

Docket No. 50-298

APR 17 1974  
Nebraska Public Power District  
ATTN: Mr. J. Pilant, Manager  
Licensing and  
Quality Assurance  
P. O. Box 499  
Columbus, Nebraska 68601

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B. Scharf (25 w/Tech  
Specs)

Gentlemen:

Change No. 3  
License No. DPR-46

By letter dated April 4, 1974, you indicated that delays in the startup schedule of the Cooper Nuclear Station has resulted in decay of the startup sources so that the minimum count rate requirement of 3 counts per second (cps) may not be met on reactor startups prior to activation of the permanent sources. In lieu of replacement of the startup sources, you requested a temporary waiver to the startup count rate requirements of the Technical Specifications, specifically that the minimum count rate be reduced from 3 to 0.3 cps from the beginning of life of the first core until the core has been irradiated to 3500 MWD/T.

We have reviewed your request and the associated analysis. The Regulatory staff also discussed the request with your representatives and representatives of the General Electric Company on April 4, 1974. The staff evaluation of your request is enclosed.

We conclude that your request is acceptable, and approve a Technical Specification change as follows:

On Page 96 of the Radiological Technical Specifications (Appendix A), add the following sentence to Paragraph 3.3 B 5:

"The allowable minimum count rate may be reduced to 0.3 counts per second for the first core loading prior to achieving burnup of 3500 MWD/T.

On Page 61, last line of central column of Table 3.2.C, add the following:

"(0.3 counts/second prior to achieving burnup of 3500 MWD/T on first core)"

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SURNAME >  
DATE >

APR 17 1974

The staff approves the change on the basis that potential accidents which might arise from rod drop or uncontrolled rod withdrawal are no more severe than the current acceptable design bases. Furthermore, the reactivity characteristics of the core are known, permitting use of conservative operating procedures to minimize the probability of a too rapid approach to criticality.

Accordingly, pursuant to 10 CFR Part 50, Section 50.59, we have concluded that these changes do not involve a significant hazards consideration and there is reasonable assurance that the health and safety of the public will not be endangered. The Technical Specifications (Appendix A) of License No. DPR-46 are hereby changed as set forth in this letter.

Sincerely,

Original Signed by

Voss A. Moore, Assistant Director  
for Light Water Reactors, Group 2  
Directorate of Licensing

## Enclosure:

Cooper Nuclear Station Safety  
Evaluation of Request for  
Temporary Reduction of Minimum  
Source Range Monitor Count Rate,  
dated APR 17 1974

cc: Mr. Gene Watson, Attorney  
Wilson, Barlow & Watson  
P. O. Box 81686  
Lincoln, Nebraska 68501

bcc: J. R. Buchanan, ORNL  
Thomas B. Abernathy, DTIE

Mr. Arthur C. Gehr, Attorney  
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Phoenix, Arizona 85004

Mr. Ed Vest (w/NPPD's ltr. dtd. 4/4/74)  
Environmental Protection Agency  
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Mrs. Merle Morris, Librarian  
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SURNAME >		HSmith	DRoss		
DATE >		4/12/74	4/17/74	4/16/74	4/16/74

COOPER NUCLEAR STATION (CNS)  
SAFETY EVALUATION OF REQUEST FOR TEMPORARY REDUCTION  
OF MINIMUM SOURCE RANGE MONITOR COUNT RATE

Introduction

By letter dated April 4, 1974, the Nebraska Public Power District (NPPD) requested a temporary waiver of the Technical Specification (Appendix A) requirement for a minimum count rate of 3 counts per second (cps) on source range reactor monitors during startup. This request was also discussed in a meeting with the Regulatory staff on April 4. NPPD requested the waiver to allow operational flexibility during the latter stages of startup operations since delays in the startup schedule have resulted in decay of the startup sources so that the minimum count rate requirement may not be met on reactor startups prior to activation of permanent sources.

The alternative course of action would be to install new startup sources. This requires opening of the reactor vessel and removal of part of the fuel to permit removal and replacement of the sources. This would result in a delay of up to 6 weeks in achieving power production.

Summary

NPPD, in their April 4, 1974, analysis, considered the effect of permitting a minimum count rate of 0.3 cps on the control rod drop accident and the continuous rod withdrawal transient.

In the case of the rod drop accident, NPPD has analyzed the effect of the accident under the most extreme condition, an initial power level based upon spontaneous fission rate ( $10^{-12}\%$  of rated power). The rod worth available from beginning of core life to a core average exposure of 3500 MWD/T, is  $1.29\% \Delta K$ , as a result of rod withdrawal sequence restrictions imposed by the Rod Sequence Control System (RSCS). The maximum fuel rod enthalpy resulting from drop of the maximum worth rod is 243 cal/gm, which is well below the acceptable limit of 280 cal/gm.

In the case of the continuous rod withdrawal transient during reactor startup, the event analyzed in the FSAR was more severe than that which could be experienced in the planned startup, i.e., 1) the withdrawal would be initiated at a more subcritical condition, 2) the maximum rod worth of an out of sequence rod is less than that assumed in the FSAR analysis, and 3) the Intermediate Range Monitor (IRM) trip would terminate the excursion at a lower power than that assumed in the FSAR analysis.

We conclude, based upon the analysis presented, that the consequences of a rod drop accident or a continuous rod withdrawal transient are less severe than those of the design basis.

In addition to the above considerations, the known operational characteristics of the reactor and procedural controls indicate that the proposed waiver

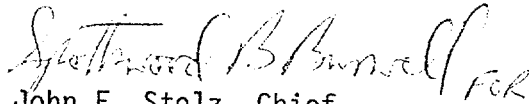
does not present a hazard. The reactor has been brought critical in excess of 80 times during recent testing. Its reactivity characteristics are well known. Operating records indicate that the core becomes critical on the withdrawal of approximately 40 rods and that the count rate is expected to exceed 3 cps prior to withdrawal of 17 rods, the end of A<sub>1-2</sub> rod sequence. Procedures require that the count rate be evaluated at the end of the A<sub>1-2</sub> sequence. If the count rate at this point is less than 3 cps or twice the initial count rate, further rod withdrawal would be restricted to one notch at a time, with operator evaluation of instrument response after each notch movement.

### Conclusions

We conclude, based upon the results of analyses of the control rod drop accident and the continuous rod withdrawal transient during reactor startup, that the consequences of these events are within acceptable safety limits. The experience with the core gained during startup operation and procedural restrictions provide additional assurance. We conclude that the proposed Technical Specification waiver requested in the letter of April 4, 1974, is acceptable and that the CNS can be operated on this basis with reasonable assurance that the health and safety of the public will not be endangered. We have also concluded that the proposed Technical Specification waiver does not involve significant hazards considerations.



E. F. Beckett, Project Manager  
Light Water Reactors Project Branch 2-1  
Directorate of Licensing



John F. Stolz, Chief  
Light Water Reactors Project Branch 2-1  
Directorate of Licensing

Dated: APR 17 1974