressure is \geq 190 psig.

TECHNICAL SPECIFICATIONS

2.0 **LIMITING CONDITIONS FOR OPERATION**

2.7 **Electrical Systems** (Continued)

(2) **Modification of Minimum Requirements**

The minimum requirements may be modified to the extent that one of the following conditions will be allowed after the reactor coolant has been heated above 300°F. However, the reactor shall not be made critical unless all minimum requirements are met. If any of the provisions of these exceptions are violated, the reactor shall be placed in a hot shutdown condition within the following 12 hours. If the violation is not corrected within an additional 12 hours, the reactor shall be placed in a cold shutdown condition within an additional 24 hours.

- a. Both unit auxiliary power transformers T1A-1 and T1A-2 (4.16 kV) may be inoperable for up to 72 hours.
- b. Either house service transformer T1A-3 or T1A-4 (4.16kV) may be inoperable for up to 7 days. The NRC Operations Center shall be notified by telephone within 4 hours after transformer inoperability. Additionally, within 24 hours from discovery of either house service transformer inoperability, declare the required feature(s) associated with the inoperable house service transformer inoperable, when its redundant required feature (including the steam driven auxiliary feedwater pump FW-10) is inoperable.
- c. Both house service transformers T1A-3 and T1A-4 (4.16kV) may be inoperable for up to 72 hours. The loss of the 161kV incoming line renders both transformers inoperable. The NRC Operations Center shall be notified by telephone within 4 hours after inoperability of both transformers.

TECHNICAL SPECIFICATIONS

2.0 **LIMITING CONDITIONS FOR OPERATION**

2.7 **Electrical Systems (Continued)**

- d. Either one of the 4.16kV engineered safeguards buses, 1A3 or 1A4 may be inoperable for up to 8 hours provided the operability of the diesel generator associated with the operable bus is demonstrated immediately.
- e. One of each group of 4160 V/480 V Transformers (T1B-3A or 4A), (T1B-3B or 4B), and (T1B-3C or 4C) may be inoperable for up to 8 hours.
- f. One of the 480 V distribution buses connected to bus 1A3 or connected to bus 1A4 may be inoperable for up to 8 hours.
- g. Either Group of MCC No.'s (3A1, 3A2, 3B1, 3C1, 3C2,) or (4A1, 4A2, 4B1, 4C1, 4C2) may be inoperable for up to 8 hours.
- h. One of the four 120V a c instrument buses (A, B, C or D) may be inoperable for 8 hours provided the reactor protective and engineered safeguards systems instrument channels supplied by the remaining three buses are all operable.
- i. Two battery chargers may be inoperable for up to 8 hours provided battery charger No. 1 (EE-8C) or No. 2 (EE-8D) is operable.
- j. Either one of the emergency diesel generators (DG-1 or DG-2) may be inoperable for up to seven consecutive days. In addition, the cumulative total time of inoperability for both DGs during any calendar month shall not exceed seven days. If one diesel generator is inoperable, within 8 hours (regardless of when the inoperable diesel generator is restored to operability) EITHER:
 - (1) Start the other diesel generator to verify operability, OR
 - (2) Ensure the absence of common cause for the diesel generator inoperability for the other diesel generator.

Additionally, within 4 hours from discovery of either diesel generator inoperability, declare the required feature(s) associated with the inoperable diesel generator inoperable, when its redundant required feature (including the steam driven auxiliary feedwater pump FW-10) is inoperable.

- k. Not used.
- l. Island buses 1B3A-4A, 1B3B-4B, and 1B3C-4C may be inoperable for up to 8 hours.
- m. Either one of the 125V d-c buses No. 1 or 2 (Panels EE-8F or EE-8G) may be inoperable for up to 8 hours.
- n. Either one of the 125V d-c distribution panels AI-41A or AI-41B may be inoperable for up to 8 hours.

TECHNICAL SPECIFICATIONS

2.0 **LIMITING CONDITIONS FOR OPERATION**

2.7 **Electrical Systems (Continued)**

- o. One of the required inverters may be inoperable for up to 24 hours provided the reactor protective and engineered safeguards systems instrument channels supplied by the remaining three required inverters are all operable and the 120V a-c instrument bus associated with the inoperable inverter is powered from its bypass source.

(3) Modification of Minimum Requirements for Diesel Fuel Oil, Diesel Lube Oil, and Starting Air

The minimum requirements may be modified to the extent that any of the following conditions will be allowed after the reactor coolant has been heated above 300°F. However, the reactor shall not be made critical unless all minimum requirements are met.

- a. If the inventory of diesel fuel oil in FO-1 is less than 16,000 gallons and/or FO-10 is less than 10,000 gallons, but the combined inventory in FO-1 and FO-10 is greater than a 6 day supply (23,350 gallons), then restore the required inventory within 48 hours.
- b. If one or more diesel generators has lube oil inventory < 500 gallons and > 450 gallons, then restore the lube oil inventory to within limits within 48 hours.
- c. If the total particulates of fuel oil stored in FO-1 or FO-10 is not within limits, then restore fuel oil total particulates to within limits within 7 days.
- d. If the properties of new fuel oil stored in FO-1 or FO-10 is not within limits, then restore stored fuel oil properties to within limits within 30 days.
- e. If one or more diesel generators has the required starting air receiver bank with pressure < 190 psig and > 150 psig, then restore starting air receiver bank pressure to > 190 psig within 48 hours.
- f. If the Required Action and associated Completion Time of a, b, c, d or e are not met or one or more diesel generators have diesel fuel oil, lube oil, or a required starting air subsystem not within limits for reasons other than a, b, c, d, or e, then declare the associated DG inoperable immediately.

TECHNICAL SPECIFICATIONS

3.0 **SURVEILLANCE REQUIREMENTS**

3.7 **Emergency Power System Periodic Tests** (Continued)

- i. Initiation of a simulated auto-start signal to verify that the diesel starts.
- ii. Initiation of a simulated simultaneous loss of 4.16 KV supplies to bus 1A3 (1A4). Proper operation will be verified by observation of:
 - (1) De-energization of bus 1A3 (1A4).
 - (2) Load shedding from bus (both 4160 V and 480 V).
 - (3) Energization of bus 1A3 (1A4).
 - (4) Automatic sequence start of emergency load, and
 - (5) Operation of ≥ 5 minutes while its generator is loaded with the emergency load.
- iii. Verification that emergency loads do not exceed the 2000-HR KW rating of the engine.⁽²⁾
- d. Manual control of diesel generators and breakers shall also be verified during refueling shutdowns.
- e. The fuel oil transfer pumps shall be verified to be operable each month.

(2) **Station Batteries**

- a. Every month the voltage of each cell (to the nearest 0.01 volt), the specific gravity, and temperature of a pilot cell in each battery shall be measured and recorded.⁽³⁾⁽⁴⁾
- b. Every three months the specific gravity of each cell, the temperature reading of every fifth cell, and the amount of water added shall be measured and recorded. During the first refueling outage and every third refueling outage thereafter the batteries shall be subjected to a rated load discharge test.
- c. At monthly intervals the third battery charger, which is capable of being connected to either of the two D.C. distribution buses, shall be paralleled in turn to each D.C. bus. In each case, load shall be transferred to this reserve battery charger by switching out the normal charger. The reserve charger shall be run on load for 30 minutes on each bus and the system shall finally be returned to normal.



UNITED STATES
NUCLEAR REGULATORY COMMISSION
WASHINGTON, D.C. 20555-0001

SAFETY EVALUATION BY THE OFFICE OF NUCLEAR REACTOR REGULATION

RELATED TO AMENDMENT NO. 264 TO RENEWED FACILITY

OPERATING LICENSE NO. DPR-40

OMAHA PUBLIC POWER DISTRICT

FORT CALHOUN STATION, UNIT NO. 1

DOCKET NO. 50-285

1.0 INTRODUCTION

By letter dated May 29, 2009 (Agencywide Documents Access and Management System (ADAMS) Accession No. ML091530054), Omaha Public Power District (OPPD, the licensee) submitted a license amendment request (LAR) regarding the Fort Calhoun Station (FCS), Unit No. 1. The proposed changes would revise the FCS Technical Specifications (TS) as follows: (1) revise the definition for Operable-Operability; (2) modify the provisions under which equipment may be considered operable when either its normal or emergency power source is inoperable; (3) delete TS limiting condition for operation (LCO) 2.0.1(2); (4) delete diesel generator (DG) Surveillance Requirement (SR) 3.7(1)e; and (5) relocate the guidance for inoperable power supplies and verifying the operability of redundant components into the LCO for electrical equipment 2.7, "Electrical Systems."

2.0 REGULATORY EVALUATION

The U.S. Nuclear Regulatory Commission (NRC) staff considered the following regulatory requirements in its review of the license amendment request (LAR):

- In Section 50.36, "Technical specifications," of Title 10 of the *Code of Federal Regulations* (10 CFR), the U.S. Nuclear Regulatory Commission (NRC) established its regulatory requirements related to the content of TSs. Pursuant to 10 CFR 50.36, TSs are required to include items in the following five specific categories related to station operation: (1) safety limits, limiting safety system settings, and limiting control settings; (2) LCOs; (3) SRs; (4) design features; and (5) administrative controls. The rule does not specify any particular requirements for the plant's TS.
- 10 CFR 50.36(c)(2)(i) states that, "[w]hen a limiting condition for operation of a nuclear reactor is not met, the licensee shall shut down the reactor or follow any remedial action permitted by the technical specifications until the condition can be met."

- 10 CFR 50.36(c)(3) states that, "[s]urveillance requirements are requirements relating to test, calibration, or inspection to assure that the necessary quality of systems and components is maintained, that facility operation will be within safety limits, and that the limiting conditions for operation will be met."
- 10 CFR 50.65, "Requirements for monitoring the effectiveness of maintenance at nuclear power plants," require that preventive maintenance activities must not reduce the overall availability of the systems, structures, and components.
- NRC Regulatory Guide 1.93, "Availability of Electric Power Sources," December 1974, describes operating procedures and restrictions acceptable to the staff when the available power sources are less than the LCO.
- NUREG-1432, "Standard Technical Specifications (STS) - Combustion Engineering Plants," contains the improved STS for Combustion Engineering plants.
- In a memorandum dated September 18, 1992 (ADAMS Legacy Library Accession No. 9210060362), the Commission approved the NRC staff's proposal in SECY-92-223, "Resolution of Deviations Identified During the Systematic Evaluation Program," not to apply 10 CFR Part 50, Appendix A, "General Design Criteria for Nuclear Power Plants," to plants with construction permits prior to May 21, 1971. FCS was licensed for construction prior to May 21, 1971, and at that time committed to the draft General Design Criteria (GDC). The draft GDC, which are similar to Appendix A, "General Design Criteria for Nuclear Power Plants," in 10 CFR Part 50, are contained in Appendix G, "Response to 70 Criteria," of the FCS Updated Safety Analysis Report (USAR).

In its letter dated May 29, 2009, the licensee appropriately identified the following draft GDC as specified in Appendix G to the FCS USAR:

FCS Design Criterion 24 - Emergency Power for Protection Systems
states:

In the event of loss of all offsite power, sufficient alternate sources of power shall be provided to permit the required functioning of the protection systems.

FCS Design Criterion 39 - Emergency Power for Engineered Safety Features
states:

Alternate power systems shall be provided and designed with adequate independency, redundancy, capacity and testability to permit the functioning required of the engineered safety features. As a minimum, the onsite power system and the offsite power system shall each, independently, provide this capacity assuming a failure of a single active component in each power system.

3.0 TECHNICAL EVALUATION

3.1 System Description

In its letter dated May 29, 2009, the licensee identified USAR Sections 8.3: *Electrical Systems, Station Distribution*, 8.4: *Electrical Systems, Emergency Power Sources*, and 9.4: *Auxiliary Systems, Auxiliary Feedwater System* as applicable to this LAR:

USAR Section 8.3:

Buses 1A3 and 1A4 supply plant 4.16 KV loads and all 480V loads through three, double-ended 480V load centers, each with three bus sections. The double-ended 480V load centers permit feeding of the 480V station auxiliary loads from either bus 1A3 or 1A4. The normal alignment for the 480V load centers is shown in USAR Figure 8.1-1. Interlocks prevent interconnection of these systems at the 480V level. Buses 1A3 and 1A4 also supply engineered safeguards, directly or through the 480V load centers. The systems associated with buses 1A3 and 1A4 are operated as separate systems, between which redundant engineered safeguards are so divided that minimum engineered safeguards are connected to each system. The exception to this is the steam turbine driven auxiliary feedwater (AFW) pump FW-10. The redundant auxiliary feedwater pump FW-6 is supplied from bus 1A3.

The automatic bus 4.16 KV transfers are summarized in USAR Table 8.4-3.

USAR Section 8.4:

The DGs are designed to furnish reliable in-plant AC [alternating current] power adequate for safe plant shutdown and for operation of engineered safeguards, when no energy is available from the 345 or 161 KV systems. Two DGs are installed to meet single failure criteria. One unit is connected to each of the two separate 4.16 KV systems (one system consists of bus 1A3, the second system consists of bus 1A4) between which engineered safeguards and other essential auxiliaries are divided (see USAR Figure 8.4-1). The division of loads is such that operation of either system alone provides minimum Engineered Safeguards required for the DBA [design-basis accident] as discussed in USAR Section 6.

USAR Section 9.4:

The AFW has two safety class AFW pumps, each capable of meeting system requirements and with diverse power sources: one electric motor driven and the other steam turbine driven. In the event of a loss of all AC power, the turbine-driven AFW pump would still be operational and would supply water to the steam generators from the emergency feedwater storage tank.

3.2 Proposed Technical Specification Changes

In its letter dated May 29, 2009, OPPD requested the following TS changes:

- TS Miscellaneous Definition, Operable - Operability - Revise to be more consistent with NUREG 1432.
- TS LCO 2.0.1, *General Requirements*, paragraph (2) - Delete paragraph (2) in its entirety and relocate guidance for inoperable power supplies and verifying operability of redundant components to TS LCO 2.7, *Electrical Systems*, similar to NUREG 1432.
- TS 2.0.1(3) - Renumber to TS 2.0.1(2) due to the deletion noted above.
- TS 2.7(1)a and b - Editorial change to add "T1A" and "T1A-" to the transformer lists for clarification and consistency.
- TS 2.7(1)f - Grammatical change to rearrange the MCCs [motor control centers] in bus order and add MCC-4B1 to the list to ensure the TS correctly reflect the plant configuration for engineered safeguards loads.
- TS 2.7(2)b - Add a requirement to declare the required feature supported by inoperable house service transformer inoperable if its redundant feature is inoperable. Include guidance that the steam driven AFW pump (FW-10) must be considered.
- TS 2.7(2)j - Add requirement to declare required feature supported by inoperable EDG [emergency diesel generator] inoperable if its redundant feature is inoperable. Include guidance that the steam driven AFW pump must be considered.
- TS 2.7(2)d, 2.7(2)e, 2.7(2)f, 2.7(2)g, 2.7(2)j, 2.7(2)l - Delete statements from electrical distribution components (i.e., bus, transformer, etc.), "provided there are no inoperable required engineered safeguards components which are redundant" to remove the restriction to engineered safeguards components.
- TS 2.7(2)g - Add MCC-4B1 to the second group of MCCs listed; grammatically arrange the MCCs listed in correct bus order; and, delete statement that MCC-3C1 may be inoperable in excess of 8 hours if battery chargers No. 1 and No. 2 are operable. Also, delete statement "provided there are no inoperable required engineered safeguards components which are redundant" as it relates to inoperable MCCs, to remove its applicability restriction to only engineered safeguards components.

- TS 3.7(1)e - Delete the DG inspection performed on a refueling frequency in accordance with the manufacturer's recommendations for this class of standby service. This TS does not meet the 10 CFR 50.36(c)(3) criteria which requires that TS include SRs which are requirements relating to test, calibration, or inspection to assure that the necessary quality of systems and components is maintained, that facility operation will be within safety limits, and that the limiting conditions for operation will be met. This is a maintenance activity to perform an inspection on the DGs on a refueling frequency to meet the manufacturer's recommendations. The required EDG periodic inspections will continue to be performed in accordance with the licensee-controlled EDG maintenance process that will be referenced in the USAR.

3.3 NRC Staff Evaluation

3.3.1 Revise Definition of Operable-Operability

In its letter dated May 29, 2009, the licensee proposes to revise the TS definition of Operable-Operability to be consistent with STS in NUREG-1432. The current definition requires normal and emergency electrical power sources to be capable of performing their required support functions. The licensee proposes to change the definition to require normal "or" emergency power systems for support system operability. The licensee also proposes to make the following clarifying changes: (1) specify that a system, subsystem, train, component, or device shall be capable of performing its specified "safety" function, (2) change "or" to "and" in the listing of support systems, and (3) require that support systems shall be capable of performing their "specified safety" function. The markup below indicates these changes (underlined portion indicates added sections).

A system, subsystem, train, component or device shall be OPERABLE or have OPERABILITY when it is capable of performing its specified safety function(s) ~~implicit in this definition shall be the assumption that~~ and when all necessary attendant instrumentation, controls, normal ~~and~~ or emergency electrical power sources, cooling ~~or~~ and seal water, lubrication ~~or,~~ and other auxiliary equipment that are required for the system, subsystem, train, component or device to perform its specified safety function(s) are also capable of performing their related support function(s).

The revised definition of Operable-Operability is shown below:

A system, subsystem, train, component or device shall be OPERABLE or have OPERABILITY when it is capable of performing its specified safety function(s) and when all necessary attendant instrumentation, controls, normal or emergency electrical power sources, cooling and seal water, lubrication, and other auxiliary equipment that are required for the system, subsystem, train, component or device to perform its specified safety function(s) are also capable of performing their related support function(s).

The NRC staff concludes that these changes do not change the intent of the definition of Operable-Operability and are consistent with the STS in NUREG-1432. Therefore, the NRC staff concludes these changes are acceptable.

3.3.2 Delete TS LCO 2.0.1(2) and Modifications to TS LCO 2.7, "Electrical Systems"

Current TS LCO 2.0.1(2) provides guidance on actions to be taken when either a normal or emergency power supply is inoperable. The licensee proposes to delete this paragraph and relocate guidance for inoperable power supplies (i.e. transformer or DG) and verifying operability of redundant components to TS LCO 2.7, "Electrical Systems," to be more consistent with STS. TS LCO 2.7 provides the conditions of electrical power availability for safe reactor operation. Currently, if a house service transformer (T1A-3 or T1A-4) or a DG is inoperable, both TS LCO 2.0.1(2) and TS LCO 2.7 are applicable but together create several inconsistencies. As an example, the licensee stated that TS LCO 2.7(2)b allows one transformer to be inoperable and does not require a review of components associated with the other transformer. In addition, TS LCO 2.7(2)j allows one DG inoperable provided that there are no required inoperable engineered safeguards components associated with the other DG and does not account for verification of the steam-driven AFW pump, a safeguards component. TS LCO 2.5, "Steam and Feedwater Systems," defines the conditions when the AFW system is required to be operable. Thus, to remove these inconsistencies, the licensee is proposing to delete TS LCO 2.0.1(2) and revise the guidance in TS LCO 2.7 to require equivalent operability checks of redundant features.

The licensee is proposing to delete TS LCO 2.0.1(2) to remove the unit shutdown requirement if a DG or house service transformer is inoperable while a required feature on the opposite train is inoperable. The guidance is being moved to TS LCO 2.7(2)b and TS LCO 2.7(2)j. The required actions will be based on the inoperability of the required feature. The licensee is proposing to retain the guidance of TS LCO 2.0.1(2) to declare the required systems and components inoperable when (1) either the normal or emergency power source is inoperable and (2) a redundant system or component is also inoperable. Based on the above, the NRC staff concludes this change acceptable since the guidance of TS LCO 2.0.1(2) is being relocated to eliminate inconsistencies. The NRC has no objection to the conforming changes being made to the TS LCO 2.0.1 Basis.

3.3.3 Renumber TS LCO 2.0.1(3) to TS LCO 2.0.1(2)

Due to the deletion of TS LCO 2.0.1(2), the current TS LCO 2.0.1(3) will be renumbered to TS LCO 2.0.1(2). The NRC staff determines this change is administrative in nature and, therefore, is acceptable.

3.3.4 Modify TS LCO 2.7(1)a and TS LCO 2.7(1)b

In its letter dated May 29, 2009, the licensee proposes to modify TS LCO 2.7(1)a and TS LCO 2.7(1)b to "add 'T1A' and 'T1A-' to the unit auxiliary power transformer tag number and house service transformer -2 and 4, respectively." This addition to the transformer list is being made for consistency and additional clarity. The NRC staff concludes this change is administrative in nature and, therefore, is acceptable.

3.3.5 Modify TS LCO 2.7(1)f

The licensee proposes to modify TS 2.7(1)f by rearranging the MCCs in bus order and to add MCC-4B1 to accurately reflect the required plant configuration for engineered safeguards loads. The NRC staff concludes this change is administrative in nature and, therefore, is acceptable.

3.3.6 Modify TS LCO 2.7(2)b

TS LCO 2.7(2)b will include a requirement to declare the required feature supported by the inoperable house service transformer inoperable if its redundant feature is inoperable. It will also include guidance that considers whether the steam-driven AFW pump is inoperable. The licensee stated that with one inoperable house service transformer, the 24-hour allowed time for a required redundant component accounts for the capability and capacity of the remaining AC sources and is consistent with STS. The NRC staff concludes that this change is acceptable since it is a more restrictive change and the allowed outage time accredits the capacity and capability of the remaining AC sources.

3.3.7 Modify TS LCO 2.7(2)j

TS LCO 2.7(2)j will include a requirement to declare the required feature supported by the inoperable DG inoperable if its redundant feature is inoperable. It will also include guidance that considers whether the steam-driven AFW pump is inoperable. The licensee stated that if one DG is inoperable, a 4-hour allowed time for a required redundant component minimizes risk while allowing time for restoration and accounts for the capacity and capability of the remaining AC sources. Furthermore, TS 2.01(1) specifies actions to be taken when LCOs are not satisfied, including placing the unit in hot shutdown within 6 hours and in at least cold shutdown within the following 30 hours. These changes are consistent with STS. The NRC staff concludes that these changes are acceptable since it is a more restrictive change and there is assurance that AC power will be available to safety systems.

3.3.8 Modify TS LCOs 2.7(2)d, 2.7(2)e, 2.7(2)f, 2.7(2)g, 2.7(2)j, and 2.7(2)l

In its letter dated May 29, 2009, the licensee states:

The statements contained in TS 2.7(2)d, e, f, g, j, and l, that there are no inoperable required engineered safeguards components which are redundant to components on the inoperable buses [2.7(2)f and l], transformer [2.7(2)e], MCC [2.7(2)g] or operable bus [2.7(2)d] or diesel generator [2.7(2)j], are deleted because of the restrictions only to engineered safeguards components.

This change eliminates verifying the operability of engineered safeguards components (buses, transformers, and MCCs) associated with the operable train. The TS requirements for AC electrical power distribution systems, as stated in TS LCO 2.7 (1), require the associated buses, load centers, MCCs, and distribution panels to be energized to their proper voltages and, thus, the operability of these components are ensured. Redundant feature checks statement in TS LCOs 2.7(2)d, 2.7(2)e, 2.7(2)f, 2.7(2)g, 3.7(2)j, and 2.7(2)l are, therefore, unnecessary. These changes delete redundancy and are also consistent with STS. Based on the above, the NRC

staff concludes that the change is acceptable since there is assurance that AC sources will be available to safety systems via the requirements as stated in TS LCO 2.7 (1).

3.3.9 Modify TS LCO 2.7(2)g

The licensee proposes to revise TS LCO 2.7(2)g to arrange the MCCs in the first group in bus order. The listing will change from 3A1, 3B1, 3A2 to 3A1, 3A2, 3B1. Also, the licensee proposes to add MCC-4B1 to the second group in order to accurately reflect the current plant configuration for the MCCs in each group. The NRC staff concludes these changes are administrative in nature and, therefore, are acceptable.

The licensee also proposes to revise TS LCO 2.7(2)g to delete the following statement, "MCC 3C1 may be inoperable in excess of 8 hours if battery chargers No. 1 and No. 2 are operable." MCC-3C1 feeds a spare battery charger, and TS LCO 2.7(2)g still specifies that MCC-3C1 may be inoperable for 8 hours. Since the statement does not have a specified time limit and the change is more conservative, such that MCC-3C1 can only be inoperable for 8 hours, the NRC staff concludes that the change is acceptable.

3.3.10 Delete DG SR 3.7(1)e

TS SR 3.7.1(e) requires the licensee to perform an inspection on the DGs on a refueling frequency in accordance with the manufacturer's recommendations. In its letter dated May 29, 2009, the licensee stated, that this preventative maintenance activity is to inspect the DGs to meet the manufacturer's recommendations. This SR is not a requirement related to the test, calibration, or inspection to assure that the quality of systems and components is maintained, that facility operation will be within safety limits, and that LCOs will be met, as set forth in 10 CFR 50.36(c)(3). The licensee further stated that the deletion of this SR does not impact the capability of the DGs to perform their accident mitigation functions. In addition, the required DG maintenance inspections will continue to be performed per the licensee-controlled maintenance process. Based on the above, the NRC staff concludes the deletion of 3.7(1)e is acceptable. The licensee also made a commitment as provided in Section 4.0 of this SE.

Based on the above, the NRC staff concludes the proposed revisions to the FCS TSs are acceptable. The staff also concludes that the proposed changes are in accordance with 10 CFR 50.36, 10 CFR 50.65, and the requirements of USAR Criterion 24 and Criterion 39 and are consistent with the guidance in NUREG-1432. Therefore, the staff concludes that the proposed changes are acceptable.

4.0 REGULATORY COMMITMENT

In its letter dated May 29, 2009, the licensee made the following regulatory commitment:

The required EDG periodic inspection will be performed via the licensee-controlled EDG maintenance process that will be referenced in the Updated Safety Analysis Report (USAR).

The licensee stated that this is a one-time commitment and is being tracked in the licensee's Commitment Management Program as AR No. 43378. This action is scheduled to be

completed as part of implementation of the approved LAR. The NRC staff considers the above to be a regulatory commitment and concludes it is acceptable.

5.0 STATE CONSULTATION

In accordance with the Commission's regulations, the Nebraska State official was notified of the proposed issuance of the amendment. The State official had no comments.

6.0 ENVIRONMENTAL CONSIDERATION

The amendment changes a requirement with respect to the installation or use of a facility component located within the restricted area as defined in 10 CFR Part 20. The NRC staff has determined that the amendment involves no significant increase in the amounts, and no significant change in the types, of any effluents that may be released offsite, and that there is no significant increase in individual or cumulative occupational radiation exposure. The Commission has previously issued a proposed finding that the amendment involves no significant hazards consideration and there has been no public comment on such finding published in the *Federal Register* on October 6, 2009 (74 FR 51331). Accordingly, the amendment meets the eligibility criteria for categorical exclusion set forth in 10 CFR 51.22(c)(9). Pursuant to 10 CFR 51.22(b), no environmental impact statement or environmental assessment need be prepared in connection with the issuance of the amendment.

7.0 CONCLUSION

The Commission has concluded, based on the considerations discussed above, that: (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.

Principal Contributor: S. Ray

Date: May 14, 2010

May 14, 2010

Mr. David J. Bannister
Vice President and CNO
Omaha Public Power District
Fort Calhoun Station
444 South 16th St. Mall
Omaha, NE 68102-2247

SUBJECT: FORT CALHOUN STATION, UNIT NO. 1 - ISSUANCE OF AMENDMENT RE:
REVISION TO TECHNICAL SPECIFICATION SECTIONS 2.0.1 AND 2.7 FOR
INOPERABLE SYSTEM, SUBSYSTEM, OR COMPONENT DUE TO
INOPERABLE POWER SOURCE AND DELETION OF DIESEL GENERATOR
SURVEILLANCE REQUIREMENT 3.7(1)e (TAC NO. ME1484)

Dear Mr. Bannister:

The U.S. Nuclear Regulatory Commission (NRC) has issued the enclosed Amendment No. 264 to Renewed Facility Operating License No. DPR-40 for the Fort Calhoun Station, Unit No. 1. The amendment consists of changes to the Technical Specifications (TSs) in response to your application dated May 29, 2009.

The amendment modifies the TSs as follows: (1) revises the definition for Operable-Operability; (2) modifies the provisions under which equipment may be considered operable when either its normal or emergency power source is inoperable; (3) deletes TS limiting condition for operation (LCO) 2.0.1(2); (4) deletes diesel generator Surveillance Requirement 3.7.1(e); and (5) relocates the guidance for inoperable power supplies and verifying the operability of redundant components into the LCO for electrical equipment 2.7, "Electrical Systems."

A copy of the related Safety Evaluation is also enclosed. The Notice of Issuance will be included in the Commission's next biweekly *Federal Register* notice.

Sincerely,
/RA/

Lynnea E. Wilkins, Project Manager
Plant Licensing Branch IV
Division of Operating Reactor Licensing
Office of Nuclear Reactor Regulation

Docket No. 50-285

Enclosures:

- 1. Amendment No. 264 to DPR-40
- 2. Safety Evaluation

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