



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

April 7, 2017

Ms. Mary J. Fisher
Senior Director for Decommissioning
Omaha Public Power District
Fort Calhoun Station
9610 Power Lane, Mail Stop FC-2-4
Blair, NE 68008

SUBJECT: FORT CALHOUN STATION, UNIT NO. 1 - ISSUANCE OF AMENDMENT
RE: REMOVAL OF LICENSE CONDITION 3.D FIRE PROTECTION PROGRAM
(CAC NO. MF8858)

Dear Ms. Fisher:

The U.S. Nuclear Regulatory Commission (the Commission) has issued the enclosed Amendment No. 290 to Renewed Facility Operating License (FOL) No. DPR-40 for the Fort Calhoun Station, Unit No. 1 (FCS). The amendment consists of changes to the operating license in response to your application dated November 18, 2016.

The amendment deletes paragraph 3.D, "Fire Protection Program," of Renewed FOL No. DPR-40, which requires that FCS implement and maintain a fire protection program that complies with the requirements of Sections 50.48(a) and 50.48(c) of Title 10 of the Code of Federal Regulations (10 CFR). Since power operations are terminated at FCS and the reactor is permanently defueled, FCS will maintain a fire protection program in accordance with 10 CFR 50.48(f).

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 "James Kim".

James Kim, Project Manager
Special Projects and Process Branch
Division of Operating Reactor Licensing
Office of Nuclear Reactor Regulation

Docket No. 50-285

Enclosures:

1. Amendment No. 290 to DPR-40
2. Safety Evaluation

cc: Listserv



UNITED STATES
NUCLEAR REGULATORY COMMISSION
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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. 290
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 November 18, 2016, 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.D of Renewed Facility Operating License No. DPR-40 is hereby amended to read as follows:

D. DELETED

3. The license amendment is effective as of its date of issuance and shall be implemented within 90 days from the date of issuance.

FOR THE NUCLEAR REGULATORY COMMISSION



Douglas A. Broaddus, Chief
Special Projects and Process Branch
Division of Operating Reactor Licensing
Office of Nuclear Reactor Regulation

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

Date of Issuance: April 7, 2017

ATTACHMENT TO LICENSE AMENDMENT NO. 290
RENEWED FACILITY OPERATING LICENSE NO. DPR-40
DOCKET NO. 50-285

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

License Pages

| <u>REMOVE</u> | <u>INSERT</u> |
|---------------|---------------|
| -4- | -4- |
| -5- | -5- |
| -6- | -- |
| -7- | -- |
| -8- | -- |

D. DELETED

E. Updated Final Safety Analysis Report

The Omaha Public Power District Updated Final Safety Analysis Report supplement, submitted pursuant to 10 CFR 54.21 (d), describes certain future activities to be completed prior to the period of extended operation. The Omaha Public Power District shall complete these activities no later than August 9, 2013, and shall notify the NRC in writing when implementation of these activities is complete and can be verified by NRC inspection.

The Updated Final Safety Analysis Report supplement, as revised, shall be included in the next scheduled update to the Updated Final Safety Analysis Report required by 10 CFR 50.71 (e)(4) following issuance of this renewed license. Until that update is complete, the Omaha Public Power District may make changes to the programs and activities described in the supplement without prior Commission approval, provided that the Omaha Public Power District evaluates each such change pursuant to the criteria set forth in 10 CFR 50.59 and otherwise complies with the requirements in that section.

F. Appendix B

The Additional Conditions contained in Appendix B, as revised through Amendment No. 286, are hereby incorporated into this license. Omaha Public Power District shall operate the facility in accordance with the Appendix B Additional Conditions.

G. Mitigation Strategy License Condition

Develop and maintain strategies for addressing large fires and explosions and that include the following key areas:

- (a) Fire fighting response strategy with the following elements:
 - 1. Pre-defined coordinated fire response strategy and guidance
 - 2. Assessment of mutual aid fire fighting assets
 - 3. Designated staging areas for equipment and materials
 - 4. Command and control
 - 5. Training of response personnel

- (b) Operations to mitigate fuel damage considering the following:
 - 1. Protection and use of personnel assets
 - 2. Communications
 - 3. Minimizing fire spread
 - 4. Procedures for implementing integrated fire response strategy
 - 5. Identification of readily-available pre-staged equipment
 - 6. Training on integrated fire response strategy
 - 7. Spent fuel pool mitigation measures

- (c) Actions to minimize release to include consideration of:
 - 1. Water spray scrubbing
 - 2. Dose to onsite responders
- 4. This renewed license is effective as of the date of issuance and shall expire at midnight on August 9, 2033.

FOR THE NUCLEAR REGULATORY COMMISSION

Original Signed by:
J. E. Dyer

J. E. Dyer, Director
Office of Nuclear Reactor Regulation

Attachments: 1. Appendix A - Technical Specifications
2. Appendix B - Additional Conditions

Date of Issuance: November 4, 2003



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

SAFETY EVALUATION BY THE OFFICE OF NUCLEAR REACTOR REGULATION

RELATED TO AMENDMENT NO. 290 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 June 24, 2016 (Agencywide Documents Access and Management System (ADAMS) Accession No. ML16176A213), Omaha Public Power District (OPPD, the licensee), submitted a certification to the U.S. Nuclear Regulatory Commission (NRC) indicating it would permanently cease power operations at Fort Calhoun Station, Unit No. 1 (FCS) by December 31, 2016.

By letter dated November 13, 2016 (ADAMS Accession No. ML16319A254), OPPD informed the NRC that in accordance with Title 10 of the *Code of Federal Regulations* (10 CFR) 50.82(a)(1)(ii), as of November 13, 2016, all fuel has been permanently removed from the FCS reactor vessel and placed into the FCS spent fuel pool. Further, the letter stated that OPPD understands and acknowledges that upon docketing these certifications for permanent cessation of operations and permanent removal of fuel from the reactor vessel, the 10 CFR Part 50 license no longer authorizes operation of the reactor or emplacement or retention of fuel into the reactor vessel.

By application dated November 18, 2016 (ADAMS Accession No. ML16323A228), the licensee requested to delete paragraph 3.D, "Fire Protection Program," of Renewed Facility Operating License (FOL) No. DPR-40 for FCS. This license condition (LC) requires that FCS implement and maintain a fire protection program that complies with the requirements of 10 CFR 50.48(a) and 10 CFR 50.48(c), National Fire Protection Association (NFPA) Standard 805, "Performance-Based Standard for Fire Protection for Light Water Reactor Electric Generating Plants, 2001 Edition" (NFPA 805), as specified in the license. This safety evaluation addresses the licensee's request to delete LC 3.D.

2.0 REGULATORY EVALUATION

By application to the NRC dated September 28, 2011 (ADAMS Accession No. ML112760660), OPPD submitted a license amendment request (LAR) to transition the FCS fire protection program from 10 CFR 50.48(b) to 10 CFR 50.48(c), or NFPA 805. The licensee requested an amendment to the FCS Renewed FOL and Technical Specifications in order to establish and maintain a risk-informed, performance-based fire protection program accordance with the

requirements of 10 CFR 50.48(c). In its LAR, the licensee provided a description of the revised fire protection program for which it was requesting NRC approval to implement, a description of the fire protection program that it would implement under 10 CFR 50.48(a) and (c), and the results of the evaluations and analyses required by NFPA 805.

By letter dated June 16, 2014 (ADAMS Accession No. ML14098A092), the NRC issued Amendment No. 275 for the FCS to incorporate the NFPA 805 fire protection licensing basis in accordance with 10 CFR 50.48(c). The amendment authorized the transition of the licensee's fire protection program to a risk-informed, performance-based program based on the 2001 Edition of NFPA 805¹.

The requirements for decommissioning a nuclear power plant are set out in several NRC regulations, including 10 CFR Part 20, Subpart E, "Radiological Criteria for License Termination"; 10 CFR 50.75, "Reporting and recordkeeping for decommissioning planning"; 10 CFR 50.82, "Termination of license"; 10 CFR 51.53, "Postconstruction environmental reports"; and 10 CFR 51.95, "Postconstruction environmental impact statements." Subpart E to 10 CFR Part 20 provides the main decommissioning requirements.

For permanently shut down reactors, 10 CFR 50.48(f) governs fire protection for plants licensed under 10 CFR 50.48(b) or Appendix R and 10 CFR 50.48(c) or NFPA 805. The regulations under 10 CFR 50.48(f) require licensees that have certified the permanent cessation of operations and the removal of fuel from the reactor vessel to maintain a fire protection program to address the potential for fires that could result in a radiological hazard. The objectives of the fire protection program in 10 CFR 50.48(f)(1) are to (1) reasonably prevent such fires from occurring; (2) rapidly detect, control, and extinguish fires that could result in a radiological hazard; and (3) minimize the risk of fire-induced radiological hazards to the public, environment, and plant personnel. In addition, 10 CFR 50.48(f) notes that a fire protection program that complies with NFPA 805 shall be deemed acceptable for complying with the regulatory requirements for the fire protection of plants that have been decommissioned and permanently shut down. The regulations under 10 CFR 50.48(f)(2) require licensees to assess the fire protection program on a regular basis and revise it, as needed, throughout the various stages of facility decommissioning. The requirements of 10 CFR 50.48(f)(3) permit licensees to make changes to the fire protection program without NRC approval if these changes do not reduce the effectiveness of fire protection for facilities, systems, and equipment that could result in a radiological hazard, taking into account the conditions and activities of decommissioning at the facility.

Regulatory Guide 1.191, Revision 0, "Fire Protection Program for Nuclear Power Plants During Decommissioning and Permanent Shutdown," May 2001 (ADAMS Accession No. ML011500010), establishes the fire protection objectives and staff positions for implementing fire protection for those nuclear power plants that have submitted the necessary certifications for license termination under 10 CFR 50.82(a)(1).

¹ National Fire Protection Association, NFPA 805, *Performance-Based Standard for Fire Protection for Light Water Reactor Electric Generating Plants*, 2001 Edition, Quincy, Massachusetts.

3.0 TECHNICAL EVALUATION

In its LAR, the licensee proposed to delete LC 3.D for FCS because OPPD has permanently ceased operation of FCS. This LC is specific to fire protection and requires the licensee to implement and maintain a fire protection program that complies with the requirements of 10 CFR 50.48(a) and 10 CFR 50.48(c).

Current paragraph 3.D of Renewed FOL DPR-40 states:

3.D Fire Protection Program

Omaha Public Power District shall implement and maintain in effect all provisions of the approved fire protection program that comply with 10 CFR 50.48(a) and 10 CFR 50.48(c), as specified in the licensee amendment request dated September 28, 2011 (and supplements dated December 19, 2011, December 22, 2011, March 20, 2012, July 24, 2012, August 24, 2012, September 27, 2012, April 23, 2013, May 21, 2013, July 29, 2013, September 12, 2013, October 11, 2013, November 4, 2013, November 11, 2013, December 18, 2013, January 24, 2014, February 28, 2014, April 10, and June 11, 2014), and as approved in the safety evaluation dated June 16, 2014. Except where NRC approval for changes or deviations is required by 10 CFR 50.48(c), and provided no other regulation, technical specification, license condition or requirement would require prior NRC approval, the licensee may make changes to the fire protection program without prior approval of the Commission if those changes satisfy the provisions set forth in 10 CFR 50.48(a) and 10 CFR 50.48(c), the change does not require a change to a technical specification or a license condition, and the criteria listed below are satisfied.

(1) Risk-Informed Changes that May Be Made Without Prior NRC Approval

A risk assessment of the change must demonstrate that the acceptance criteria below are met. The risk assessment approach, methods, and data shall be acceptable to the NRC and shall be appropriate for the nature and scope of the change being evaluated; be based on the as-built, as-operated, and maintained plant; and reflect the operating experience at the plant.

Acceptable methods to assess the risk of the change may include methods that have been used in the peer-reviewed fire PRA model, methods that have been approved by NRC through a plant-specific license amendment or NRC approval of generic methods specifically for use in NFPA 805 risk assessments, or methods that have been demonstrated to bound the risk impact.

- (a) Prior NRC review and approval is not required for changes that clearly result in a decrease in risk. The proposed change must also be consistent with the defense-in-depth philosophy and must maintain sufficient safety margins.

The change may be implemented following completion of the plant change evaluation.

- (b) Prior NRC review and approval is not required for individual changes that result in a risk increase less than 1×10^{-7} /year (yr) for core damage frequency (CDF) and less than 1×10^{-8} /yr for large early release frequency (LERF). The proposed change must also be consistent with the defense-in-depth philosophy and must maintain sufficient safety margins. The change may be implemented following completion of the plant change evaluation.

(2) Other Changes that May Be Made Without Prior NRC Approval

- (a) Changes to NFPA 805, Chapter 3, Fundamental Fire Protection Program

Prior NRC review and approval are not required for changes to the NFPA 805, Chapter 3, fundamental fire protection program elements and design requirements for which an engineering evaluation demonstrates that the alternative to the Chapter 3 element is functionally equivalent or adequate for the hazard. The licensee may use an engineering evaluation to demonstrate that a change to an NFPA 805, Chapter 3, element is functionally equivalent to the corresponding technical requirement. A qualified fire protection engineer shall perform the engineering evaluation and conclude that the change has not affected the functionality of the component, system, procedure, or physical arrangement, using a relevant technical requirement or standard.

The licensee may use an engineering evaluation to demonstrate that changes to certain NFPA 805, Chapter 3, elements are acceptable because the alternative is "adequate for the hazard." Prior NRC review and approval would not be required for alternatives to four specific sections of NFPA 805, Chapter 3, for which an engineering evaluation demonstrates that the alternative to the Chapter 3 element is adequate for the hazard. A qualified fire protection engineer shall perform the engineering evaluation and conclude that the change has not affected the functionality of the component, system, procedure, or physical arrangement, using a relevant technical requirement or standard. The four specific sections of NFPA 805, Chapter 3, are as follows:

- "Fire Alarm and Detection Systems" (Section 3.8);
- "Automatic and Manual Water-Based Fire Suppression Systems" (Section 3.9);

- “Gaseous Fire Suppression Systems” (Section 3.10); and,
- “Passive Fire Protection Features” (Section 3.11).

This License Condition does not apply to any demonstration of equivalency under Section 1.7 of NFPA 805.

(b) Fire Protection Program Changes that Have No More than Minimal Risk Impact

Prior NRC review and approval are not required for changes to the licensee’s fire protection program that have been demonstrated to have no more than a minimal risk impact. The licensee may use its screening process as approved in the NRC safety evaluation dated June 16, 2014, to determine that certain fire protection program changes meet the minimal criterion. The licensee shall ensure that fire protection defense-in-depth and safety margins are maintained when changes are made to the fire protection program.

(3) Transition License Conditions

- (a) Before achieving full compliance with 10 CFR 50.48(c), as specified by D.(3)(b) and D.(3)(c) below, risk-informed changes to the licensee’s fire protection program may not be made without prior NRC review and approval unless the change has been demonstrated to have no more than a minimal risk impact, as described in D.(2)(b) above.
- (b) The licensee shall implement the modifications to its facility, as described in Enclosure 1, Attachment S, Table S-2, “Plant Modifications Committed,” of OPPD letter LIC-14-0042, dated April 10, 2014, to complete the transition to full compliance with 10 CFR 50.48(c) by the end of the second refueling outage following issuance of the license amendment. The licensee shall maintain appropriate compensatory measures in place until completion of these modifications.
- (c) The licensee shall implement the items listed in Enclosure 1, Attachment S, Table S-3, “Implementation Items,” of OPPD letter LIC-14-0042, dated April 10, 2014, no later than 12 months after issuance of the license amendment.

Revised paragraph 3.D of Renewed FOL DPR-40 would state:

3.D DELETED

The licensee stated that LC 3.D is based on maintaining an operational fire protection program in accordance with 10 CFR 50.48, "Fire protection," with the ability to achieve and maintain safe shutdown of the reactor in the event of a fire and is no longer applicable at FCS. However, many of the elements that are applicable for the operating plant's fire protection program continue to be applicable during plant decommissioning. During the decommissioning process, a fire protection program is required by 10 CFR 50.48(f) to address the potential for fires that could result in a radiological hazard. However, the regulation is applicable regardless of whether a requirement for a fire protection program is included in the facility operating license. Therefore, an LC requiring such a program for a permanently shut down and defueled plant is not needed. Further, the licensee stated that LC 3.D. specifies conditions for making changes to the fire protection program without prior NRC approval. The conditions specified in the LC include consideration of risk metrics (e.g., increase in core damage frequency) associated with power operation. The conditions specified in LC 3.D. are no longer required or appropriate for a decommissioned reactor, since 10 CFR 50.48(f)(3) applies and specifies the applicable conditions for making changes to the fire protection program after permanent removal of fuel from the reactor vessel.

The NRC staff finds that LC 3.D, "Fire Protection Program," for FCS is based on maintaining a fire protection program that provides reasonable assurance that the ability to achieve and maintain safe shutdown in the event of a fire in accordance with 10 CFR 50.48 is preserved. Achieving and maintaining safe shutdown in the event of a fire is no longer applicable to the decommissioned fire protection program at FCS, since the reactor is permanently shut down and the fuel has been removed from the reactor. However, elements of the fire protection program continue during decommissioning to address fire events that could result in radiological hazards. The regulation in 10 CFR 50.48(f) requires FCS to address the potential for fires, which could result in a radiological hazard. The rule is sufficient to ensure that a program is required and therefore having an LC that also requires a fire protection program for the permanently shut down and defueled reactor is redundant. Based on the evaluation above, the NRC staff concludes that reliance on 10 CFR 50.48(f) is appropriate and the fire protection LC is no longer necessary. Based on the above, the NRC staff concludes that the licensee's proposed change to delete LC 3.D for FCS 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 on March 9, 2017. 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 published in the *Federal Register* on January 17, 2017 (82 FR 4931). 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) there is reasonable assurance that 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: N. Iqbal, NRR

Date: April 7, 2017

SUBJECT: FORT CALHOUN STATION, UNIT NO. 1 - ISSUANCE OF AMENDMENT
 RE: REMOVAL OF LICENSE CONDITION 3.D FIRE PROTECTION PROGRAM
 (CAC NO. MF8858) DATED APRIL 7, 2017

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*memo dated

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