

Docket No.: 50-482

December 2, 1986

Mr. Glenn L. Koester
Vice President - Nuclear
Kansas Gas and Electric Company
201 North Market Street
Post Office Box 208
Wichita, Kansas 67201

Dear Mr. Koester:

SUBJECT: WOLF CREEK GENERATING STATION - AMENDMENT NO. 7 TO FACILITY
OPERATING LICENSE NPF-42

The Commission has issued the enclosed Amendment No. 7 to Facility Operating License NPF-42 for the Wolf Creek Generating Station. The amendment is in response to your application dated May 31, 1985, as supplemented September 15, 1986.

This amendment modifies the reactor trip system instrumentation setpoints contained in Technical Specifications Table 2.2-1 to incorporate increased uncertainties related to resistance temperature detector errors identified during high temperature calibration.

A copy of our related Safety Evaluation is enclosed. Notice of issuance will be included in the Commission's next bi-weekly Federal Register notice.

Sincerely,

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Paul W. O'Connor, Project Manager
PWR Project Directorate #4
Division of PWR Licensing-A

Enclosures:

1. Amendment No. 7 to
License No. NPF-42
2. Safety Evaluation

cc w/enclosures:
See next page

prol
for PWR#4/DPWR-A
MDuncan/rad
11/24/86

prol
PWR#4/DPWR-A
PO'Connor
11/24/86

prol
PWR#4/DPWR-A
BJYoungblood
11/1/86

Mr. Glenn L. Koester
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Wolf Creek Generating Station
Unit No. 1

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

KANSAS GAS & ELECTRIC COMPANY
KANSAS CITY POWER AND LIGHT COMPANY
KANSAS ELECTRIC POWER COOPERATIVE, INC.
WOLF CREEK GENERATING STATION
DOCKET NO. 50-482
AMENDMENT TO FACILITY OPERATING LICENSE

Amendment No. 7
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 Kansas Gas and Electric Company acting for itself and Kansas City Power and Light Company and Kansas Electric Power Cooperative, Inc., (licensees) dated May 31, 1985, as revised September 15, 1986, complies with the standards and requirements of the Atomic Energy Act of 1954, as amended (the Act) and the Commission's regulations as 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 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 set forth in 10 CFR Chapter I;
 - 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;
 - 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 Specification

The Technical Specifications contained in Appendix A, as revised through Amendment No. 7, and the Environmental Protection Plan contained in Appendix B, both of which are attached hereto, are hereby incorporated into the license. KG&E shall operate the facility in accordance with the Technical Specifications and the Environmental Protection Plan.

3. This license amendment is effective as of its date of issuance.

FOR THE NUCLEAR REGULATORY COMMISSION

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Paul W. O'Connor, Project Manager
PWR Project Directorate No. 4
Division of PWR Licensing-A

Attachment:
Changes to the Technical
Specifications

Date of Issuance: December 2, 1986

PWOC
for PWR#4/DPWR-A
MDuncan/rad
11/24/86

PWOC
PWR#4/DPWR-A
PO'Connor
11/24/86

OGC Bethesda
M. Harman
11/24/86
[Signature]

[Signature]
PWR#4/DPWR-A
BJYoungblood
11/1/86

ATTACHMENT TO LICENSE AMENDMENT NO. 7

OPERATING LICENSE NO. NPF-42

DOCKET NO. 50-482

Revise Appendix A Technical Specifications by removing the pages identified below and inserting the enclosed pages. The revised pages are identified by amendment number and contain marginal lines indicating the area of change. The corresponding overleaf page is also provided to maintain document completeness.

AMENDED PAGE

OVERLEAF PAGE

2-4

2-3

2-5

2-6

2-8

2-10

2-9

SAFETY LIMITS AND LIMITING SAFETY SYSTEM SETTINGS

2.2 LIMITING SAFETY SYSTEM SETTINGS

REACTOR TRIP SYSTEM INSTRUMENTATION SETPOINTS

2.2.1 The Reactor Trip System Instrumentation and Interlocks Setpoints shall be set consistent with the Trip Setpoint values shown in Table 2.2-1.

APPLICABILITY: As shown for each channel in Table 3.3-1.

ACTION:

- a. With a Reactor Trip System Instrumentation or Interlock Setpoint less conservative than the value shown in the Trip Setpoint column but more conservative than the value shown in the Allowable Value column of Table 2.2-1, adjust the Setpoint consistent with the Trip Setpoint value.
- b. With the Reactor Trip System Instrumentation or Interlock Setpoint less conservative than the value shown in the Allowable Values column of Table 2.2-1, either:
 1. Adjust the Setpoint consistent with the Trip Setpoint value of Table 2.2-1 and determine within 12 hours that Equation 2.2-1 was satisfied for the affected channel, or
 2. Declare the channel inoperable and apply the applicable ACTION statement requirement of Specification 3.3.1 until the channel is restored to OPERABLE status with its Setpoint adjusted consistent with the Trip Setpoint value.

Equation 2.2-1

$$Z + R + S \leq TA$$

Where:

Z = The value from Column Z of Table 2.2-1 for the affected channel,

R = The "as measured" value (in percent span) of rack error for the affected channel,

S = Either the "as measured" value (in percent span) of the sensor error, or the value from Column S (Sensor Error) of Table 2.2-1 for the affected channel, and

TA = The value from Column TA (Total Allowances) of Table 2.2-1 for the affected channel.

TABLE 2.2-1

REACTOR TRIP SYSTEM INSTRUMENTATION TRIP SETPOINTS

<u>FUNCTIONAL UNIT</u>	<u>TOTAL ALLOWANCE (TA)</u>	<u>Z</u>	<u>SENSOR ERROR (S)</u>	<u>TRIP SETPOINT</u>	<u>ALLOWABLE VALUE</u>
1. Manual Reactor Trip	N.A.	N.A.	N.A.	N.A.	N.A.
2. Power Range, Neutron Flux					
a. High Setpoint	7.5	4.56	0	≤109% of RTP*	≤112.3% of RTP*
b. Low Setpoint	8.3	4.56	0	≤25% of RTP*	≤28.3% of RTP*
3. Power Range, Neutron Flux, High Positive Rate	2.4	0.5	0	≤4% of RTP* with a time constant ≥2 seconds	≤6.3% of RTP* with a time constant ≥2 seconds
4. Power Range, Neutron Flux, High Negative Rate	2.4	0.5	0	≤4% of RTP* with a time constant ≥2 seconds	≤6.3% of RTP* with a time constant ≥2 seconds
5. Intermediate Range, Neutron Flux	17.0	8.41	0	≤25% of RTP*	≤35.3% of RTP*
6. Source Range, Neutron Flux	17.0	10.01	0	≤10 ⁵ cps	≤1.6 x 10 ⁵ cps
7. Overtemperature ΔT	7.2	3.76	1.55 + 0.9	See Note 1	See Note 2
8. Overpower ΔT	5.5	1.43	0.15	See Note 3	See Note 4
9. Pressurizer Pressure-Low	3.7	0.71	2.49	≥1875 psig	≥1866 psig
10. Pressurizer Pressure-High	7.5	0.71	2.49	≤2385 psig	≤2400 psig
11. Pressurizer Water Level-High	8.0	2.18	1.96	≤92% of instrument span	≤93.9% of instrument span

*RTP = RATED THERMAL POWER

**Loop design flow = 95,700 gpm

TABLE 2.2-1 (Continued)

REACTOR TRIP SYSTEM INSTRUMENTATION TRIP SETPOINTS

<u>FUNCTIONAL UNIT</u>	<u>TOTAL ALLOWANCE (TA)</u>	<u>Z</u>	<u>SENSOR ERROR (S)</u>	<u>TRIP SETPOINT</u>	<u>ALLOWABLE VALUE</u>
12. Reactor Coolant Flow-Low	3.1	2.19	0.8	>90% of loop design flow**	>89.1% of loop design flow**
13. Steam Generator Water Level Low-Low	23.5	21.18	2.51	>23.5% of narrow range instrument span	>22.3% of narrow range instrument span
14. Undervoltage - Reactor Coolant Pumps	7.5	1.3	0	≥10578 Volts A.C.	≥10355 Volts A.C.
15. Underfrequency - Reactor Coolant Pumps	3.3	0	0	≥57.2 Hz	≥57.1 Hz
16. Turbine Trip					
a. Low Fluid Oil Pressure	N.A.	N.A.	N.A.	≥590.00 psig	≥534.20 psig
b. Turbine Stop Valve Closure	N.A.	N.A.	N.A.	≥1% open	≥1% open
17. Safety Injection Input from ESF	N.A.	N.A.	N.A.	N.A.	N.A.

TABLE 2.2-1 (Continued)

REACTOR TRIP SYSTEM INSTRUMENTATION TRIP SETPOINTS

<u>FUNCTIONAL UNIT</u>	<u>TOTAL ALLOWANCE (TA)</u>	<u>Z</u>	<u>SENSOR ERROR (S)</u>	<u>TRIP SETPOINT</u>	<u>ALLOWABLE VALUE</u>
18. Reactor Trip System Interlocks					
a. Intermediate Range Neutron Flux, P-6	N.A.	N.A.	N.A.	$\geq 1 \times 10^{-10}$ amps	$\geq 6 \times 10^{-11}$ amps
b. Low Power Reactor Trips Block, P-7					
1) P-10 input	N.A.	N.A.	N.A.	10% of RTP*	$\geq 6.7\%$ to $\leq 13.3\%$ of RTP*
2) P-13 input	N.A.	N.A.	N.A.	$< 10\%$ of RTP* Turbine Impulse Pressure Equivalent	$< 12.4\%$ of RTP* Turbine Impulse Pressure Equivalent
c. Power Range Neutron Flux, P-8	N.A.	N.A.	N.A.	$\leq 48\%$ of RTP*	$\leq 51.3\%$ of RTP*
d. Power Range Neutron Flux, P-9	N.A.	N.A.	N.A.	$\leq 50\%$ of RTP*	$\leq 53.3\%$ of RTP*
e. Power Range Neutron Flux, P-10	N.A.	N.A.	N.A.	10% of RTP*	$\geq 6.7\%$ to $\leq 13.3\%$ of RTP*
f. Turbine Impulse Chamber Pressure, P-13	N.A.	N.A.	N.A.	$< 10\%$ of RTP* Turbine Impulse Pressure Equivalent	$< 12.4\%$ of RTP* Turbine Impulse Pressure Equivalent
19. Reactor Trip Breakers	N.A.	N.A.	N.A.	N.A.	N.A.
20. Automatic Trip and Interlock Logic	N.A.	N.A.	N.A.	N.A.	N.A.

*RTP = RATED THERMAL POWER

TABLE 2.2-1 (Continued)TABLE NOTATIONS (Continued)

NOTE 1: (Continued)

T'	\leq	588.5°F (Nominal T_{avg} at RATED THERMAL POWER);
K_3	$=$	0.000671;
P	$=$	Pressurizer pressure, psig;
P'	$=$	2235 psig (Nominal RCS operating pressure);
S	$=$	Laplace transform operator, s^{-1} ;

and $f_1(\Delta I)$ is a function of the indicated difference between top and bottom detectors of the power-range neutron ion chambers; with gains to be selected based on measured instrument response during plant STARTUP tests such that:

- (i) for $q_t - q_b$ between -27% and + 7%, $f_1(\Delta I) = 0$, where q_t and q_b are percent RATED THERMAL POWER in the top and bottom halves of the core respectively, and $q_t + q_b$ is total THERMAL POWER in percent of RATED THERMAL POWER;
- (ii) for each percent that the magnitude of $q_t - q_b$ exceeds -27%, the ΔT Trip Setpoint shall be automatically reduced by 1.57% of its value at RATED THERMAL POWER; and
- (iii) for each percent that the magnitude of $q_t - q_b$ exceeds +7%, the ΔT Trip Setpoint shall be automatically reduced by 1.05% of its value at RATED THERMAL POWER.

NOTE 2: The channel's maximum Trip Setpoint shall not exceed its computed Trip Setpoint by more than 2.9% of ΔT span.

TABLE 2.2-1 (Continued)

TABLE NOTATIONS (Continued)

NOTE 3: OVERPOWER ΔT

$$\Delta T \frac{(1 + \tau_1 S)}{(1 + \tau_2 S)} \left(\frac{1}{1 + \tau_3 S} \right) \leq \Delta T_0 \{ K_4 - K_5 \left(\frac{\tau_7 S}{1 + \tau_7 S} \right) \left(\frac{1}{1 + \tau_6 S} \right) T - K_6 \left[T \left(\frac{1}{1 + \tau_6 S} \right) - T'' \right] - f_2(\Delta I) \}$$

Where: ΔT = Measured ΔT by RTD manifold instrumentation; $\frac{1 + \tau_1 S}{1 + \tau_2 S}$ = Lead-lag compensator on measured ΔT ; τ_1, τ_2 = Time constants utilized in lead-lag compensator for ΔT , $\tau_1 = 8$ s, $\tau_2 = 3$ s; $\frac{1}{1 + \tau_3 S}$ = Lag compensator on measured ΔT ; τ_3 = Time constant utilized in the lag compensator for ΔT , $\tau_3 = 0$ s; ΔT_0 = Indicated ΔT at RATED THERMAL POWER; K_4 = 1.08; K_5 = 0.02/°F for increasing average temperature and 0 for decreasing average temperature; $\frac{\tau_7 S}{1 + \tau_7 S}$ = The function generated by the rate-lag compensator for T_{avg} dynamic compensation; τ_7 = Time constant utilized in the rate-lag compensator for T_{avg} , $\tau_7 = 10$ s; $\frac{1}{1 + \tau_6 S}$ = Lag compensator on measured T_{avg} ; τ_6 = Time constant utilized in the measured T_{avg} lag compensator, $\tau_6 = 0$ s;

TABLE 2.2-1 (Continued)TABLE NOTATIONS (Continued)

NOTE 3: (Continued)

K_6	=	0.00128/°F for $T > T''$ and $K_6 = 0$ for $T \leq T''$;
T	=	Average temperature, °F;
T''	=	Indicated T_{avg} at RATED THERMAL POWER (Calibration temperature for ΔT instrumentation, $\leq 588.5^\circ\text{F}$);
S	=	Laplace transform operator, s^{-1} ; and
$f_2(\Delta I)$	=	0 for all ΔI .

NOTE 4: The channel's maximum Trip Setpoint shall not exceed its computed Trip Setpoint by more than 4.0% of ΔT span.



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

SAFETY EVALUATION BY THE OFFICE OF NUCLEAR REACTOR REGULATION

SUPPORTING AMENDMENT NO. 7 TO OPERATING LICENSE NO. NPF-42

KANSAS GAS & ELECTRIC COMPANY

KANSAS CITY POWER AND LIGHT COMPANY

KANSAS ELECTRIC POWER COOPERATIVE, INC.

WOLF CREEK GENERATING STATION

DOCKET NO. 50-482

INTRODUCTION

By letter dated May 31, 1985, Kansas Gas and Electric Company (the licensee) requested various changes to the Technical Specifications for the Wolf Creek Generating Station. The staff's evaluation of the changes is as follows:

EVALUATION

- CHANGE 1 - Change the entries for the Total Allowance and Sensor Error for Functional Unit 7, Overtemperature ΔT , in Table 2.2-1 from "7.6" and "1.73 + 0.67" to "7.2" and "1.55 + 0.9" respectively.
- CHANGE 2 - Change the entry for Sensor Error for Functional Unit 8, Overpower ΔT , in Table 2.2-1 from "0.16" to "0.15".
- CHANGE 3 - Change the entries from Z and Sensor Error for Functional Unit 12, Reactor Coolant Flow-low, in Table 2.2-1 from "2.27" and "0.6" to "2.19" and "0.8" respectively.
- CHANGE 4 - Change the allowable value (for Overtemperature ΔT) in Note 2 to Table 2.2-1 from "3.3%" to "2.9%".
- CHANGE 5 - Change the allowable value (for Overpower ΔT) in Note 4 to Table 2.2-1 from "4.1%" to "4.0%".

The above changes for Overtemperature ΔT , Overpower ΔT , and Reactor Coolant Flow-Low reactor trip instrument channels are being requested to encompass larger RdF RTD calibration errors than originally estimated. Since the revised values are based on actual (not estimated) calibration data for the RdF RTD's and calculated using the Westinghouse setpoint methodology previously approved for Wolf Creek, the staff finds them acceptable.

ENVIRONMENTAL CONSIDERATION

The amendment involves a change in use of facility components located within the restricted area as defined in 10 CFR Part 20 and changes in surveillance requirements. The 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 exposures. The Commission has previously issued a proposed finding that the amendment involves no significant hazards consideration, and there have been no public comments on such finding. Accordingly, the amendment meets the eligibility criteria for categorical exclusion set forth in 10 CFR Section 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 this amendment.

CONCLUSION

The Commission made a proposed determination that the amendment involves no significant hazards consideration which was published in the Federal Register (51 FR 34169) on September 25, 1986 and consulted with the state of Kansas. No public comments were received, and the state of Kansas did not have any comments.

We have 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, and (2) such activities will be conducted in compliance with the Commission's regulations and the issuance of this amendment will not be inimical to the common defense and security or to the health and safety of the public.

Principal Contributors: Paul W. O'Connor, PAD#4
Fred Burrows

Dated: December 2, 1986

December 2, 1986

AMENDMENT NO. 7 TO FACILITY OPERATING LICENSE NPF-42 -
WOLF CREEK GENERATING STATION

DISTRIBUTION: w/enclosures:

Docket No. 50-482

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