

February 1, 2006

Mr. R. T. Ridenoure
Vice President - Chief Nuclear Officer
Omaha Public Power District
Fort Calhoun Station FC-2-4 Adm.
Post Office Box 550
Fort Calhoun, NE 68023-0550

SUBJECT: FORT CALHOUN STATION, UNIT NO. 1 - ISSUANCE OF AMENDMENT RE:
DELETION OF THE SHUTDOWN MARGIN SURVEILLANCE REQUIREMENT
(TAC NO. MC8095)

Dear Mr. Ridenoure:

The U.S. Nuclear Regulatory Commission (Commission) has issued the enclosed Amendment No. 237 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 (TS) in response to your application dated August 11, 2005.

The amendment deletes TS 2.10.2(9)b(iii). This surveillance requirement (SR) required the licensee to verify the shutdown margin on every 8-hour shift during low power physics testing. This change will make TS 2.10.2(9)b more consistent with SR 3.1.7 of NUREG-1432, "Standard Technical Specifications Combustion Engineering Plants, Revision 3." In addition, the Containment Structural Tests Report is deleted from TS 5.9.3c and several administrative and editorial changes were approved.

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/

Alan B. Wang, Project Manager
Plant Licensing Branch IV
Division of Operating Reactor Licensing
Office of Nuclear Reactor Regulation

Docket No. 50-285

Enclosures: 1. Amendment No. 237 to DPR-40
2. Safety Evaluation

cc w/encls: See next page

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OMAHA PUBLIC POWER DISTRICT

DOCKET NO. 50-285

FORT CALHOUN STATION, UNIT NO. 1

AMENDMENT TO RENEWED FACILITY OPERATING LICENSE

Amendment No. 237
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 August 11, 2005, 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 to the Technical Specifications as indicated in the attachment to this license amendment, and paragraph 3.B. of 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. 237, 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 60 days from the date of issuance.

FOR THE NUCLEAR REGULATORY COMMISSION

/RA/

David Terao, Branch Chief
Plant Licensing Branch IV
Division of Operating Reactor Licensing
Office of Nuclear Reactor Regulation

Attachment: Changes to the Technical
Specifications

Date of Issuance: February 1, 2006

ATTACHMENT TO LICENSE AMENDMENT NO. 237

RENEWED FACILITY OPERATING LICENSE NO. DPR-40

DOCKET NO. 50-285

Replace the following pages of 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.

REMOVE

TOC - Page 3
2.1 - Page 21
2.10 - Page 9
Table 3-13
5.0 - Page 6
5.0 - Page 7
5.0 - Page 10
5.0 - Page 11
5.0 - Page 12
5.0 - Page 13
5.0 - Page 14
5.0 - Page 15
5.0 - Page 16
5.0 - Page 17
5.0 - Page 18
5.0 - Page 19

INSERT

TOC - Page 3
2.1 - Page 21
2.10 - Page 9
Table 3-13
5.0 - Page 6
5.0 - Page 7
5.0 - Page 10
5.0 - Page 11
5.0 - Page 12
5.0 - Page 13
5.0 - Page 14
5.0 - Page 15
5.0 - Page 16
5.0 - Page 17
5.0 - Page 18

SAFETY EVALUATION BY THE OFFICE OF NUCLEAR REACTOR REGULATION

RELATED TO AMENDMENT NO. 237 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 application dated August 11, 2005 (Agencywide Documents Access and Management System Accession No. ML052240078), Omaha Public Power District (OPPD) requested changes to the Technical Specifications (TSs)(Appendix A to Renewed Facility Operating License No. DPR-40) for the Fort Calhoun Station, Unit No. 1 (FCS).

The proposed amendment will delete TS 2.10.2(9)b(iii). This surveillance requirement (SR) required the licensee to verify the shutdown margin (SDM) on every 8-hour shift during low power physics testing. This change will make TS 2.10.2(9)b more consistent with SR 3.1.7 of NUREG-1432, "Standard Technical Specifications Combustion Engineering Plants, Revision 3." In addition, OPPD proposes to delete the Containment Structural Tests Report from TS 5.9.3c and make several administrative and editorial changes.

2.0 REGULATORY EVALUATION

The SDM Test exemption of TS 2.10.2(9)b provides that a minimum amount of control element assembly (CEA) worth is immediately available for reactivity control when physics tests are performed for CEA worth measurement. This will ensure that the operators can respond promptly to unexpected increases in core reactivity during the tests. This special test exemption is needed to permit the periodic verification of the actual versus predicted core reactivity condition occurring because of fuel burnup or fuel cycling conditions. The following criteria apply to the SDM requirements:

Section XI of Title 10 of the *Code of Federal Regulations* (10 CFR), Part 50, Appendix B, "Quality Assurance Criteria for Nuclear Power Plants and Fuel Reprocessing Plants," requires that a test program be established to ensure that structures, systems, and components will perform satisfactorily in service. All functions necessary to ensure that specified design conditions are not exceeded during normal operation and anticipated operational occurrences must be tested. Testing is required prior to initial criticality, after each refueling shutdown, during startup, low power operation, power ascension, and at power operation. The physics

tests requirements for reload fuel cycles ensure that the operating characteristics of the core are consistent with the design predictions, and that the core can be operated as designed.

Appendix I, "Startup Manual," of the FCS Updated Safety Analysis Report (USAR) defines the requirements for initial testing of the facility, including physics tests. Requirements for reload fuel cycle physics tests are defined in ANSI/ANS-19.6.1-1985 (Reference 7.6 of the licensee's submittal). Although these physics tests are generally accomplished within the limits of all limiting conditions for operations (LCOs), conditions may occur when one or more LCOs must be suspended to make completion of physics tests possible or practical. This is acceptable as long as the fuel design criteria are not violated. As long as Linear Heat Rate (LHR) remains within its limit, fuel design criteria are preserved.

The initial condition criteria for accidents sensitive to core power distribution are preserved by the LHR and DNB parameter limits. The criteria for the loss-of-coolant accident (LOCA) are specified in 10 CFR 50.46, "Acceptance criteria for emergency core cooling systems for light-water nuclear power reactors." The criteria for the loss of a forced reactor coolant flow accident are specified in Chapter 14.6 of the FCS USAR. Operation within the LHR limit preserves the LOCA criteria; operation within the departure from nucleate boiling (DNB) parameter limits preserve the loss of flow criteria.

The remaining changes proposed by this LAR are administrative or editorial in nature.

3.0 TECHNICAL EVALUATION

3.1 Deletion of SDM SR TS 2.10.2(9)b(iii)

Physics testing is required prior to initial criticality, after each refueling shutdown, during startup, low power operation, power ascension, and at power operation. The physics tests requirements for reload fuel cycles ensure that the operating characteristics of the core are consistent with design predictions and that the core can be operated as designed.

Physics test procedures are written and approved in accordance with established formats. The procedures include all information necessary to permit a detailed execution of testing required to ensure that the design intent is met. Physics tests are performed in accordance with these procedures, and test results are approved prior to continued power escalation and long-term power operation. Examples of physics tests include determination of critical boron concentration, CEA group worths, reactivity coefficients, flux symmetry, and core power distribution. It is acceptable to suspend certain LCOs for physics tests because fuel damage criteria are not exceeded. Even if an accident occurs during physics tests with one or more LCOs suspended, fuel damage criteria are preserved because adequate limits on power distribution and shutdown capability are maintained.

TS 2.10.2(9)b provides an exemption to the SDM required by TS 2.10.2(1). During the low power physics testing for CEA worth and SDM, the SDM requirement may be reduced provided the following conditions are met:

1. The SDM can be reduced to the worth of the highest estimated CEA from the operable withdrawn CEAs and clarifies that during measurement of CEA worth, an allowance for the most reactive stuck CEA (of the groups withdrawn) is assumed when calculating SDM;
2. During low power physics testing, the position of each CEA required to be trippable is determined at least once every two hours; and
3. Each CEA not fully inserted must be demonstrated capable of full insertion when tripped from at least the 50 percent withdrawn position within 7 days of reducing SDM to less than the limits of TS 2.10.2(1).

These requirements ensure that SDM is sufficient at all times to enable the reactor to be quickly shutdown, if necessary, during low power physics testing. These requirements are similar to those of TS 3.1.7, "Special Test Exceptions (STE) - SHUTDOWN MARGIN (SDM)" of NUREG-1432.

OPPD has proposed to delete TS 2.10.2(9)b(iii). During the SDM low power physics testing, TS 2.10.2(9)b(iii) states that SDM "shall be verified every 8-hour shift." The purpose of TS 2.10.2(9) is to permit relaxation of existing LCOs to allow the performance of certain physics tests to determine CEA worth and shutdown margin. The SDM exemption of TS 2.10.2(9)b is needed to permit the periodic verification of the actual versus predicted core reactivity condition occurring because of fuel burnup or fuel cycling conditions. This special test exemption assures that a minimum amount of CEA worth is immediately available for reactivity control when physics tests are performed for CEA worth measurement.

Reactivity control during low power physics testing is provided primarily by trippable CEAs whose position is determined every 2 hours in accordance with TS 2.10.2(9)b(i)2. Should the SDM required by TS 2.10.2(9)b(i) be unavailable, TS 2.10.2(9)b(ii) requires boration to be initiated immediately and continued until the SDM required by the Core Operating Limits Report (COLR) is achieved. Requiring that shutdown reactivity equivalent to at least the highest estimated CEA worth (of those CEAs actually withdrawn) be available for trip insertion from the operable CEA provides a high degree of assurance that shutdown capability is maintained for the most challenging postulated accident, a stuck CEA. If, however, the SDM requirement of TS 2.10.2 is suspended, there is not the same degree of assurance during this test that the reactor would always be shut down if the highest worth CEA was stuck out and calculational uncertainties or the estimated highest CEA worth was not as expected (i.e., the single-failure criterion is not met). However, the NRC staff concludes that this situation is acceptable because specified acceptable fuel limits are still met. The risk of experiencing a stuck CEA and subsequent criticality is reduced during this Physics Test exception by the requirements to determine CEA positions every 2 hours; by the trip of each CEA to be withdrawn 24 hours prior to suspending the SDM; and by ensuring that shutdown reactivity is available, equivalent to the reactivity worth of the estimated highest worth withdrawn CEA. Thus, the TS 2.10.2(9)b(iii) requirement to verify SDM every 8-hour shift is unnecessary. The SRs that remain in TS 2.10.2(9)b following the deletion of (iii) adequately verify SDM during low power physics testing and are consistent with SR 3.1.7 of NUREG-1432, Revision 3.

In addition, an audible count rate signal and makeup controller alarm warn the control room to allow corrective actions to be taken to isolate the primary makeup water source by closing valves and/or stopping the primary makeup water pumps or the charging pumps. Because of the equipment and controls and the administrative procedures provided for the boron dilution operation, the probability of erroneous dilution is considered very small. Nevertheless, if an unintentional dilution of boron in the reactor coolant does occur, numerous alarms and indications are available to alert the operator to the condition. Therefore, for the hot standby, hot shutdown, cold shutdown, and refueling modes, the maximum reactivity addition due to the dilution is slow enough to allow the operator to determine the cause of the dilution and take corrective action before the required shutdown margin is completely lost.

Deletion of the requirement to verify SDM each shift is acceptable, because the SRs that remain in TS 2.10.2(9)b ensure that the SDM provided by the CEAs is adequate and that the CEAs are capable of full insertion. As CEA positions will be verified at least once per 2-hour interval during low power physics testing and provide adequate SDM, the 8-hour SDM SR is a redundant requirement. In addition, it would be unlikely that the SDM surveillance of TS 2.10.2(9)b(iii), which is performed at an 8-hour interval, would result in the discovery that SDM is insufficient before the control room is alerted by an increase in the count rate or makeup controller alarm. Should the SDM provided by the CEAs be unavailable, boration is initiated immediately and continued until the SDM required by the COLR is met. Based on the above, the Nuclear Regulatory Commission (NRC) staff concludes that TS 2.10.2(9)b(iii) may be deleted from the TSs. This change is consistent with SR 3.1.7 in NUREG-1432, which does not include this SR.

3.2 Deletion of Containment Structural Tests Report From TS 5.9.3c, "Special Reports"

OPPD has proposed to delete "Containment Structural Tests Report" from TS 5.9.3c, "Special Reports." Amendment 216 relocated TS 3.5(5), which contained requirements for submitting the Containment Structural Test report, to the FCS USAR. Thus, although the Containment Structural Tests Report is listed in TS 5.9.3c, there is no TS requirement to submit it. Therefore, the Containment Structural Tests Report of TS 5.9.3c can be deleted from the TSs as a special report that must be submitted to the NRC. In addition, in accordance with paragraph (b)(2)(viii) of 10 CFR 50.55a, conditions indicative of containment structural deterioration or degradation are reported in the Inservice Inspection (ISI) Report prepared in accordance with the American Society of Mechanical Engineers (ASME), Section XI, Subsection IWA-6000 requirements. OPPD inspects the containment structure in accordance with the criteria of ASME, Section XI, Subsections IWE and IWL, 1992 Edition with the 1992 Addenda. As required by paragraph (b)(2)(viii) of 10 CFR 50.55a, OPPD reports conditions indicative of containment deterioration or degradation in the ISI Summary Report required by ASME, Section XI, Subsection IWA-6000, and TS 5.9.3a. Therefore, the information provided in this report is redundant to the requirements of 10 CFR 50.55a and TS 5.9.3a, and will continue to be provided to the NRC staff.

3.3 Table of Contents

Amendment 228 revised TSs 5.5, 5.6, and 5.9.2 to show that they are "Not Used" but did not revise the TOC accordingly. OPPD proposes to revise Page 3 of the Table of Contents (TOC) to reflect the changes approved in Amendment 228 to show TSs 5.5, 5.6, and 5.9.2 as "Not Used." Amendment 231 deleted the remaining routine reports (Monthly Operating Report and

Annual Occupational Exposure Report) of TS 5.9.1. OPPD proposes to revise Page 3 of the TOC to reflect the changes approved in Amendment 231 to show TS 5.9.1 is "Not Used." The NRC staff concludes that this change is administrative in nature and, therefore, is acceptable.

3.4 TS 2.1.6 and its Basis

The changes proposed for TS 2.1.6 improve grammatical structure by inserting appropriate punctuation and revising sentences with missing, incomplete, or inappropriate words. The NRC staff has reviewed these changes and agree that they are editorial in nature and, therefore, are acceptable. The NRC staff does not review Bases changes as they are controlled by TS 5.20, "Technical Specification (TS) Bases Control Program."

3.5 Table 3-13, Steam Generator Tube Inspections

OPPD proposes to revise Table 3-13, "Steam Generator Tube Inspections," to delete two occurrences of the phrase "Prompt notification to the NRC pursuant to specification 5.6." Amendment 228 deleted TS 5.6, "Reportable Event Action," because its requirements were redundant to 10 CFR 50.72 and 50.73. Therefore, since the FCS TSs no longer contains TS 5.6, the statements contained in Table 3-13 can be deleted. The NRC staff has reviewed these changes and agree that they are administrative in nature and, therefore, are acceptable.

3.6 Page 10 of TS 5.0

OPPD has proposed to delete Page 10 of TS 5.0 which is currently designated as "Not Used." With the deletion of this page all subsequent TS 5.0 pages are being renumbered accordingly. The NRC staff has reviewed these changes and agree that they are administrative in nature and, therefore, are acceptable.

3.7 TS 5.16.1g

OPPD has proposed to revise the last sentence of TS 5.16.1g to change the period following the words "For noble gases" to a comma. The NRC staff has reviewed this change and concluded it is editorial in nature and therefore, is acceptable.

3.8 TS 5.21

OPPD has proposed to revise TS 5.21 to correct an error showing Revision 3 of Regulatory Guide 1.35, "Inservice Inspection of UngROUTED Tendons in Prestressed Concrete Containments," as issued in 1989. The correct date of Regulatory Guide 1.35, Revision 3 is 1990. The NRC staff has reviewed this change and agrees that it is editorial in nature and, therefore, is acceptable.

4.0 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.

5.0 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 (70 FR 56503; September 27, 2005). 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.

6.0 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: A. Wang

Date: February 1, 2006

Ft. Calhoun Station, Unit 1

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