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

June 30, 2015

Mr. Louis P. Cortopassi
Site Vice President and Chief Nuclear Officer
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: REVISING METHOD FOR CONTROLLING RAW WATER INTAKE CELL LEVEL (TAC NO. MF2591)

Dear Mr. Cortopassi:

The U.S. Nuclear Regulatory Commission has issued the enclosed Amendment No. 282 to Renewed Facility Operating License No. DPR-40 for the Fort Calhoun Station, Unit No. 1 (FCS). The amendment consists of changes to the design basis as described in the FCS Updated Safety Analysis Report (USAR) in response to your application dated August 16, 2013, as supplemented by letters dated August 13, 2014, and February 13 and March 24, 2015.

The amendment revises the design basis method in the FCS USAR for controlling the raw water intake cell level during periods of elevated river levels.

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,

CFLyon

Carl F. Lyon, Project Manager
Plant Licensing Branch IV-1
Division of Operating Reactor Licensing
Office of Nuclear Reactor Regulation

Docket No. 50-285

Enclosures:
1. Amendment No. 282 to DPR-40
2. Safety Evaluation

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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. 282
Renewed License No. DPR-40

1. The Nuclear Regulatory Commission (NRC, the Commission) has found that:

   A. The application for amendment by the Omaha Public Power District (the licensee), dated August 16, 2013, as supplemented by letters dated August 13, 2014, and February 13 and March 24, 2015, 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. 282, are hereby incorporated in the license. Omaha Public Power District 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 180 days from the date of issuance. In addition, the licensee shall include the revised information in the next Final Safety Analysis Report update submitted to the NRC in accordance with 10 CFR 50.71(e), as described in the licensee's application dated August 16, 2013, as supplemented by letters dated August 13, 2014, and February 13 and March 24, 2015, and evaluated in the staff's safety evaluation enclosed with this amendment.

FOR THE NUCLEAR REGULATORY COMMISSION

Michael T. Markley

Michael T. Markley, Chief
Plant Licensing Branch IV-1
Division of Operating Reactor Licensing
Office of Nuclear Reactor Regulation

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

Date of Issuance: June 30, 2015

ATTACHMENT TO LICENSE AMENDMENT NO. 282

RENEWED FACILITY OPERATING LICENSE NO. DPR-40

DOCKET NO. 50-285

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

License Page

REMOVE	INSERT
-3-	-3-

(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. 282 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.

OPPD shall fully implement and maintain in effect all provisions of the Commission-approved cyber security plan (CSP), including changes made pursuant to the authority of 10 CFR 50.90 and 10 CFR 50.54(p). The OPPD CSP was approved by License Amendment No. 266.

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

SAFETY EVALUATION BY THE OFFICE OF NUCLEAR REACTOR REGULATION

RELATED TO AMENDMENT NO. 282 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 16, 2013 (Reference 1), as supplemented by letters dated August 13, 2014, and February 13 and March 24, 2015 (References 2, 3, and 4, respectively), Omaha Public Power District (OPPD) requested changes to the design basis as described in the Updated Safety Analysis Report (USAR) for the Fort Calhoun Station, Unit No. 1 (FCS). The proposed amendment would revise the design basis method in the FCS USAR for controlling the raw water (RW) intake cell level during periods of elevated river levels. Specifically, the proposed changes revise the current licensing basis (CLB) as described in the USAR to allow implementation of plant modification engineering change (EC) 55394, "Raw Water Pump Operation and Safety Classification of Components during a Flood." Specifically, OPPD proposes to change the CLB described in the USAR Sections 2.7, "Hydrology," and 9.8, "Raw Water Systems," to provide the bases for the safety classification of components required for operation of the safety class 3 (SC-3) RW pumps. The modification EC 55394 would employ the trash rack blowdown portion of the circulating water system to allow river water to flow into four of those pipes and then through four newly installed safety class valves for control of cell level (RW pump suction level) using river level as the driving force. The proposed changes also address, in part, the notices of violation 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," Section III, "Design Control," issued by the U.S. Nuclear Regulatory Commission (NRC) on May 11, 2012, and March 11, 2013 (References 5 and 6, respectively), identifying that OPPD failed to properly classify the six intake structure exterior sluice gates and their motor operators as SC-3 components as defined in the USAR Appendix N, "Reclassification of Systems."

The supplemental letters dated August 13, 2014, and February 13 and March 24, 2015, provided additional information that clarified the application, did not expand the scope of the application as originally noticed, and did not change the NRC staff's original proposed no significant hazards consideration determination as published in the *Federal Register* on March 18, 2014 (79 FR 15149).

2.0 REGULATORY EVALUATION

The NRC-approved design and licensing bases for the facility demonstrate compliance with applicable NRC regulations. Accordingly, the NRC staff reviewed the licensee's application from a mechanical and civil engineering perspective to verify that the design and licensing basis requirements of the RW system continue to be satisfied by the proposed changes.

Appendix B, Section III, "Design Control", of 10 CFR Part 50, requires, in part, that

> Measures shall be established to assure that applicable regulatory requirements and the design basis, as defined in § 50.2 and as specified in the license application, for those structures, systems, and components to which this appendix applies are correctly translated into specifications, drawings, procedures, and instructions.

The licensee's USAR Appendix N, "Reclassification of Systems," states that RW supply piping is designed as SC-3. USAR Appendix N also states that SC-1, -2, and -3 components are considered to be Seismic Category I. The Seismic Category I requirements specified for specific plant systems is shown in USAR Appendix F, "Classification of Structures and Equipment and Seismic Criteria." Specifically, Seismic Category I equipment needs to maintain its functionality during and following a maximum hypothetical earthquake or design basis earthquake.

In general, but not always, SC-3 components are also Seismic Category I. The NRC staff's guidance on seismic classification and safety classification is provided, in part, in:

- Regulatory Guide (RG) 1.26, "Quality Group Classifications and Standards for Water-, Steam- and Radioactive-Waste-Containing Components of Nuclear Power Plants," Revision 4, March 2007, and

- RG 1.29, "Seismic Design Classification," Revision 4, March 2007.

In the case of the intake cell flood water inlet valves at FCS, the valves are SC-3, but they are relied upon to perform their safety function during a flooding event, but not during a seismic event. Therefore, the licensee originally concluded that the valves did not need to be qualified as Seismic Category I. However, should a flooding event occur after a seismic event (e.g., a Fukushima-type scenario), the valves must still be able to perform their safety function. Therefore, the valves must be seismically qualified.

FCS USAR Appendix F, "Classification of Structures and Equipment and Seismic Criteria," Section 2.2.2, "Structures or Equipment Supported In or On Other Structures," states, in part, that,

> In 1980, the NRC initiated an Unreviewed Safety Issue (USI) A-46 to review the seismic adequacy of equipment in certain operating nuclear power plants against seismic criteria not in use when these plants were licensed. Fort Calhoun Station was identified as one of the A-46 plants which must be reviewed. OPPD joined

the Seismic Qualification Utility Group (SQUG) which published the Generic Implementation Procedure, Revision 2 (GIP-2) (Reference 8) for evaluating these plants. The NRC accepted the SQUG procedure for resolving USI A-46 in Supplementary Safety Evaluation Report No. 2 (SSER No. 2) (Reference 9).

OPPD used GIP-2 in its entirety, including the clarifications, interpretations, and exceptions identified in SSER No. 2, as clarified by the August 21, 1992, SQUG letter (Reference 10), to evaluate the seismic adequacy of selected safe shutdown equipment in the Fort Calhoun Station (Reference 11). The NRC issued a Safety Evaluation Report to OPPD on July 30, 1998, which accepted the results of the USI A-46 program for Fort Calhoun Station, including the approach used to resolve the outliers (Reference 12).

SQUG issued Revision 3 of the GIP (GIP-3) on May 16, 1997, to include additional restrictions and certain editorial and typographical changes to GIP-2 (Reference 13). The NRC accepted these changes in Supplemental Safety Evaluation Report No. 3 (SSER No. 3) (Reference 14).

The elements of the OPPD submittal for resolution of USI A-46 are maintained using the GIP to demonstrate that the Fort Calhoun Station can be brought to a safe shutdown condition following a safe shutdown earthquake (Reference 11).

The GIP-3, including the clarifications, interpretations and exceptions identified in SSER No. 2, as clarified in Reference 10 and in SSER No. 3 (Reference 14), may be used as an alternative method for seismic qualification of mechanical and electrical equipment, electrical relays, and cable and conduit raceway systems, and portions thereof. The use of GIP-3 is optional (i.e., the original design basis may continue to be used). This method can apply to the re-analysis or modification of existing items and to new or replacement items (except as noted below) and will be documented, therein, by reference to GIP-3 as the design basis for those calculations. This alternative seismic qualification method will not supersede specific commitments to use Regulatory Guide 1.100 (IEEE 344-1975) for certain equipment within the scope of Regulatory Guide 1.97 for seismic qualification of post-accident monitoring instrumentation in harsh environments.

The GIP-3 was originally developed for resolution of USI A-46. As such, portions of this document contain administrative, licensing, and documentation information which is only applicable to the USI A-46 program. Therefore, only the sections of GIP-3 listed below will be used to perform seismic qualification evaluation of equipment and systems. These sections will be used in their entirety, i.e., all the applicable criteria and methods defined in GIP-3 for an item of equipment or system will be used.

a. Part I, Section 2.3.4, Future Modifications and New and Replacement Equipment.

...

g. Appendix B, Summary of Equipment Class Descriptions and Caveats.

...
i. Appendix D, Seismic Interaction.

...
APPENDIX F REFERENCES
...
3.8 Generic Implementation Procedure (GIP) for Seismic Verification of Nuclear Power Plant Equipment, Revision 2, Corrected 02/14/98, Seismic Qualification Utility Group (SQUG), February 1992.
3.9 NRC letter to SQUG Members dated May 22, 1992, Supplemental No. 1 to Generic Letter 87-02 transmitting Supplemental Safety Evaluation Report No. 2 (SSER No. 2) on SQUG Generic Implementation Procedure, Revision 2, Corrected February 14, 1992 (GIP-2).
3.10 SQUG Letter to NRC dated August 21, 1992, SQUG Response to Generic Letter 87-02, Supplement 1 and Supplementary Safety Evaluation Report No. 2 on the SQUG GIP.
3.11 EA-FC-93-085, NRC USQ A-46 and Seismic IPEEE Resolution.
3.12 NRC Letter to OPPD dated July 30, 1998, Fort Calhoun Station, Unit No. 1 - Closeout of Unresolved Safety Issue A-46 (TAC No. M69447), OPPD Tracking No. NRC-98-129.
3.13 Generic Implementation Procedure for Seismic Verification of Nuclear Power Plant Equipment, Revision 3, Updated 05/16/97 (GIP-3), Seismic Qualification Utility Group (SQUG), May 1997.
3.14 NRC Letter for SQUG dated December 4, 1997, Supplemental Safety Evaluation Report No. 3 (SSER No. 3) on the Review of Revision 3 to the Generic Implementation Procedure for Seismic Verification of Nuclear Power Plant Equipment, Updated May 16, 1997 (GIP-3).

Appendix F to the FCS USAR indicates that the use of GIP-3 is optional for seismic adequacy of new and replacement equipment. This method can apply to the re-analysis or modification of existing items and to new or replacement items and will be documented, therein, by reference to GIP-3 as the design basis for those calculations. The NRC staff review focused on verifying that the licensee's design modification continues to comply with the requirements of USAR Appendix N and Appendix F, as mentioned above.

The NRC staff also reviewed the licensee's application regarding programs, procedures, training, plant design features, and operator manual actions related to operator performance during normal and accident conditions. The NRC staff conducted a human factors evaluation to confirm that operator performance would not be adversely affected as a result of the proposed revisions to the FCS USAR. The staff used the following regulatory guidance during its human factors evaluation:

- NUREG-0711, Revision 3, "Human Factors Engineering Program Review Model," November 2012 (Reference 13)

- NUREG-0800, "Standard Review Plan for the Review of Safety Analysis Reports for Nuclear Power Plants: LWR Edition," Chapter 18, Revision 2, "Human Factors Engineering," March 2007 (Reference 14)

- NUREG-1764, Revision 1, "Guidance for the Review of Changes to Human Actions," September 2007 (Reference 15)

3.0 TECHNICAL EVALUATION

3.1 Mechanical and Civil Engineering Evaluation

3.1.1 NRC Staff Evaluation

The licensee stated in its application that the new intake cell flood water inlet valves, CW-323, CW-324, CW-325, and CW-326, installed under Modification EC 55394 are classified as SC-3. The ability to open and throttle these valves is required to establish a flow path of river water to the RW pumps when the traveling screen sluice gates are closed and the piping leading to the valves is intact. The licensee also stated that the newly installed intake cell flood water inlet valves are not required to be seismically qualified or seismically supported.

In accordance with USAR Appendix N, SC-3 corresponds to the United States of America Standards Institution (USAS) B31.7 Class III, or the American Society of Mechanical Engineers (ASME) *Boiler and Pressure Vessel Code* (Code) Section III Class 3 component design codes. USAS B31.7 was included in and superseded by ASME Code Section III in 1971. The design conditions for Class 3 piping contained in these codes include a requirement to consider the effects of seismic events. Additionally, USAR Appendix N states that SC-1, -2, and -3 components are considered to be Seismic Category I. Therefore, the NRC staff concluded that the intake cell flood water inlet valves and their connecting piping must be seismically qualified.

In requests for additional information (RAIs) dated June 5 and 10, 2014 (References 16 and 17, respectively), the NRC staff requested the licensee to clarify the seismic requirement for the piping system with the intake cell flood water inlet valve design. In its letter dated February 13, 2015, the licensee provided its revised response to address the NRC staff's concern. The licensee stated that the intake cell flood water inlet valves installed under Modification EC 55394 are not required to be functional during a seismic event, since these components are only credited for flooding events and are not credited for any other nuclear safety function.

The NRC staff noted that although the valves are not required to be functional *during* a seismic event, they must maintain their functionality *after* a seismic event in order to be credited for a flooding event. This is also consistent with the FCS USAR, because SC-1, -2, and -3 components are considered as Seismic Category I. The licensee agreed with the staff's position and provided a regulatory commitment in its letter dated March 24, 2015, that it would qualify to Seismic Category I the SC-3 flood inlet valves, and that it would also seismically qualify those components directly connected to the SC-3 flood inlet valves within 180 days from the issuance of the amendment. The scheduler commitment is satisfactory to the NRC staff because it is a reasonable time to complete the seismic qualification. The seismic qualification will be achieved by piping analysis and/or the SQUG methodology to demonstrate that the piping and components remain functional following a design basis earthquake. The NRC staff confirmed that FCS was approved to use the GIP-3 for seismic verification of nuclear plant equipment. GIP-3, Section 2.3.4, "Future Modifications and New and Replacement Equipment," states that for any new equipment and replacement of, or modifications to, equipment having seismic requirements, licensees shall comply with the plant's licensing basis and the licensee must satisfy the conditions and caveats provided by the GIP-3, should the licensing bases include use of GIP-3 methodology as an option for verifying seismic adequacy. Since the GIP-3 applies only to seismic qualification for valves, but not for piping components, the licensee must also seismically analyze the raw water inlet related piping. The licensee committed in its letter dated March 24, 2015, that the seismic qualification will be completed within 180 days from issuance of amendment.

Based on the licensee's letter dated March 24, 2015, the NRC staff concludes that there is reasonable assurance that the structural and pressure boundary integrity of the aforementioned structures, systems, and components will be adequately maintained following the implementation of the proposed Modification EC 55394. The scheduler commitment is satisfactory to the NRC staff because it is a reasonable time to complete the seismic qualification. The seismic qualification itself does not require a commitment, because it is associated with the licensee's corrective actions for NRC notices of violation in References 5 and 6, which are already encompassed under the NRC's Enforcement Policy, and it complies with the requirements of FCS USAR Appendix N and Appendix F.

3.1.2 Mechanical and Civil Engineering Evaluation Conclusion

The NRC staff has reviewed the licensee's assessment and proposed follow-up actions associated with the proposed changes for the RW intake cell valves and connected piping at FCS. Based on the above, the NRC staff concludes that the proposed changes are acceptable with respect to the structural integrity of the RW intake cell valves and their connecting piping. Components classified as SC-3 will be qualified as Seismic Category I by the licensee. The seismic qualification will be achieved by piping analysis and/or the SQUG methodology to demonstrate that the piping and components remain functional following a design basis earthquake. The licensee committed that all the seismic qualification will be completed within 180 days from issuance of amendment.

3.1.3 Regulatory Commitments

In its letter dated March 24, 2015, the licensee made the following regulatory commitments:

Regulatory Commitment Table

Commitment	Committed Date or Outage	One-Time Action (Yes/No)	Programmatic (Yes/No)
• Components classified as Safety Class (SC) 3 will be qualified Seismic Category I. • Limited – CQE (i.e., augmented quality) components directly supporting the SC-3 flood inlet valves will be seismically analyzed by piping analysis and/or the Seismic Qualification Utility Group (SQUG) methodology to demonstrate that the piping and components remain functional following a design basis earthquake.	180 days from issuance of amendment.	Yes	No

The scheduler commitment is satisfactory to the NRC staff because it is a reasonable time to complete the seismic qualification. The seismic qualification itself does not require a commitment, because it is associated with the licensee's corrective actions for NRC notices of violation in References 5 and 6, which are already encompassed under the NRC's Enforcement Policy, and it complies with the requirements of FCS USAR Appendix N and Appendix F.

3.2 Human Factors Evaluation

3.2.1 Description of Operator Actions

The previously approved method for controlling the RW level within the intake cell required operators to close five of the six sluice gates completely leaving one partially open to allow a path for water to enter the cell. Water level within the intake cell was maintained below 1007.5 feet by cycling the RW pumps as needed.

The method above is modified by the license amendment request (LAR) being reviewed. The proposed new method requires closure of all six sluice gates. Water enters the intake cell via the trash rack backwash lines and newly installed intake cell flood water inlet valves. These four butterfly valves can be manually throttled as needed to control level within the intake cell. The RW pumps can also be used if needed for intake cell level control; however, the use of the intake cell flood water inlet valves for level control reduces the likelihood that RW pumps will need to be cycled.

These actions are necessary for protection during a 1009.3-foot flood and are guided by the abnormal operating procedure (AOP)-01, "Acts of Nature." As described in USAR Section 2.7, at the FCS site the probable maximum flood that might occur as a result of runoff from a probable maximum rainstorm over the area below the Gavins Point dam coupled with an assumed outflow of 50,000 cubic feet per second from Gavins Point reservoir is 1009.3 feet. The distributed control system (DCS) screen, an existing computerized display, provides information regarding cell water level to the operators so that they know when to manually adjust the valves in accordance with AOP-01.

The NRC staff used the guidance in Chapter 2.4.3.1 of NUREG-1764 (Reference 15) was used to assess the appropriate level of human factors review. NUREG-1764 provides guidance for reviewing changes in human actions, such as those that are credited in nuclear power plant safety analyses. The evaluation method uses a two-phased approach. The first phase is a screening analysis of the licensee's proposed modification and the affected human actions to assess their risk-importance. A graded, risk-informed approach is used to determine the appropriate level of human factors engineering review. This approach can be accomplished for licensee submittals that are either risk-informed or non-risk-informed. For risk-informed submittals, the first phase has four steps: (1) use of Regulatory Guide (RG) 1.174 to determine the risk-importance of the entire plant change or modification that involves the human action, (2) quantification of the risk-importance of the human action itself, (3) qualitative evaluation of the human action, and (4) integrated assessment to determine the appropriate level of human factors engineering review. For non-risk informed submittals, a similar process is used which includes the use of generic risk information to determine the safety significance of the human actions in place of the first two steps used in a risk-informed submittal

The proposed human actions are assigned to one of three risk levels (high, medium, and low) as a result of Phase 1. The level of human factors engineering review in the second phase corresponds to these risk levels. In Phase II, human actions are reviewed using standard human factors engineering criteria to ensure the appropriate conditions are in place so that the change in human action does not significantly increase the potential for risk. Human actions in the high risk level receive a detailed human factors engineering review, while those in the medium risk level undergo a less detailed review, commensurate with their risk. For human actions in the low risk level, there is a minimal human factors engineering review or none.

In accordance with NUREG-1764, an NRC staff risk analyst was consulted and the actions associated with the proposed changes were assessed to be of very low risk importance, justifying a level III human factors review. However, the information provided by the licensee was sufficient to support a more conservative level II review; therefore, the NRC staff conducted a level II review, as provided in section 3.2.2 below, without elements that were unlikely to be useful.

3.2.2 NRC Staff Analysis

3.2.2.1 Functional and Task Analysis

The changes to the task are relatively simple, so the licensee did not perform a formalized functional analysis or task analysis. The change from starting/throttling RW pumps to throttling butterfly valves is straightforward and in many respects simpler to accomplish. The proposed changes are relatively uncomplicated, proceduralized, and would not typically necessitate a formal functional analysis or task analysis. AOP-01 directs the timing of actions indicating to operators when actions should be taken and the DCS screen alerts operators as to when water levels approach thresholds in the procedures.

This provides reasonable assurance that operators will have adequate guidance to successfully complete flooding-related tasks. Therefore, the NRC staff concludes the proposed changes are acceptable.

3.2.2.2 Staffing

Minimal changes to operator actions have occurred as a result of the design change, and involve operators controlling the intake cell level by throttling the intake cell flood water inlet valves rather than by starting or stopping pumps. This is not expected to cause significant changes to staffing. There are no expected significant changes to workload being introduced by the proposed changes that would necessitate additional staffing and, therefore, the NRC staff concludes the proposed changes are acceptable.

3.2.3 Design of Human System-Interfaces, Procedures, and Training

3.2.3.1 Human System-Interfaces Design

The August 13, 2014, response to RAI number 3 (Reference 2), describes the control room displays and alarms to indicate various parameters needed to monitor in the intake structure. The DCS screen is the display used to monitor intake cell levels in the control room. It has no control functions. Manual measurements can be used to complete AOP-01 in the case that DCS is lost. Alarms are triggered at various water levels and operators are trained to follow Annunciator Response Procedure ARP-DCS-TWS. This procedure guides operators through manual operation of the intake cell flood water inlet valves as well as using RW pumps to maintain appropriate levels as needed.

Control of the intake cell level is conducted using the intake cell flood water inlet and isolation valves, which are both located about 10 feet off of the floor of the 998-foot level. Long-stem manual operators are used to ensure that personnel can operate them from the 1007.5-foot level of the intake structure.

Based on the above, the NRC staff concludes that there is reasonable assurance that operators have sufficient information and guidance to monitor intake cell water levels and can perform the necessary control actions and, therefore, the proposed changes are acceptable.

3.2.3.2 Procedure Development

The primary procedure guiding the tasks under review is AOP-01, "Acts of Nature." This procedure will be updated to reflect changes to the FCS USAR. The procedure includes steps necessary to close the six traveling screen sluice gates and to provide the flow path for river water to the RW pumps (by opening the intake cell flood water inlet valves). Operators are instructed to control the internal water level below 1007.5 feet during flood conditions.

The licensee's August 13, 2014, response to RAI number 1 identifies and describes the changes necessary to other procedures and licensing documents including normal operating procedures, preventive maintenance procedures, and others.

Conforming changes to operator procedures based on the proposed changes to the licensing basis are controlled by existing procedure modification controls. Therefore, the NRC staff concludes that the proposed changes are acceptable.

3.2.3.3 Training

The August 13, 2014, response to RAI number 2 indicates that non-licensed operators (i.e., equipment/auxiliary operators; not NRC-licensed reactor operators) received on-shift training prior to procedures being implemented. The procedures were applicable to compensatory measures currently in place. It also indicates that Circulating Water System training lesson plans for both licensed and non-licensed operators will be updated and implemented as part of this license amendment.

The proposed changes provide reasonable assurance that those non-licensed operators who will perform the manual actions under review will have the necessary skills to complete the tasks; therefore, the NRC staff concludes that the proposed changes are acceptable.

3.2.4 Human Action Verification

The licensee's August 13, 2014, response to RAI number 4 indicates that OPPD demonstrated the ability to control intake cell levels for an extended period of time during the 2011 Missouri

River flood (classified as an Unusual Event). The method for controlling intake cell level was quite similar at that time to the proposed method with the only two differences: (1) all six of the sluice gates will be completely closed in the proposed method as opposed to five, and (2) the intake cell level will be controlled using the intake cell flood water inlet valves rather than solely by running the RW pumps.

The RAI response also indicates that procedure "SO-G-74 Fort Calhoun Station EOP/AOP [emergency operating procedure/abnormal operating procedure] Generation Program," was used to control changes to AOP-01. This process includes a verification and validation of the associated actions to ensure that they are feasible, reliable, and can be completed in the available amount of time.

Procedure SO-G-74 uses the NRC-approved processes (References 13 and 15) for procedure control and verification. Recent operating experience of intake cell level control using a similar method provides additional assurance than the proposed methods are capable of being implemented during a flooding event; therefore, the NRC staff concludes that this treatment is acceptable.

3.2.5 Human Factors Conclusion

The NRC staff reviewed the manual actions described in the licensee's submittal and determined that the licensee plan for controlling intake cell water level meets or exceeds the relevant review criteria associated with a Level II review as described in NUREG-1764 (Reference 15) and as noted above. Based on the above, the staff concludes the changes to these manual actions are 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 published in the *Federal Register* on March 18, 2014 (79 FR 15149). 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.

7.0 REFERENCES

1. Cortopassi, L. P., Omaha Public Power District, letter to U.S. Nuclear Regulatory Commission, "License Amendment Request (LAR) 13-03, Request to Revise Updated Safety Analysis Report to Allow Implementation of Modification EC 55394, Raw Water Pump Operation and Safety Classification of Components during a Flood," dated August 16, 2013 (ADAMS Accession No. ML13231A178).

2. Cortopassi, L. P., Omaha Public Power District, letter to U.S. Nuclear Regulatory Commission, "OPPD Response to NRC Request for Additional Information Regarding License Amendment Request (LAR) 13-03, Revising Method for Controlling Raw Water Intake Cell Level," dated August 13, 2014 (ADAMS Accession No. ML14226A738).

3. Cortopassi, L. P., Omaha Public Power District, letter to U.S. Nuclear Regulatory Commission, "Revised Response to NRC Request for Additional Information Regarding License Amendment Request (LAR) 13-03, Revising Method for Controlling Raw Water Intake Cell Level, dated August 13, 2014 (ML14226A738) (LIC-14-0092)," dated February 13, 2015 (ADAMS Accession No. ML15050A246).

4. Cortopassi, L. P., Omaha Public Power District, letter to U.S. Nuclear Regulatory Commission, "Regulatory Commitment Regarding License Amendment Request (LAR) 13-03, Revising Method for Controlling Raw Water Intake Cell Level," dated March 24, 2015 (ADAMS Accession No. ML15083A359).

5. Clark, J. A., U.S. Nuclear Regulatory Commission, letter to David J. Bannister, Omaha Public Power District, "Fort Calhoun – NRC Integrated Inspection Report No. 05000285/2012002," dated May 11, 2012; EA-2012-095 (ADAMS Accession No. ML12132A395).

6. Hay, M., U.S. Nuclear Regulatory Commission, letter to Louis P. Cortopassi, Omaha Public Power District, "Fort Calhoun – NRC Inspection Report No. 05000285/2013011 and Notice of Violation," dated March 11, 2013; EA-13-043 (ADAMS Accession No. ML13070A399).

7. Seismic Qualification Utility Group, "Generic Implementation Procedure (GIP) for Seismic Verification of Nuclear Power Plant Equipment," Revision 2, corrected February 14, 1992, (ADAMS Legacy Accession No. 9212140073).

8. Partlow, J. G., U.S. Nuclear Regulatory Commission, letter to All Unresolved Safety Issue (USI) A-46 Plant Licensees Who are Members of the Seismic Qualification Utility Group (SQUG), "Supplement No. 1 to Generic Letter (GL) 87-02 that Transmits Supplemental Safety Evaluation Report No. 2 (SSER No. 2) on SQUG Generic Implementation Procedure, Revision 2, as Corrected on February 14, 1992 (GIP-2)," dated May 22, 1992 (ADAMS Accession No. ML031140292).

9. Smith, N. P., Seismic Qualification Utility Group, letter to U.S. Nuclear Regulatory Commission, "SQUG Response to Generic Letter 87-02, Supplement 1 and Supplementary Safety Evaluation Report No. 2 on the SQUG GIP," dated August 21, 1992 (ADAMS Legacy Accession No. 9210060417).

10. Wharton, L. R., U.S. Nuclear Regulatory Commission, letter to S. K. Gambhir, Omaha Public Power District, "Fort Calhoun Station, Unit No. 1 - Closeout of Unresolved Safety Issue A-46 (TAC No. M69447)," OPPD Tracking No. NRC-98-129, dated July 30, 1998 (ADAMS Legacy Accession No. 9808030271).

11. Smith, N. P., Seismic Qualification Utility Group, letter to J. Stolz, U.S. Nuclear Regulatory Commission, "Generic Implementation Procedure (GIP) for Seismic Verification of Nuclear Power Plant Equipment, Revision 3, Updated 05/16/97, and Procedures for Revising the GIP, Revision 3," dated May 16, 1997 (not available in ADAMS).

12. Stolz, J. F., U.S. Nuclear Regulatory Commission, letter to N. P. Smith, Seismic Qualification Utility Group, "Supplemental Safety Evaluation Report No. 3 (SSER No. 3) on the Review of Revision 3 to the Generic Implementation Procedure for Seismic Verification of Nuclear Power Plant Equipment, Updated May 16, 1997 (GIP-3)," dated December 4, 1997 (ADAMS Legacy Accession No. 9712090266).

13. NUREG-0711, Revision 3, "Human Factors Engineering Program Review Model," November 2012 (ADAMS Accession No. ML12324A013).

14. NUREG-0800, "Standard Review Plan for the Review of Safety Analysis Reports for Nuclear Power Plants: LWR Edition," Chapter 18, Revision 2, "Human Factors Engineering," March 2007 (ADAMS Accession No. ML110140715).

15. NUREG-1764, Revision 1, "Guidance for the Review of Changes to Human Actions," September 2007 (ADAMS Accession No. ML072640413).

16. Sebrosky, J., U.S. Nuclear Regulatory Commission, email to B. Hansher and E. Edwards, Omaha Public Power District, "Fort Calhoun Request for Additional Information Associated with License Amendment Request to Revise the Method for Controlling Raw Water Intake Cell Level during Floods (MF2591)," dated June 5, 2014 (ADAMS Accession No. ML14156A222).

17. Rankin J., U.S. Nuclear Regulatory Commission, email to B. Hansher and E. Edwards, Omaha Public Power District, "Fort Calhoun Request for Additional Information Regarding License Amendment to Revise the Method for Controlling Raw Water Intake Cell Level during Floods (MF2591)," dated June 10, 2014 (ADAMS Accession No. ML14162A376).

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Date: June 30, 2015

June 30, 2015

Mr. Louis P. Cortopassi
Site Vice President and Chief Nuclear Officer
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: REVISING METHOD FOR CONTROLLING RAW WATER INTAKE CELL LEVEL (TAC NO. MF2591)

Dear Mr. Cortopassi:

The U.S. Nuclear Regulatory Commission has issued the enclosed Amendment No. 282 to Renewed Facility Operating License No. DPR-40 for the Fort Calhoun Station, Unit No. 1 (FCS). The amendment consists of changes to the design basis as described in the FCS Updated Safety Analysis Report (USAR) in response to your application dated August 16, 2013, as supplemented by letters dated August 13, 2014, and February 13 and March 24, 2015.

The amendment revises the design basis method in the FCS USAR for controlling the raw water intake cell level during periods of elevated river levels.

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/

Carl F. Lyon, Project Manager
Plant Licensing Branch IV-1
Division of Operating Reactor Licensing
Office of Nuclear Reactor Regulation

Docket No. 50-285

Enclosures:
1. Amendment No. 282 to DPR-40
2. Safety Evaluation

cc w/encls: Distribution via Listserv

DISTRIBUTION:
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LPL4-1 Reading
RidsAcrsAcnw_MailCTR Resource
RidsNrrDeEmcb Resource
RidsNrrDorlDpr Resource
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RidsNrrDraAphb Resource
RidsNrrLAJBurkhardt Resource
RidsNrrPMFortCalhoun Resource
RidsRgn4MailCenter Resource
GLapinsky, NRR/DRA/APHB
KHsu, NRR/DE/EMCB
YLi, NRR/DE/EMCB
BGreen, NRR/DRA/APHB
RidsNrrDssSbpb Resource

ADAMS Accession No. ML15111A399 *SE memo dated **Previously concurred

OFFICE	NRR/DORL/LPL4-1/PM	NRR/DORL/LPL4-1/LA	NRR/DRA/APHB/BC(A)	NRR/DE/EMCB/BC(A)
NAME	FLyon	JBurkhardt**	DChung*	YLi*
DATE	6/30/15	4/22/15	9/18/14	4/13/15
OFFICE	NRR/DSS/SBPB/BC	OGC	NRR/DORL/LPL4-1/BC	NRR/DORL/LPL4-1/PM
NAME	GCasto**	SUttal**	MMarkley	FLyon
DATE	5/29/15	6/22/15	6/30/15	6/30/15

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