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Docket No. 50-482

March 6, 1989

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Dear Mr. Withers:

Mr. Bart D. Withers

Post Office Box 411

Burlington, Kansas 66839

President and Chief Executive Officer

Wolf Creek Nuclear Operating Corporation

SUBJECT: WOLF CREEK GENERATING STATION - AMENDMENT NO. 27 TO FACILITY OPERATING LICENSE NO. NPF-42 (TAC NO. 65319)

The Commission has issued the enclosed Amendment No. 27 to Facility Operating License No. NPF-42 for the Wolf Creek Generating Station. The amendment consists of changes to the Technical Specifications in response to your application dated May 7, 1987.

The amendment revises Technical Specification 3.1.3.1, Group Height, and its associated Bases to allow continued operation for 72 hours with one or more control rod assemblies inoperable due to electrical/electronic problems in the rod control system provided all affected control rods remain trippable.

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,

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Douglas V. Pickett, Project Manager Project Directorate - IV Division of Reactor Projects - III, IV, V and Special Projects Office of Nuclear Reactor Regulation

Enclosures: 1. Amendment No. 27 to License No. NPF-42 2. Safety Evaluation

cc w/enclosures: See next page DOCUMENT NAME: WC AMEND TAC 65319

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

March 6, 1989

Docket No. 50-482

Mr. Bart D. Withers President and Chief Executive Officer Wolf Creek Nuclear Operating Corporation Post Office Box 411 Burlington, Kansas 66839

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Sincerely,

Douglas V Erclott

Douglas V. Pickett, Project Manager Project Directorate - IV Division of Reactor Projects - III, IV, V and Special Projects Office of Nuclear Reactor Regulation

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2. Safety Evaluation

cc w/enclosures: See next page Mr. Bart D. Withers Wolf Creek Nuclear Operating Corporation

cc:

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Jay Silberg, Esq. Shaw, Pittman, Potts & Trowbridge 1800 M Street, NW Washington, D.C. 20036

Chris R. Rogers, P.E. Manager, Electric Department Public Service Commission P. O. Box 360 Jefferson City, Missouri 65102

Regional Administrator, Region III U.S. Nuclear Regulatory Commission 799 Roosevelt Road Glen Ellyn, Illinois 60137

Senior Resident Inspector/Wolf Creek c/o U. S. Nuclear Regulatory Commission P. O. Box 311 Burlington, Kansas 66839

Mr. Robert Elliot, Chief Engineer Utilities Division Kansas Corporation Commission 4th Floor - State Office Building Topeka, Kansas 66612-1571 Wolf Creek Generating Station Unit No. 1

Mr. Gerald Allen Public Health Physicist Bureau of Air Quality & Radiation Control Division of Environment Kansas Department of Health and Environment Forbes Field Building 321 Topeka, Kansas 66620

Mr. Gary Boyer, Plant Manager Wolf Creek Nuclear Operating Corp. P. O. Box 411 Burlington, Kansas 66839

Regional Administrator, Region IV U.S. Nuclear Regulatory Commission Office of Executive Director for Operations 611 Ryan Plaza Drive, Suite 1000 Arlington, Texas 76011

Mr. Otto Maynard, Manager Licensing Wolf Creek Nuclear Operating Corp. P. O. Box 411 Burlington, Kansas 66839



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

WOLF CREEK NUCLEAR OPERATING CORPORATION

WOLF CREEK GENERATING STATION

DOCKET NO. 50-482

AMENDMENT TO FACILITY OPERATING LICENSE

Amendment No. 27 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 May 7, 1987, 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;
 - 5. 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.

8903270314 890306 PDR ADOCK 05000482 P PDC trippable. Distinguishing between these types of malfunctions will allow an appropriate time period to complete corrective action commensurate with the significance of the malfunction. WCGS proposes that the existing Technical Specification be revised to allow continued operation for 72 hours for diagnosis and repair, with one or more control rod assemblies inoperable due to a rod control urgent failure alarm or other electrical problem in the rod control system provided all affected control rods remain trippable.

EVALUATION

The proposed Technical Specification change (ACTION 3.1.3.1C) would allow operation to continue for 72 hours for diagnosis and repair, for the case where one or more control rod assemblies are electrically inoperable. The existing Wolf Creek Technical Specification requires the Plant to be in HOT STANDBY within 6 hours. A rod that is inoperable due to being untrippable is a more significant failure than a rod that cannot be moved due to an electrical failure but is still trippable. The change in ACTION distinguishes between these failures and requires the existing restrictive ACTION for the former while allowing more time for repair of the rod(s) that cannot be moved due to an electrical failure.

Based on our review, we find the proposed changes to the Wolf Creek Technical Specification as requested by the Wolf Creek Nuclear Operating Corporation, to be acceptable.

ENVIRONMENTAL CONSIDERATION

The amendment involves a change in the installation or use of a facility component located within the restricted area as defined in 10 CFR Part 20. 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 radiation exposures. 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. 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 the amendment.

CONCLUSION

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

Date: March 6, 1989

Principal Contributor: Douglas V. Pickett

BASES

BORATION SYSTEMS (Continued)

With the RCS temperature below 200°F, one Boration System is acceptable without single failure consideration on the basis of the stable reactivity condition of the reactor and the additional restrictions prohibiting CORE ALTERATIONS and positive reactivity changes in the event the single Boron Injection System becomes inoperable.

The limitation for a maximum of one centrifugal charging pump to be OPERABLE and the Surveillance Requirement to verify all charging pumps except the required OPERABLE pump to be inoperable in MODES 4, 5, and 6 provides assurance that a mass addition pressure transient can be relieved by the operation of a single PORV or an RHR suction relief valve.

The boron capability required below 200°F is sufficient to provide a SHUTDOWN MARGIN of 1% $\Delta k/k$ after xenon decay and cooldown from 200°F to 140°F. This condition requires either 2968 gallons of 7000 ppm borated water from the boric acid storage tanks or 14,076 gallons of 2000 ppm borated water from the RWST.

The contained water volume limits include allowance for water not available because of discharge line location and other physical characteristics.

The limits on contained water volume and boron concentration of the RWST also ensure a pH value of between 8.5 and 11.0 for the solution recirculated within containment after a LOCA. This pH band minimizes the evolution of iodine and minimizes the effect of chloride and caustic stress corrosion on mechanical systems and components.

The OPERABILITY of one Boration System during REFUELING ensures that this system is available for reactivity control while in MODE 6.

3/4.1.3 MOVABLE CONTROL ASSEMBLIES

The specifications of this section ensure that: (1) acceptable power distribution limits are maintained, (2) the minimum SHUTDOWN MARGIN is maintained, and (3) the potential effects of rod misalignment on associated accident analyses are limited. OPERABILITY of the control rod position indicators is required to determine control rod positions and thereby ensure compliance with the control rod alignment and insertion limits. Verification that the Digital Rod Position Indicator agrees with the demanded position within \pm 12 steps at 24, 48, 120, and 228 steps withdrawn for the Control Banks and 18, 210 and 228 steps withdrawn for the Shutdown Banks provides assurances that the Digital Rod Position Indicator is operating correctly over the full range of indication. Since the Digital Rod Position System does not indicate the actual shutdown rod position between 18 steps and 210 steps, only points in the indicated ranges are picked for verification of agreement with demanded position.

WOLF CREEK - UNIT 1

B 3/4 1-3

BASES

MOVABLE CONTROL ASSEMBLIES (Continued)

For purposes of determining compliance with Specification 3.1.3.1, any immovability of a control rod invokes ACTION Statement 3.1.3.1.a. Before utilizing ACTION Statement 3.1.3.1.c, the rod control urgent failure alarm must be illuminated or an electrical problem must be detected in the rod control system. The rod is considered trippable if the rod was demonstrated OPERABLE during the last performance of Surveillance Requirement 4.1.3.1.2 and met the rod drop time criteria of Specification 3.1.3.4 during the last performance of Surveillance Requirement 4.1.3.4.

The ACTION statements which permit limited variations from the basic requirements are accompanied by additional restrictions which ensure that the original design criteria are met. Misalignment of a rod requires measurement of peaking factors and a restriction in THERMAL POWER. These restrictions provide assurance of fuel rod integrity during continued operation. In addition, those safety analyses affected by a misaligned rod are reevaluated to confirm that the results remain valid during future operation.

The maximum rod drop time restriction is consistent with the assumed rod drop time used in the safety analyses. Measurement with T_{avg} greater than or equal to 551°F and with all reactor coolant pumps operating ensures that the measured drop times will be representative of insertion times experienced during a Reactor trip at operating conditions.

Control rod positions and OPERABILITY of the rod position indicators are required to be verified on a nominal basis of once per 12 hours with more frequent verifications required if an automatic monitoring channel is inoperable. These verification frequencies are adequate for assuring that the applicable LCOs are satisfied.

LIMITING CONDITION FOR OPERATION

ACTION (Continued)

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- 3. The rod is declared inoperable and the SHUTDOWN MARGIN requirement of Specification 3.1.1.1 is satisfied. POWER OPERATION may then continue provided that:
 - a) A reevaluation of each accident analysis of Table 3.1-1 is performed within 5 days; this reevaluation shall confirm that the previously analyzed results of these accidents remain valid for the duration of operation under these conditions;
 - b) The SHUTDOWN MARGIN requirement of Specification 3.1.1.1 is determined at least once per 12 hours;
 - c) A power distribution map is obtained from the movable incore detectors and $F_Q(Z)$ and $F_{\Delta H}^N$ are verified to be within their limits within 72 hours; and
 - d) The THERMAL POWER level is reduced to less than or equal to 75% of RATED THERMAL POWER within the next hour and within the following 4 hours the High Neutron Flux Trip Setpoint is reduced to less than or equal to 85% of RATED THERMAL POWER.
- ACTION 4 Restore the inoperable rods to OPERABLE status within 72 hours or be in HOT STANDBY within the next 6 hours.

SURVEILLANCE REQUIREMENTS

4.1.3.1.1 The position of each full-length rod shall be determined to be within the group demand limit by verifying the individual rod positions at least once per 12 hours except during time intervals when the rod position deviation monitor is inoperable, then verify the group positions at least once per 4 hours.

4.1.3.1.2 Each full-length rod not fully inserted in the core shall be determined to be OPERABLE by movement of at least 10 steps in any one direction at least once per 31 days.

Amendment No. 27

TABLE 3.1-1

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ACCIDENT ANALYSES REQUIRING REEVALUATION IN THE EVENT OF AN INOPERABLE FULL-LENGTH ROD

Rod Cluster Control Assembly Insertion Characteristics

Rod Cluster Control Assembly Misalignment

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Loss of Reactor Coolant from Small Ruptured Pipes or from Cracks in Large Pipes Which Actuates the Emergency Core Cooling System

Single Rod Cluster Control Assembly Withdrawal at Full Power

Major Reactor Coolant System Pipe Ruptures (Loss of Coolant Accident)

Major Secondary Coolant System Pipe Rupture

Rupture of a Control Rod Drive Mechanism Housing (Rod Cluster Control Assembly Ejection)

SURVEILLANCE REQUIREMENTS

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4.1.2.6 Each required borated water source shall be demonstrated OPERABLE:

- a. At least once per 7 days by:
 - 1) Verifying the boron concentration in the water,
 - 2) Verifying the contained borated water volume of the water source, and
 - 3) Verifying the Boric Acid Storage System solution temperature when it is the source of borated water.
- b. At least once per 24 hours by verifying the RWST temperature when the outside air temperature is either less than 37°F or greater than 100°F.

3/4.1.3 MOVABLE CONTROL ASSEMBLIES

GROUP HEIGHT

LIMITING CONDITION FOR OPERATION

3.1.3.1 All full-length shutdown and control rods shall be OPERABLE and positioned within \pm 12 steps (indicated position) of their group step counter demand position.

APPLICABILITY: MODES 1* and 2*.

<u>ACTION</u>: The ACTION to be taken is based on the cause of inoperability of control rods as follows:

		ACTION	
CAUSE OF INOPERABILITY		One Rod	More Than One Rod
a)	Immovable as a result of excessive friction or mechanical interference or known to be untrippable.	(1)	(1)
b)	Misaligned from its group step counter demand height or from any other rod in its group by more than ± 12 steps (indicated position).	(3)	(2)
c)	Inoperable due to a rod control urgent failure alarm or other electrical problem in the rod control system, but trippable.	(4)	(4)

ACTION 1 - Determine that the SHUTDOWN MARGIN requirement of Specification 3.1.1.1 is satisfied within 1 hour and be in HOT STANDBY within 6 hours.

ACTION 2 - Be in HOT STANDBY within 6 hours.

- ACTION 3 POWER OPERATION may continue provided that within 1 hour:
 - 1. The rod is restored to OPERABLE status within the above alignment requirements, or
 - 2. The rod is declared inoperable and the remainder of the rods in the group with the inoperable rod are aligned to within ± 12 steps of the inoperable rod while maintaining the rod sequence and insertion limits of Figures 3.1-1 and 3.1-2. The THERMAL POWER level shall be restricted pursuant to Specification 3.1.3.6 during subsequent operation. or

*See Special Test Exceptions Specifications 3.10.2 and 3.10.3.

WOLF CREEK - UNIT 1

ATTACHMENT TO LICENSE AMENDMENT NO. 27

FACILITY 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 pages are also provided to maintain document completeness.

REMOVE PAGES	INSERT PAGES
3/4 1-14	3/4]-14
3/4 1-15	3/4 1-15
B 3/4 1-4	B 3/4 1-4



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

SAFETY EVALUATION BY THE OFFICE OF NUCLEAR REACTOR REGULATION

RELATED TO AMENDMENT NO. 27 TO FACILITY OPERATING LICENSE NO. NPF-42

WOLF CREEK NUCLEAR OPERATING CORPORATION

WOLF CREEK GENERATING STATION

DOCKET NO. 50-482

INTRODUCTION

By letter dated May 7, 1987, the Wolf Creek Nuclear Operating Corporation requested changes to the Wolf Creek Generating Station (WCGS), Unit No. 1, Technical Specifications 3.1.3.1, Group Height, and its associated Bases to allow continued operation for 72 hours for diagnosis and repair, with one or more control rod assemblies incperable due to a rod control urgent failure alarm or other electrical problem in the rod control system provided all affected control rods remain trippable.

As described in the WCGS Updated Safety Analysis Report (USAR) the Control Rod Drive System (CRDS) serves to insert or withdraw rod cluster control assemblies within the reactor core to control average core temperature and to shut down the reactor. The CRDS performs its intended safety function, reactor trip, by putting the reactor in a subcritical condition when a safety system setting is reached, with any assumed credible failure of a single active component. The essential elements of the CRDS (those required to ensure reactor trip) are isclated from nonessential portions of the CRDS (the rod control system).

The CRDS provides a Rod Control Urgent Failure alarm, which indicates that an electronic/electrical malfunction has occurred within the CRDS. The conditions that can cause this alarm do not affect the ability to trip any control rods. This may result in a situation where the control rods cannot be stepped in or out of the reactor, however, the rods remain trippable and therefore capable of performing their safety function.

WCGS Technical Specifications 3.1.3.1 ACTION b, currently requires that, "with more than one full-length rod inoperable or misaligned from the group step counter demand position by more than ± 12 steps (indicated position), be in HOT STANDBY within 6 hours". Although the current Technical Specification recognizes the greater significance of rods being immovable or known to be untrippable, acknowledgement of the lesser significance of electrically incperable rods would allow additional time for diagnosis and repair of malfunctioning equipment while maintaining safe operation of WCGS.

The proposed amendment request provides a distinct ACTION statement for an inoperable rod consistent with the significance of the malfunction. A rod that is incperable due to being untrippable is more significant than a rod that cannot be stepped due to an electrical malfunction, but remains

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. 27, 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.

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FOR THE NUCLEAR REGULATORY COMMISSION

Tine G. Calio

Jose A. Calvo, Director Project Directorate - IV Division of Reactor Projects - III, IV, V and Special Projects Office of Nuclear Reactor Regulation

Attachment: Changes to the Technical Specifications

Date of Issuance: March 6, 1989