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

April 15, 2016

Mr. Adam C. Heflin
President, Chief Executive Officer,
and Chief Nuclear Officer
Wolf Creek Nuclear Operating Corporation
P.O. Box 411
Burlington, KS 66839

SUBJECT: WOLF CREEK GENERATING STATION - ISSUANCE OF AMENDMENT RE: REVISE TECHNICAL SPECIFICATION SURVEILLANCE REQUIREMENTS 3.8.1.10 AND 3.8.1.14 (CAC NO. MF6754)

Dear Mr. Heflin:

The U.S. Nuclear Regulatory Commission (the Commission) has issued the enclosed Amendment No. 215 to Renewed Facility Operating License No. NPF-42 for the Wolf Creek Generating Station. The amendment consists of changes to the Technical Specifications (TSs) in response to your application dated September 23, 2015.

The amendment revises the diesel generator (DG) full load rejection test and endurance and margin test specified by TS 3.8.1, "AC [Alternating Current] Sources - Operating," Surveillance Requirements (SRs) 3.8.1.10 and 3.8.1.14, respectively. The change adds a new Note to SR 3.8.1.10 and SR 3.8.1.14, consistent with Technical Specification Task Force (TSTF) traveler TSTF-276-A, Revision 2, "Revise DG full load rejection test." The Note allows the full load rejection test and endurance and margin test to be performed at the specified power factor with clarifications addressing situations when the power factor cannot be achieved.

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

Sincerely,

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

Docket No. 50-482

Enclosures:
1. Amendment No. 215 to NPF-42
2. Safety Evaluation

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UNITED STATES
NUCLEAR REGULATORY COMMISSION
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WOLF CREEK NUCLEAR OPERATING CORPORATION

WOLF CREEK GENERATING STATION

DOCKET NO. 50-482

AMENDMENT TO RENEWED FACILITY OPERATING LICENSE

Amendment No. 215
License No. NPF-42

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

   A. The application for amendment to the Wolf Creek Generating Station (the facility) Renewed Facility Operating License No. NPF-42 filed by the Wolf Creek Nuclear Operating Corporation (the Corporation), dated September 23, 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, as amended, 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, the license is amended by changes to the Technical Specifications as indicated in the attachment to this license amendment and Paragraph 2.C.(2) of Renewed Facility Operating License No. NPF-42 is hereby amended to read as follows:

(2) Technical Specifications and Environmental Protection Plan

The Technical Specifications contained in Appendix A, as revised through Amendment No. 215, and the Environmental Protection Plan contained in Appendix B, both of which are attached hereto, are hereby incorporated in the license. The Corporation shall operate the facility in accordance with the Technical Specifications and the Environmental Protection Plan.

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

FOR THE NUCLEAR REGULATORY COMMISSION

Robert J. Pascarelli, Chief
Plant Licensing Branch IV-1
Division of Operating Reactor Licensing
Office of Nuclear Reactor Regulation

Attachment:
Changes to the Renewed Facility
Operating License and
Technical Specifications

Date of Issuance: April 15, 2016

ATTACHMENT TO LICENSE AMENDMENT NO. 215

RENEWED FACILITY OPERATING LICENSE NO. NPF-42

DOCKET NO. 50-482

Replace the following pages of the Renewed Facility Operating License No. NPF-42 and Appendix A Technical Specifications with the attached revised pages. The revised pages are identified by amendment number and contain marginal lines indicating the areas of change.

Renewed Facility Operating License

REMOVE	INSERT
4	4

Technical Specifications

REMOVE	INSERT
3.8-9	3.8-9
3.8-13	3.8-13

(5) The Operating Corporation, 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 associated with radioactive apparatus or components; and

(6) The Operating Corporation, pursuant to the Act and 10 CFR Parts 30, 40 and 70, to possess, but not separate, such byproduct and special nuclear materials as may be produced by the operation of the facility.

C. This renewed operating license shall be deemed to contain and is subject to the conditions specified in the Commission's regulations in 10 CFR Chapter I 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:

(1) Maximum Power Level

The Operating Corporation is authorized to operate the facility at reactor core power levels not in excess of 3565 megawatts thermal (100% power) in accordance with the conditions specified herein.

(2) Technical Specifications and Environmental Protection Plan

The Technical Specifications contained in Appendix A, as revised through Amendment No. 215, and the Environmental Protection Plan contained in Appendix B, both of which are attached hereto, are hereby incorporated in the license. The Corporation shall operate the facility in accordance with the Technical Specifications and the Environmental Protection Plan.

(3) Antitrust Conditions

Kansas Gas & Electric Company and Kansas City Power & Light Company shall comply with the antitrust conditions delineated in Appendix C to this license.

(4) Environmental Qualification (Section 3.11, SSER #4, Section 3.11, SSER #5)*

Deleted per Amendment No. 141.

*The parenthetical notation following the title of many license conditions denotes the section of the supporting Safety Evaluation Report and/or its supplements wherein the license condition is discussed.

SURVEILLANCE REQUIREMENTS (continued)

SURVEILLANCE		FREQUENCY
SR 3.8.1.7	----------NOTE---------- All DG starts may be preceded by an engine prelube period. --- Verify each DG starts from standby condition and achieves: a. In ≤ 12 seconds, voltage ≥ 3950 V and frequency ≥ 59.4 Hz; and b. Steady state voltage ≥ 3950 V and ≤ 4320 V, and frequency ≥ 59.4 Hz and ≤ 60.6 Hz.	184 days
SR 3.8.1.8	Not Used.	
SR 3.8.1.9	Not Used.	
SR 3.8.1.10	----------NOTE---------- If performed with DG synchronized with offsite power, it shall be performed at a power factor ≤ 0.9. However, if grid conditions do not permit, the power factor limit is not required to be met. Under this condition, the power factor shall be maintained as close to the limit as practicable. --- Verify each DG does not trip and voltage is maintained ≤ 4992 V and frequency is maintained ≤ 65.4 Hz during and following a load rejection of ≥ 5650 kW and ≤ 6201 kW.	18 months

(continued)

SURVEILLANCE REQUIREMENTS (continued)

SURVEILLANCE		FREQUENCY
SR 3.8.1.14	----------NOTES---------- 1. Momentary transients outside the load and power factor ranges do not invalidate this test. 2. If performed with DG synchronized with offsite power, it shall be performed at a power factor ≤ 0.9. However, if grid conditions do not permit, the power factor limit is not required to be met. Under this condition, the power factor shall be maintained as close to the limit as practicable. ---------- Verify each DG operates for ≥ 24 hours: a. For ≥ 2 hours loaded ≥ 6300 kW and ≤ 6821 kW; and b. For the remaining hours of the test loaded ≥ 5650 kW and ≤ 6201 kW.	18 months
SR 3.8.1.15	----------NOTES---------- 1. This Surveillance shall be performed within 5 minutes of shutting down the DG after the DG has operated ≥ 2 hours loaded ≥ 5650 kW and ≤ 6201 kW. Momentary transients outside of load range do not invalidate this test. 2. All DG starts may be preceded by an engine prelube period. ---------- Verify each DG starts and achieves: a. In ≤ 12 seconds, voltage ≥ 3950 V and frequency ≥ 59.4 Hz; and b. Steady state voltage ≥ 3950 V and ≤ 4320 V, and frequency ≥ 59.4 Hz and ≤ 60.6 Hz.	18 months

(continued)

UNITED STATES
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WASHINGTON, D.C. 20555-0001

SAFETY EVALUATION BY THE OFFICE OF NUCLEAR REACTOR REGULATION

RELATED TO AMENDMENT NO. 215 TO

RENEWED FACILITY OPERATING LICENSE NO. NPF-42

WOLF CREEK NUCLEAR OPERATING CORPORATION

WOLF CREEK GENERATING STATION

DOCKET NO. 50-482

1.0 INTRODUCTION

By application dated September 23, 2015 (Agencywide Documents Access and Management System (ADAMS) Accession No. ML15273A156), Wolf Creek Nuclear Operating Corporation (the licensee) requested changes to the Technical Specifications (TSs) for Wolf Creek Generating Station (WCGS).

The proposed changes would revise the diesel generator (DG) full load rejection test and endurance and margin test specified by TS 3.8.1, "AC [Alternating Current] Sources - Operating," Surveillance Requirements (SR) 3.8.1.10 and 3.8.1.14, respectively. The change adds a new Note to SR 3.8.1.10 and SR 3.8.1.14, consistent with Technical Specification Task Force (TSTF) traveler TSTF-276-A, Revision 2, "Revise DG full load rejection test." The Note allows the full load rejection test and endurance and margin test to be performed at the specified power factor with clarifications addressing situations when the power factor cannot be achieved.

2.0 REGULATORY EVALUATION

The U.S. Nuclear Regulatory Commission (NRC) staff applied the following requirements to evaluate the license amendment request (LAR):

- Title 10 of the *Code of Federal Regulations* (10 CFR), Part 50, Appendix A, "General Design Criteria for Nuclear Power Plants," General Design Criterion (GDC) 17, "Electric power systems," requires, in part, that an onsite electric power system shall be provided to permit functioning of structures, systems, and components important to safety. The onsite electric power supplies, including the batteries, and the onsite electric distribution system, shall have sufficient independence, redundancy, and testability to perform their safety functions assuming a single failure. In addition, this criterion requires provisions to minimize the probability of losing electric power from any of the remaining supplies as a result of, or coincident with, the loss of power generated by the

nuclear power unit, the loss of power from the transmission network, or the loss of power from the onsite electric power supplies.

- GDC 18, "Inspection and testing of electric power systems," requires, in part, that electric power systems important to safety be designed to permit appropriate periodic inspection and testing to demonstrate operability and functional performance.

- 10 CFR 50.36, "Technical specifications," requires, in part, that the operating license of a nuclear power plant include TS. Paragraph 50.36(c)(3) requires that the 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, that the limiting conditions for operation will be met." The proposed changes discussed in this evaluation relate to the SR category.

The NRC staff considered the following guidance document to evaluate the LAR:

- TSTF-276-A, Revision 2, modified NUREG-1431, Revision 4, "Standard Technical Specifications, Westinghouse Plants" (ADAMS Accession No. ML12100A222), to allow certain DG testing to be performed even if the specified power factor cannot be achieved. The WCGS TSs were converted to improved TSs based on NUREG-1431 by Amendment No. 123, dated March 31, 1999 (ADAMS Accession No. ML022050061).

3.0 TECHNICAL EVALUATION

3.1 Background

As stated in Section 8.3 of the WCGS Updated Safety Analysis Report, the onsite power system is provided with two physically independent sources of offsite power. One circuit is fed from engineered safety feature (ESF) transformer XNB01 and supplies power normally to its associated 4.16 kiloVolt (kV) Class 1E bus. The other circuit is fed from one secondary winding of the startup transformer, through ESF transformer XNB02, and supplies power normally to its associated 4.16 kV Class 1E bus. In addition, each offsite power circuit can be manually aligned to supply power to the opposite or both 4.16 kV Class 1E busses, if required.

The onsite Class 1E alternating current power system is divided into two redundant load groups, which are powered from separate ESF transformers or two independent standby power sources (one per load group). Each Class 1E load group distributes power by a 4.16 kV bus, 480 Volt (V) load centers, and 480 V motor control centers.

The standby power supply for each safety-related load group consists of one Class 1E DG complete with its accessories and fuel storage and transfer systems. It is capable of supplying essential loads necessary to reliably and safely shut down and isolate the reactor. Each DG is rated at 6,201 kiloWatts (kW) for continuous operation. Additional ratings are 6,635 kW for 2,000 hours, 6,821 kW for 7 days, and 7,441 kW for 30 minutes. The DG 2-hour rating is equal to the 7-day rating. Each DG is connected exclusively to a single 4.16 kV ESF bus for one load

group. The load groups are redundant and have similar safety-related equipment. Each load group is adequate to satisfy minimum ESF demand caused by a loss-of-coolant accident and/or loss of preferred offsite power supply.

The standby power system is tested periodically to demonstrate the continued ability of the unit to perform its intended function. As specified in TS 3.8.1, at least once per 18 months, (1) SR 3.8.1.10 verifies each DG's capability to reject full load without overspeed tripping or exceeding the predetermined voltage limits, and (2) SR 3.8.1.14 verifies each DG's capability to start and run at full load continuously for an interval of not less than 24 hours. Surveillance Requirements 3.8.1.10 and 3.8.1.14 currently require the DGs to operate at a power factor of less than or equal to (≤) 0.9 and greater than or equal to (≥) 0.8 during the tests.

In the LAR, the licensee stated that SR 3.8.1.10 was suspended and rescheduled during the spring 2015 refueling outage because of the inability to maintain the power factor within the specified limit while maintaining ESF bus voltages within specified administrative limits. As a result, the licensee proposed to revise SR 3.8.1.10 and SR 3.8.1.14 to allow the DG tests to proceed even if the specified power factor cannot be achieved.

3.2 Proposed TS Changes

The licensee proposed to revise SR 3.8.1.10 and SR 3.8.1.14 by deleting the phrase "operating at a power factor ≤ 0.9 and ≥ 0.8" from the surveillance statement, and adding a new note, which addresses power factor requirements based on grid conditions when the DG is synchronized to the grid.

The current SR 3.8.1.10 states:

> Verify each DG operating at power factor ≤ 0.9 and ≥ 0.8 does not trip and voltage is maintained ≤ 4992 V and frequency is maintained ≤ 65.4 Hz during and following a load rejection of ≥ 5650 kW and ≤ 6201 kW.

The revised SR 3.8.1.10 would state:

> ----------NOTE----------
> If performed with DG synchronized with offsite power, it shall be performed at a power factor ≤ 0.9. However, if grid conditions do not permit, the power factor limit is not required to be met. Under this condition, the power factor shall be maintained as close to the limit as practicable.
> ----------
>
> Verify each DG does not trip and voltage is maintained ≤ 4992 V and frequency is maintained ≤ 65.4 Hz during and following a load rejection of ≥ 5650 kW and ≤ 6201 kW.

The current SR 3.8.1.14 states:

> ----------NOTE----------
> Momentary transients outside the load and power factor ranges do not invalidate this test.
> ----------
>
> Verify each DG operating at power factor ≤ 0.9 and ≥ 0.8 operates for ≥ 24 hours:
>
> a. For ≥ 2 hours loaded ≥ 6300 kW and ≤ 6821 kW; and
>
> b. For the remaining hours of the test loaded ≥ 5650 kW and ≤ 6201 kW.

The revised SR 3.8.1.14 would state:

> ----------NOTES----------
> 1. Momentary transients outside the load and power factor ranges do not invalidate this test.
>
> 2. If performed with DG synchronized with offsite power, it shall be performed at a power factor ≤ 0.9. However, if grid conditions do not permit, the power factor limit is not required to be met. Under this condition, the power factor shall be maintained as close to the limit as practicable.
> ----------
>
> Verify each DG operates for ≥ 24 hours:
>
> a. For ≥ 2 hours loaded ≥ 6300 kW and ≤ 6821 kW; and
>
> b. For the remaining hours of the test loaded ≥ 5650 kW and ≤ 6201 kW.

3.3 NRC Staff Evaluation

The NRC staff's evaluation is applicable to both SR 3.8.1.10 and SR 3.8.1.14.

The NRC staff reviewed the information provided in the LAR and determined that the revised SRs will continue to require the maximum power factor limit of 0.9 to be maintained to ensure that the DGs are tested under load conditions that are as close to design basis conditions as possible, when the SRs are performed with the DG paralleled to the grid. However, the proposed note will allow an exception to meeting the specified power factor limit when grid conditions do not permit it.

The proposed note for SR 3.8.1.10 and SR 3.8.1.14 is consistent with the note in NUREG-1431 as modified by NRC-approved TSTF-276-A. At times, grid voltage can be such that the additional excitation needed to achieve the specified power factor limit results in DG excitation levels or ESF bus voltages exceeding the expected limits. This increase can be detrimental or challenging to the DG systems and the safety-related loads connected to the ESF buses at the

time of the tests. In these situations, the NRC approved TSTF-276-A allows the DGs to operate at a power factor as close as practicable to the specified limit when synchronized with the grid to avoid placing the safety-related equipment in unsafe conditions during the tests. TSTF-276-A clarified that this allowance is acceptable as long as voltage on the ESF buses is maintained within acceptable limits and DG excitation levels are within recommended limits.

In the LAR, the licensee stated that the power factor of ≤ 0.9 in the proposed note is representative of the actual inductive loading a DG would see under design basis accident conditions. This power factor should normally be achieved when performing SR 3.8.1.10 and SR 3.8.1.14 with the reactor at power, with the DG synchronized with offsite power. In cases where the grid voltage is higher than typical, which can occur when the plant is shut down, the licensee stated that the additional field excitation current required to achieve a power factor of ≤ 0.9 results in ESF bus voltage exceeding the maximum steady state voltage limit. In other cases, the licensee stated that the grid voltage may be such that the DG excitation levels needed to obtain a power factor of 0.9 exceed the levels recommended for the DG. Under these conditions, the licensee stated that the proposed note would allow the SRs to be performed at a power factor as close as practicable to 0.9 while maintaining acceptable voltage limits on the ESF buses and without exceeding DG excitation limits.

As required by the current SR 3.8.1.10 and SR 3.8.1.14, the DGs will continue to be tested in any mode of operations with the revised SRs. The DGs are considered operable during performance of the SRs. The proposed Note requires that the SRs continue to be performed at the current bounding power factor limit of ≤ 0.9 and, if not possible because of grid conditions, at a power factor as close as practicable to the current limit. The NRC staff concludes that the proposed note will not impact the current operability requirement for the DGs since it ensures that the DGs are safely tested to demonstrate their ability to perform their safety design functions; therefore, SRs 3.8.1.10 and 3.8.1.14 will continue to meet the requirements of 10 CFR 50.36(c)(3).

Based on the above, the NRC staff concludes that the proposed note (1) provides flexibility in the DG testing to ensure that the plant safety systems are not challenged by the surveillance tests, (2) continues to meet the intent of the SRs, and (3) will be applied as recommended by in NRC approved TSTF-276-A. Therefore, the staff concludes that the proposed note is acceptable.

TSTF-276-A recommends that the TS Bases be expanded to reflect the allowance and justification for the acceptability of the allowance. The licensee stated that changes to the affected TS Bases will be incorporated into WCGS TS Bases in accordance with TS 5.5.14, "Technical Specification (TS) Bases Control Program," following issuance of the amendment. The licensee provided these changes in Attachment IV of the LAR for information only. The NRC staff has no objections to the proposed changes to the TS Bases.

In addition to the above changes, the licensee proposed to renumber the current note in SR 3.8.1.14 as note 1 and revise "NOTE" to "NOTES," with the addition of the new note as note 2. The NRC staff concludes that these changes are editorial and do not change the intent of the SRs. Therefore, the proposed changes are acceptable.

3.4 Evaluation Conclusion

The NRC staff reviewed the proposed changes to WCGS TS SR 3.8.1.10 and SR 3.8.1.14 for DG testing. The SRs currently require the DGs to operate within specified power factor limits when synchronized with the grid during the tests. The changes would revise the SRs by replacing the surveillance statement regarding the power factor limits with a new note that is consistent with TSTF-276-A, Revision 2. Based on the above technical evaluation, the staff concludes that the proposed TS changes provide reasonable assurance of the availability of equipment required to mitigate the consequences of design basis accidents. Thus, the staff concludes that the proposed TS changes continue to comply with the requirements of 10 CFR 50.36(c)(3), GDC 17, and GDC 18. Therefore, the staff concludes that the proposed changes are acceptable.

4.0 STATE CONSULTATION

In accordance with the Commission's regulations, the Kansas State official, Ms. K. Steves, was notified on March 21, 2016, 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 installation or use of a facility component located within the restricted area as defined in 10 CFR Part 20 and involves changes to SRs. 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 November 24, 2015 (80 FR 73242). 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: A. Foli, NRR/DE/EEEB

Date: April 15, 2016

A copy of our related Safety Evaluation is 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. 50-482

Enclosures:
1. Amendment No. 215 to NPF-42
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