

# WOLF CREEK

NUCLEAR OPERATING CORPORATION

Robert C. Hagan  
Vice President Nuclear Assurance

February 24, 1994

NA 94-0015

U. S. Nuclear Regulatory Commission  
ATTN: Document Control Desk  
Mail Station P1-137  
Washington, D. C. 20555

Subject: Docket No. 50-482: Revision to Technical Specification  
Surveillance Requirement 4.7.1.2.1.a

Gentlemen:

This letter transmits an application for amendment to Facility Operating License No. NPF-42 for Wolf Creek Generating Station (WCGS). This license amendment request proposes revising Technical Specification 4.7.1.2.1.a to require that the turbine-driven and motor-driven auxiliary feedwater pumps be tested at least quarterly on a staggered test basis. Currently, Technical Specification 4.7.1.2.1.a requires that the auxiliary feedwater pumps be tested once per 31 days on a staggered test basis.

In addition to the change described above, Wolf Creek Nuclear Operating Corporation (WCNOC) requests that Technical Specification Bases 3/4.7.7, "Emergency Exhaust System - Auxiliary Building," and 3/4.9.13, "Emergency Exhaust System - Fuel Building," be revised to eliminate the reference to the use of automatic control for the emergency exhaust system heaters.

Attachment I provides a safety evaluation including a description of the proposed change. Attachment II provides a no significant hazards consideration determination and Attachment III provides an environmental impact determination. The specific change to the technical specification proposed by this request is provided in Attachment IV.

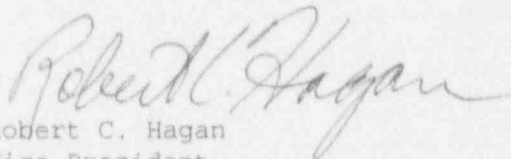
In accordance with 10 CFR 50.91, a copy of this application, with attachments, is being provided to the designated Kansas State Official. This proposed revision to the WCGS technical specifications will be fully implemented within 30 days of formal Nuclear Regulatory Commission approval.

040041

*Acc!*  
*1/11*

If you have any questions concerning this matter, please contact me at (316) 364-8831, extension 4553, or Mr. Kevin J. Moles, at extension 4565.

Very truly yours,



Robert C. Hagan  
Vice President  
Nuclear Assurance

RCH/jra

Attachments    I - Safety Evaluation  
                  II - No Significant Hazards Consideration Determination  
                  III - Environmental Impact Determination  
                  IV - Proposed Technical Specification Change

cc: G. W. Allen (KDHE), w/a  
L. J. Callan (NRC), w/a  
G. A. Pick (NRC), w/a  
W. D. Reckley (NRC), w/a  
L. A. Yandell (NRC), w/a

STATE OF KANSAS     )  
                          ) SS  
COUNTY OF COFFEY    )

Robert C. Hagan, of lawful age, being first duly sworn upon oath says that he is Vice President Nuclear Assurance of Wolf Creek Nuclear Operating Corporation; that he has read the foregoing document and knows the content thereof; that he has executed that same for and on behalf of said Corporation with full power and authority to do so; and that the facts therein stated are true and correct to the best of his knowledge, information and belief.



By Robert C. Hagan  
Robert C. Hagan  
Vice President  
Nuclear Assurance

SUBSCRIBED and sworn to before me this 24<sup>th</sup> day of February, 1994.

Samuel E. Elliott  
Notary Public

Expiration Date 5/14/95

ATTACHMENT I  
SAFETY EVALUATION

## Safety Evaluation

### Proposed Change

This license amendment request proposes a revision to Technical Specification Surveillance Requirement 4.7.1.2.1.a to require that the turbine-driven and motor-driven auxiliary feedwater pumps be tested at least quarterly on a staggered test basis. The current requirement for testing is at least once per 31 days on a staggered test basis.

Also, a revision to Technical Specification Bases 3/4.7.7, "Emergency Exhaust System - Auxiliary Building," and 3/4.9.13, "Emergency Exhaust System - Fuel Building," is being requested to eliminate the reference to the use of automatic control for the emergency exhaust system heaters. A plant modification has been implemented which eliminated the automatic control for the heaters in the fuel building emergency filter absorber units and instead allows the heaters to be continuously energized whenever the emergency exhaust system fans are operating.

### Evaluation

Section 9.1, "Auxiliary Feedwater Pump and System Testing (PWR)," of NUREG-1366, "Improvements to Technical Specifications Surveillance Requirements," discusses the conclusions of two studies (Electric Power Research Institute Report NP-4264 and NUREG/CR-4579, "Application of the Key Curve and Multi-Specimen Techniques to Dynamic J-R Curve Testing of Alloy Steel") concerning the auxiliary feedwater system. It was determined that a significant cause of auxiliary feedwater pump failures is the testing of the pumps by recirculating flow through a minimum flow line which is not adequately sized. Two possible solutions were discussed in NUREG-1366. The preferred solution was an increase in the recirculation line orifice to change the surveillance test recirculation flow from approximately 10 percent to approximately 25 percent. However, with this option a complicated interlock or some other mechanism would be required to ensure adequate flow to the steam generators in the presence of an actual demand signal.

The second solution discussed as a reasonable step to reducing the rate of wear would be an increase in the surveillance test interval of the auxiliary feedwater pumps from monthly to quarterly (the frequency specified in the ASME Code, Section XI). Using the Electric Power Research Institute study, it was determined, that at the most, 23 percent of the failures of the turbine-driven auxiliary feedwater pump and 26 percent of the failures of the motor-driven auxiliary feedwater pumps could be reduced by less frequent surveillance testing. According to NUREG/CR-4579, 42 percent of the auxiliary feedwater pump failures were found during surveillance testing. Thus, surveillance testing is important in detecting failures in the auxiliary feedwater system. However, surveillance testing also contributes to the problem. The availability of auxiliary feedwater pump, while related to the conduct of surveillance testing, is not continuously linearly related to surveillance testing. That is, at some point an increase in surveillance testing (i.e., reducing the surveillance test interval) will not contribute to an increase in availability, and in fact could contribute to equipment unavailability. Analysis of auxiliary feedwater pump failures indicates that a monthly surveillance test interval may be contributing to auxiliary feedwater pump

unavailability through failures and equipment degradation. The changing of the auxiliary feedwater pump surveillance test interval to quarterly, on a staggered basis, is consistent with this analysis and with the requirements of the ASME Code.

Generic Letter 93-05, "Line-Item Technical Specifications Improvements to Reduce Surveillance Requirements for Testing During Power Operation," provides guidance for preparing license amendment requests in order to change the technical specifications to reduce testing during power operation based on the recommendations reported in NUREG-1366. The proposed extension of the surveillance frequency for the auxiliary feedwater pumps is consistent with the guidance of the generic letter. Also, the generic letter states that licensees should not propose changes to extend any surveillance interval if the recommendations of NUREG-1366 are not compatible with plant operating experience. A detailed review was conducted of past performances of surveillance test procedures which are accomplished in order to verify operability of the turbine-driven and motor-driven auxiliary feedwater pumps. The review indicated that there have been no failures of the motor-driven auxiliary feedwater pumps to start on demand during the performance of 228 surveillance test procedures since testing began in 1985. During this same time period, 5 failures of the turbine-drive auxiliary feedwater pump were reported during the performance of 132 surveillance test procedures and represents a failure rate of 4 percent. Two of the failures resulted from hardware failures and three failures were caused by hardware that was out of calibration. The failure rate of 4 percent is considered to be well within the range of acceptability for the pump performance. Therefore, it was determined that the extension of the surveillance frequency to quarterly for the auxiliary feedwater pumps would be consistent with the performance history of the pumps.

An analysis was conducted based on the Probabilistic Risk Assessment Model in order to provide an estimation of the risk impact associated with changing the surveillance frequency for the auxiliary feedwater pumps from monthly to quarterly. This analysis assumed a 23 percent reduction in the turbine-driven auxiliary feedwater pump failure rate and a 26 percent reduction in the motor-driven auxiliary feedwater pumps failure rate as presented in NUREG-1366. Also, increase failure to start on demand rates for the auxiliary feedwater pumps were assumed based on information presented in NUREG/CR-2300, "PRA Procedure Guide." This analysis concluded that if the surveillance frequency for the auxiliary feedwater pumps were changed from monthly to quarterly, and if the full percentage reductions in failure rates were realized, the change would have a minimum impact on the core damage frequency.

The changes requested to Technical Specification Bases 3/4.7.7 and 3/4.9.13 are being made to eliminate the words "using automatic control." These changes would reflect the current method in which the fuel building emergency exhaust system heaters are controlled and allow the flexibility of modifying the auxiliary building emergency exhaust system in the future. The heaters operate, based on the input of a relative humidity sensor, to maintain low humidity of the air entering the emergency filter absorber units. A modification to the fuel building emergency exhaust system was implemented in which the relative humidity sensors were bypassed to allow continuous

operation of the heaters whenever the emergency exhaust system fans are operating. This modification increased the emergency exhaust system reliability by ensuring the operation of the heaters while the fans are operating, regardless of the humidity level, and therefore has no affect on the ability of the system to perform its intended safety function.

Based on the above discussions and the no significant hazards consideration determination presented in Attachment II, the proposed changes do not increase the probability of occurrence or the consequences of an accident or malfunction of equipment important to safety previously evaluated in the safety analysis report; or create a possibility for an accident or malfunction of a different type than any previously evaluated in the safety analysis report; or reduce the margin of safety as defined in the basis for any technical specification. Therefore, the proposed changes do not adversely affect or endanger the health or safety of the general public or involve a significant safety hazard.

ATTACHMENT II

NO SIGNIFICANT HAZARDS CONSIDERATION DETERMINATION



### **No Significant Hazards Consideration Determination**

This license amendment request proposes a revision to Technical Specification Surveillance Requirement 4.7.1.2.1.a to require that the turbine-driven and motor-driven auxiliary feedwater pumps be tested at least quarterly on a staggered test basis instead of the current requirement for testing at least once per 31 days on a staggered test basis.

#### **Standard I - Involve a Significant Increase in the Probability or Consequences of an Accident Previously Evaluated**

This change only revises the surveillance requirement for the auxiliary feedwater pumps. The purpose of this surveillance requirement is to prove that the pumps are operable. The longer test interval should result in greater availability by reducing the rate of test induced failures which should offset any loss in reliability. The revised surveillance requirement will continue to demonstrate pump operability.

#### **Standard II - Create the Possibility of a New or Different Kind of Accident from any Previously Evaluated**

Verification of pump operability is still maintained with the change to the frequency of the surveillance requirement. No system configuration changes are being implemented in order to perform the surveillance testing and any potential accidents that may be associated with the surveillance testing were previously considered.

#### **Standard III - Involve a Significant Reduction in the Margin of Safety**

The Inservice Testing Program will continue to ensure that pump operational readiness criteria are consistent with the requirements of ASME Section XI. System performance surveillance will continue to be conducted in accordance with plant Technical Specifications.

Based on the above discussions, it has been determined that the requested technical specification revision does not involve a significant increase in the probability or consequences of an accident or other adverse condition over previous evaluations; or create the possibility of an new or different kind of accident or condition over previous evaluations; or involve a significant reduction in a margin of safety. The requested license amendment does not involve a significant hazards consideration.

ATTACHMENT III  
ENVIRONMENTAL IMPACT DETERMINATION

**Environmental Impact Determination**

10 CFR 51.22(b) specifies the criteria for categorical exclusions from the requirement for a specific environmental assessment per 10 CFR 51.21. This amendment request meets the criteria specified in 10 CFR 51.22(c)(9) as specified below:

- (i) **the amendment involves no significant hazards consideration**

As demonstrated in Attachment II, the proposed change does not involve any significant hazards consideration.

- (ii) **there is no significant change in the types or significant increase in the amounts of any effluents that may be released offsite**

The proposed change does not involve a change to the facility or operating procedures which would cause an increase in the amounts of effluents or create new types of effluents.

- (iii) **there is no significant increase in individual or cumulative occupational radiation exposure**

The proposed change does not create additional exposure to personnel nor affect levels of radiation present. Also, the proposed change does not result in any increase in individual or cumulative occupational radiation exposure.

Based on the above it is concluded that there will be no impact on the environment resulting from this change and the change meets the criteria specified in 10 CFR 51.22 for a categorical exclusion from the requirements of 10 CFR 51.21 relative to requiring a specific environmental assessment by the Commission.