October 12, 1999

Mr. Otto L. Maynard
President and Chief Executive Officer
Wolf Creek Nuclear Operating Corporation
Post Office Box 411
Burlington, KA 66839

SUBJECT: WOLF CREEK GENERATING STATION - ISSUANCE OF AMENDMENT REGARDING LOSS-OF-POWER 4 KV UNDERVOLTAGE TRIPS (TAC NO. MA6052)

Dear Mr. Maynard:

The Commission has issued the enclosed Amendment No. 128 to 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 July 8, 1999, as supplemented by letter of September 2, 1999.

The amendment increased the allowable values for engineered safety features actuation system (ESFAS) loss-of-power 4 kV undervoltage trips in Table 3.3-4 (functional units 8.a and 8.b) of the current Technical Specifications (TSs) and in surveillance requirement (SR) 3.3.5.3 of the improved TSs. The word "nominal" is also being added to describe the trip setpoint in SR 3.3.5.3 and in the Bases of the improved TSs. The improved TSs were issued in Amendment 123 dated March 31, 1999, but have not yet been implemented.

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,
Original Signed By
Jack N. Donohew, Senior Project Manager, Section 2
Project Directorate IV and Decommissioning
Division of Licensing Project Management
Office of Nuclear Reactor Regulation

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Docket No. 50-482

Enclosures: 1. Amendment No.128 to NPF-42
2. Safety Evaluation

cc w/encls: See next page

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

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Jack N. Donohew, Senior Project Manager, Section 2
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Docket No. 50-482

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2. Safety Evaluation

cc w/encls: See next page

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

WOLF CREEK NUCLEAR OPERATING CORPORATION

WOLF CREEK GENERATING STATION

DOCKET NO. 50-482

AMENDMENT TO FACILITY OPERATING LICENSE

Amendment No. 128
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) Facility Operating License No. NPF-42 filed by the Wolf Creek Nuclear Operating Corporation (the Corporation), dated July 8, 1999, as supplemented by letter dated September 2, 1999, comply 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 Facility Operating License No. NPF-42 is hereby amended to read as follows:

   2. Technical Specifications

      The Technical Specifications contained in Appendix A, as revised through Amendment No. 128, 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 will be implemented within 60 days of the date of issuance.

FOR THE NUCLEAR REGULATORY COMMISSION

Stephen Dembek, Chief, Section 2
Project Directorate IV and Decommissioning
Division of Licensing Project Management
Office of Nuclear Reactor Regulation

Attachment: Changes to the Technical Specifications

Date of Issuance: October 12, 1999

ATTACHMENT TO LICENSE AMENDMENT NO. 128

FACILITY OPERATING LICENSE NO. NPF-42

DOCKET NO. 50-482

Replace the following pages of the Appendix A Technical Specifications with the attached pages. The revised pages are to both the current Technical Specifications (CTS) and to the improved Technical Specifications (ITS). The revised pages are identified by the above amendment number and contain marginal lines indicating the areas of change. The corresponding overleaf pages are also provided to maintain document completeness.

REMOVE	INSERT	
3/4 3-27	3/4 3-27	(CTS)
3.3-45	3.3-45	(ITS)

TABLE 3.3-4 (Continued)

ENGINEERED SAFETY FEATURES ACTUATION SYSTEM INSTRUMENTATION TRIP SETPOINTS

FUNCTIONAL UNIT	TOTAL ALLOWANCE (TA)	Z	SENSOR ERROR (S)	TRIP SETPOINT	ALLOWABLE VALUE
8. Loss of Power					
a. 4 kV Undervoltage -Loss of Voltage	N.A.	N.A.	N.A.	≥ 83V (120V Bus) w/1s delay	≥ 82.5V (120V Bus) w/1 + 0.2, -0.5s delay
b. 4 kV Undervoltage -Grid Degraded Voltage	N.A.	N.A.	N.A.	≥ 106.9V (120V Bus) w/119s delay	≥ 105.9V (120V Bus) w/119 ± 11.6s delay
9. Control Room Isolation					
a. Manual Initiation	N.A.	N.A.	N.A.	N.A.	N.A.
b. Automatic Actuation Logic and Actuation Relays (SSPS)	N.A.	N.A.	N.A.	N.A.	N.A.
c. Automatic Actuation Logic and Actuation Relays (BOP ESFAS)	N.A.	N.A.	N.A.	N.A.	N.A.
d. Phase "A" Isolation	See Item 3.a. above for all Phase "A" Isolation Trip Setpoints and Allowable Values.				
10. Solid-State Load Sequencer	N.A.	N.A.	N.A.	N.A.	N.A.
11. Engineered Safety Features Actuation System Interlocks					
a. Pressurizer Pressure, P-11	N.A.	N.A.	N.A.	≤ 1970 psig	≤ 1979 psig
b. Reactor Trip, P-4	N.A.	N.A.	N.A.	N.A.	N.A.

TABLE 3.3-4 (Continued)

TABLE NOTATIONS

*Time constants utilized in the lead-lag controller for Steam Pressure-Low are $\tau_1 \geq 50$ seconds and $\tau_2 \leq 5$ seconds. CHANNEL CALIBRATION shall ensure that these time constants are adjusted to these values.

**The time constant utilized in the rate-lag controller for Steam Line Pressure-Negative Rate-High is greater than or equal to 50 seconds. CHANNEL CALIBRATION shall ensure that this time constant is adjusted to this value.

SURVEILLANCE REQUIREMENTS

	SURVEILLANCE	FREQUENCY
SR 3.3.5.1	Not Used.	
SR 3.3.5.2	----------NOTE---------- Verification of time delays is not required. ---------- Perform TADOT.	31 days
SR 3.3.5.3	Perform CHANNEL CALIBRATION with nominal Trip Setpoint and Allowable Value as follows: a. Loss of voltage Allowable Value ≥ 82.5, 120V bus with a time delay of 1.0 + 0.2, -0.5 sec. Loss of voltage nominal Trip Setpoint 83V, 120V bus with a time delay of 1.0 sec. b. Degraded voltage Allowable Value ≥ 105.9V, 120V bus with a time delay of 119 ± 11.6 sec. Degraded voltage nominal Trip Setpoint 106.9V, 120V bus with a time delay of 119 sec.	18 months
SR 3.3.5.4	Verify LOP DG Start ESF RESPONSE TIMES are within limits.	18 months on a STAGGERED TEST BASIS

3.3 INSTRUMENTATION

3.3.6 Containment Purge Isolation Instrumentation

LCO 3.3.6 The Containment Purge Isolation instrumentation for each Function in Table 3.3.6-1 shall be OPERABLE.

APPLICABILITY: According to Table 3.3.6-1.

ACTIONS

----------NOTE----------
Separate Condition entry is allowed for each Function.

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. ----------NOTE---------- Only applicable in MODE 1, 2, 3, or 4. ---------- One or more Functions with one or more channels or trains inoperable.	A.1 Place and maintain containment purge supply and exhaust valves in closed position.	Immediately

(continued)

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

SAFETY EVALUATION BY THE OFFICE OF NUCLEAR REACTOR REGULATION

RELATED TO AMENDMENT NO. 128 TO 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 July 8, 1999, Wolf Creek Nuclear Operating Corporation (the licensee) requested changes to the Technical Specifications for the Wolf Creek Generating Station (WCGS). The proposed changes would increase the allowable values for engineered safety features actuation system (ESFAS) loss-of-power 4 kV undervoltage trips in Table 3.3-4 (functional units 8.a and 8.b) of the current Technical Specifications (TSs) and in surveillance requirement (SR) 3.3.5.3 of the improved TSs. The word "nominal" is also being added to describe the trip setpoint in SR 3.3.5.3 and in the Bases of the improved TSs. The improved TSs were issued in Amendment 123 dated March 31, 1999, but have not yet been implemented.

The application was supplemented by letter dated September 2, 1999. This letter provided additional clarifying information, did not expand the scope of the application as originally noticed, and did not change the initial no significant hazards consideration determination published in the Federal Register on August 11, 1999 (64 FR 43782).

2.0 BACKGROUND

The emergency diesel generators (EDGs) provide emergency power to the site when offsite power is unavailable or sufficiently degraded to allow stable safe power operation. One of the engineered safety features actuation systems provides undervoltage and degraded voltage protection for the engineered safety feature 4.16 kV Class 1E (NB) system bus (the 4.16 kV bus). When actuated, the undervoltage and degraded voltage protection circuits will do the following:

a. Trip the 4.16 kV preferred normal and alternate bus feeder breakers to remove the deficient power source to protect the Class 1E equipment from damage;

b. Shed all loads from the bus except the Class 1E 480 Vac load centers and centrifugal charging pumps to prepare the buses for re-energization by the load shedder and emergency load sequencer (LSELS); and

c. Generate a EDG start signal.

These protection circuits are described in Section 8.3.1.1.3 of the Updated Safety Analysis Report (USAR) for WCGS. Each circuit has more than one channel for redundancy in having the trip function.

The TSs list allowable values and trip setpoints for the loss-of-voltage and degraded voltage ESFAS protection circuits of the EDG start instrumentation. The licensee has proposed to increase the allowable values and to add the term "nominal" to the trip setpoint for these protection circuits.

Conformance to the TSs requires periodic surveillance tests of the trip setpoints of each channel of these protection circuits. The requirement for this surveillance, the type of surveillance test, and the frequency of the periodic tests are not being changed by the proposed amendment. If the as-found trip setpoint is within the allowable value and the calibration tolerance band, the circuit channel is considered operable and no further action is required. If the as-found trip is within the allowable value but outside the calibration band, the circuit channel is operable but the trip is recalibrated to the TS value. If the as-found trip setpoint is less than the allowable value, the circuit channel is inoperable and the action statement for limiting condition for operation in the TSs for the trip setpoint is entered and the appropriate actions must be taken.

2.0 EVALUATION

Increase Allowable Values

In its submittal, the licensee stated that during a review of the load flow and voltage drop calculation E-B-8 that applies to the EDG it was discovered that a revision to the calculation had resulted in a revised worst case 4.16 kV bus voltages during steady state loss-of-coolant accident (LOCA) conditions in the WCGS USAR accident analyses. A calculation was performed by the licensee to establish the correct allowable values and trip setpoints for the loss of voltage and degraded voltage protection circuits for the EDG.

The licensee stated that the allowable value for the loss of voltage protection circuit was calculated taking into account instrument inaccuracies using the square root of the sum of the squares methodology. An allowable value of $\geq$82.5 volts was the result of the calculation. The trip setpoint remained the value in the TSs. The licensee stated that the instrument inaccuracies accounted for include potential transformer inaccuracies and relay error.

The degraded grid voltage trip setpoint is selected to ensure that no end use loads are adversely affected from sustained operation of the EDG at a voltage below the setpoint. The trip setpoint remains the value in the TSs, but the allowable value was recalculated to be $\geq$ 105.9 volts. The licensee stated that the instrument inaccuracies accounted for include bistable setting accuracy, bistable drift, and potential transformer inaccuracies.

The revised allowable values for the loss of voltage and degraded voltage protection circuits are based on calculations for the worst case 4.16 kV bus voltage which are during steady state LOCA conditions for WCGS. Because these allowable values will ensure that the engineered safety feature 4.16 kV bus is available and stable during all plant conditions including the design basis accidents, the licensee-proposed changes to the allowable values to the current

TSs and the improved TSs are acceptable. The proposed changes are being made to both the current TSs and improved TSs because the improved TSs have not yet been implemented at WCGS.

Add the Word Nominal to the Improved TSs

The licensee has proposed to add the word "nominal" to the phrase "trip setpoint" in SR 3.3.5.3 of only the improved TSs. The proposal would, therefore, have the trip setpoint requirement in the SR be on the "nominal" trip setpoint. The use of nominal trip setpoint in the TSs is related to (1) the setting of the actual trip setpoint based on plant conditions and (2) the surveillance of the actual trippoint as to whether the instrumentation channel is operable. For the use of nominal trip setpoint, the actual trip setpoint is set more conservative than the nominal trip setpoint that is specified in the TSs. The nominal trip setpoint in the TSs is listed without the inequality that would be given in the TS when only the trip setpoint is used. In proposing the nominal trip setpoint for the improved TSs, the licensee has deleted the inequality associated with values of the trip setpoints in SR 3.3.5.3.

The second part of the use of the nominal trip setpoint is that the operability of the instrumentation channel for the trip setpoint is determined by the relationship of the measured "as-found" trip setpoint to (1) the calibration tolerance band for the channel, and (2) the allowable value for the trip setpoint. If the "as-found" trip setpoint is within the calibration tolerance band then the instrumentation channel is operable and the trip setpoint is left "as-found." If the "as-found" trip setpoint is outside the calibration tolerance band, but within the allowable value, the instrumenation channel is still operable, but the channel is re-adjusted to have the trip setpoint within the calibration tolerance band. If the "as-found" trip setpoint is outside the allowable value, the instrumentation channel is declared inoperable and the appropriate actions for the limiting condition for operation are entered.

In using the nominal trip setpoint methodology in the TSs, the licensee must have a discussion on the use of nominal trip setpoints and the instrumentation channel operability in the Bases of the TSs for SR 3.3.5.3. The licensee submitted such a discussion in its letter of September 2, 1999. This discussion is consistent with the previous paragraph above. Any changes in the future to this discussion are controlled by the Bases Control Program in Section 5.5.14 of the improved TSs.

Therefore, based on the discussion above, the licensee's proposed use of the nominal trip setpoint in SR 3.3.5.3 is acceptable.

3.0 STATE CONSULTATION

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

4.0 ENVIRONMENTAL CONSIDERATION

The amendment changes surveillance requirements. 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 (64 FR 43782). 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.

5.0 CONCLUSION

The Commission has concluded, based on the considerations discussed above, that: (1) there is reasonable assurance that the health and safety of the public will not be endangered by operation in the proposed manner, (2) such activities will be conducted in compliance with the Commission's regulations, and (3) the issuance of the amendment will not be inimical to the common defense and security or to the health and safety of the public.

Principal Contributor: J. Donohew

Date: October 12, 1999