

Docket



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

June 23, 1989

Docket No. 50-327

Mr. Oliver D. Kingsley, Jr.
Senior Vice President, Nuclear Power
Tennessee Valley Authority
6N 38A Lookout Place
1101 Market Street
Chattanooga, Tennessee 37402-2801

Dear Mr. Kingsley:

SUBJECT: EXIGENT AMENDMENT FOR INOPERABLE ROD POSITION INDICATOR (TAC 73407)
(TS 89-31) - SEQUOYAH NUCLEAR PLANT, UNIT 1

The Commission has issued the enclosed Amendment No.118 to Facility Operating License No. DPR-77 for Sequoyah Nuclear Plant, Unit 1. The amendment is in response to your application dated June 16, 1989.

This amendment revises Specification 3.1.3.2, "Position Indication Systems - Operating," of the Sequoyah Nuclear Plant, Unit 1, Technical Specifications (TS). The change adds a footnote to Action Statement a.1 for an inoperable rod position indicator (RPI) for a control rod in a shutdown bank. The footnote states that (1) for the remainder of the Unit 1 Cycle 4 operating cycle, Action a.1 will be superseded for a control rod in a shutdown bank and (2) the position of the non-indicating control rod will be determined by a method other than that specified in Action a.1. The provisions of Specifications 3.0.4 are not applicable for Action a.1 for the remainder of the Unit 1 Cycle 4 operating cycle. The Tennessee Valley Authority (TVA) committed, in its letter dated June 16, 1989, to operate with the inoperable control rod position indicator until the next shutdown of Unit 1 of sufficient duration that the indicator can be repaired. This would be no later than the Unit 1 Cycle 4 refueling outage.

As discussed in the enclosed Safety Evaluation, the Commission determined, pursuant to 10 CFR 50.91, that this amendment should be implemented as soon as possible. The amendment would permit the licensee to continue determining the position of the control rod, in the shutdown bank with the inoperable RPI, without subjecting the thimble tubes to excessive wear. It has no adverse effect on safety and would be beneficial to overall plant safety. Excessive wear of the thimble tubes results in a degradation of the reactor coolant system pressure boundary and can create the possibility of a non-isolable leak of reactor coolant. The proposed change will reduce the likelihood of the reactor coolant boundary being compromised and should be permitted with minimum delay. Consequently, the NRC staff determined that exigent circumstances existed which justify reducing the public notice period normally provided for licensing amendments. A Public Notice that the NRC staff proposed to amend the operating license of Unit 1 was published in the

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Mr. Oliver D. Kingsley, Jr.

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June 23, 1989

Chattanooga News-Free Press and the Chattanooga Times on Wednesday, June 21, 1989. The Public Notice stated that the NRC staff proposed to issue this amendment at the close of business on June 23, 1989.

A Notice of Issuance will be included in the Commission's Bi-Weekly Federal Register Notice.

Sincerely,

Original signed by

B. D. Liaw, Director
TVA Projects Division
Office of Nuclear Reactor Regulation

Enclosures:

- 1. Amendment No. 118 to License No. DPR-77
- 2. Safety Evaluation

cc w/enclosures:
See next page

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Mr. Oliver D. Kingsley, Jr.

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

TENNESSEE VALLEY AUTHORITY

DOCKET NO. 50-327

SEQUOYAH NUCLEAR PLANT, UNIT 1

AMENDMENT TO FACILITY OPERATING LICENSE

Amendment No. 118
License No. DPR-77

1. The Nuclear Regulatory Commission (the Commission) has found that:
 - A. The application for amendment by Tennessee Valley Authority (the licensee) dated June 16, 1989, 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;
 - B. The facility will operate in conformity with the application, 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 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.

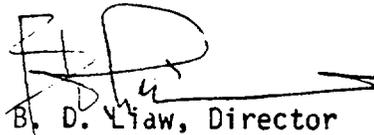
2. Accordingly, the license is amended by changes to the Technical Specifications as indicated in the attachment to this license amendment and paragraph 2.C.(2) of Facility Operating License No. DPR-77 is hereby amended to read as follows:

(2) Technical Specifications

The Technical Specifications contained in Appendices A and B, as revised through Amendment No. 118, are hereby incorporated in the license. The licensee shall operate the facility in accordance with the Technical Specifications.

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

FOR THE NUCLEAR REGULATORY COMMISSION



B. D. Liaw, Director
TVA Projects Division
Office of Nuclear Reactor Regulation

Attachment:
Changes to the Technical
Specifications

Date of Issuance: June 23, 1989

ATTACHMENT TO LICENSE AMENDMENT NO. 118

FACILITY OPERATING LICENSE NO. DPR-77

DOCKET NO. 50-327

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

REMOVE

3/4 1-17

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INSERT

3/4 1-17

3/4 1-17a

REACTIVITY CONTROL SYSTEMS

POSITION INDICATION SYSTEMS - OPERATING

LIMITING CONDITION FOR OPERATION

3.1.3.2 The shutdown and control rod position indication system and the demand position indication system shall be OPERABLE and capable of determining the control rod positions within ± 12 steps.

APPLICABILITY: MODES 1 and 2.

ACTION:

- a. With a maximum of one rod position indicator per bank inoperable either:
 1. # Determine the position of the non-indicating rod(s) indirectly by the movable incore detectors at least once per 8 hours and immediately after any motion of the non-indicating rod which exceeds 24 steps in one direction since the last determination of the rod's position, or
 2. Reduce THERMAL POWER to less than 50% of RATED THERMAL POWER within 8 hours.
- b. With a maximum of one demand position indicator per bank inoperable either:
 1. Verify that all rod position indicators for the affected bank are OPERABLE and that the most withdrawn rod and the least withdrawn rod of the bank are within a maximum of 12 steps of each other at least once per 8 hours, or
 2. Reduce THERMAL POWER to less than 50% of RATED THERMAL POWER within 8 hours.

For the remainder of the Unit 1 Cycle 4, Action a.1 will be superseded by the following, for shutdown rod position indicators only:

Initially determine the position of the non-indicating rod(s) indirectly by the moveable incore detectors and, at least once every 8 hours thereafter, verify by alternate methods that the non-indicating rod(s) have not moved. If there is indication that the subject rod(s) may have moved, then immediately initiate action to determine the new position (by the moveable incore detectors) of any non-indicating rod(s) that have moved since the last determination of the rod(s) position.

The provisions of 3.0.4 are not applicable for Action a.1 for the remainder of Unit 1 Cycle 4.

REACTIVITY CONTROL SYSTEMS

POSITION INDICATION SYSTEM - OPERATING

SURVEILLANCE REQUIREMENTS

4.1.3.2 Each rod position indicator shall be determined to be OPERABLE by verifying that the demand position indication system and the rod position indication system agree within 12 steps at least once per 12 hours except during time intervals when the Rod Position Deviation Monitor is inoperable, then compare the demand position indication system and the rod position indication system at least once per 4 hours.



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ENCLOSURE 2

SAFETY EVALUATION BY THE OFFICE OF NUCLEAR REACTOR REGULATION

SUPPORTING AMENDMENT NO. TO FACILITY OPERATING LICENSE NO. DPR-77

TENNESSEE VALLEY AUTHORITY

SEQUOYAH NUCLEAR PLANT, UNIT 1

DOCKET NO. 50-327

1.0 INTRODUCTION

By letter dated June 16, 1989, the Tennessee Valley Authority (TVA or the licensee) requested an exigent amendment to the Technical Specifications (TS) for the Sequoyah Nuclear Plant, Unit 1. If approved, the amendment would temporarily revise Specification 3.1.3.2, "Position Indication System-Operating," to allow the licensee to use an alternative method to determine the position of a control rod in a shutdown bank, where the rod has an inoperable rod position indicator (RPI), from that specified in the TS. The change would apply only for Unit 1 until the next outage of sufficient duration when maintenance can be performed to repair the inoperable RPI but no later than the Unit 1 Cycle 4 refueling outage scheduled for April of 1990. The change would also state that the provisions of Specification 3.0.4 do not apply so that the licensee may change reactor modes during this time period with the RPI inoperable.

As discussed below, the Commission determined, pursuant to 10 CFR 50.91, that this amendment should be implemented as soon as possible. A Public Notice that the NRC staff proposed to amend the operating license of Unit 1 was published in the Chattanooga News-Free Press and the Chattanooga Times on Wednesday, June 21, 1989.

2.0 EVALUATION

The control rods are divided into two categories: control and shutdown. The control category rods are used to compensate for reactivity changes due to variations in operating conditions of the core. The shutdown category rods are fully withdrawn from the core during startup and remain fully withdrawn until the unit is shut down.

An RPI for a Unit 1 control rod in shutdown bank D has been declared inoperable by the licensee because of voltage fluctuations in the analog RPI instrumentation channel. Action a.1 of Specification 3.1.3.2 requires the determination of the position of the non-indicating rod indirectly by the moveable incore detectors at least once every eight hours while the RPI is inoperable. The licensee has been using these detectors since the RPI was declared inoperable.

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The use of the incore detector system to comply with Action a.1 increases the use of the incore detector system from once each month to 90 times each month, significantly increasing the wear on the associated thimble tubes. The moveable incore detectors move through thimble tubes. TVA has stated that it has determined that Sequoyah, Unit 1 must be shut down to repair the inoperable RPI.

This increased use of the incore detector system and the resulting wear on the thimble tubes are nonconservative. The concerns for the wear on these tubes were identified in NRC Bulletin 88-09, "Thimble Tube Thinning In Westinghouse Reactors," issued on July 26, 1988. Excessive wear of the thimble tubes results in a degradation of the reactor coolant system pressure boundary and can create the possibility of a non-isolable leak of reactor coolant. The thimble tubes are part of the reactor coolant pressure boundary.

TVA has determined that the objectives of Action a.1 of Specification 3.1.3.2 can be met with an inoperable RPI in a shutdown bank without subjecting the incore thimble tubes to unnecessary additional wear. TVA will install a strip chart recorder to track the output voltage of the stationary gripper coil on the non-indicating rod(s) and verify at least once every eight hours that the non-indicating rod(s) has not changed position. This eight-hour surveillance period is consistent with the current operational requirements in Action a.1 for rod position determination. If the coil has changed state, a determination of the non-indicating rod(s) position will be made by use of the moveable incore detectors. In addition, at least once every 31 days, a full-core flux map of the Unit 1 core will be performed and the position of any non-indicating rod(s) will be determined using the moveable incore detectors. This is to determine operability of the full-length control rods as required by Surveillance Requirement 4.1.3.1.2. These periodic surveillances will provide additional assurance that the non-indicating rod(s) is in the expected position.

The control rods are moved up or down by repetitive action of the moveable gripper coil, stationary gripper coil and lift coil. During plant operation, the stationary gripper coil holds the control rod in a static position. For the control rod to move, the output voltage on the stationary gripper coil must change from being "off" to being "on" to being "off" again. This change would be registered as a change in the output voltage which would be recorded on the strip chart recorder. This method of determining if the non-indicating control rod has moved is as reliable as the current specified method of determining where the control rod is using the moveable incore detectors. If the non-indicating control rod has moved, the licensee will locate the control rod using the current specified method. The frequency of surveillance on the non-indicating control rod remains the same frequency specified in Action statement a.1, at least once per every eight hours.

Based on the above, the staff concludes that the proposed change is acceptable. This change applies only to control rods in a shutdown bank and does not change the requirement in Action a.1 that only one rod position indicator per bank may be inoperable.

3.0 EXIGENT CIRCUMSTANCES

The NRC staff has determined that this change should be implemented as soon as possible. The amendment would permit the licensee to continue determining the position of the control rod, in the shutdown bank with the inoperable RPI, without subjecting the thimble tubes to excessive wear. The proposed changes have no adverse effect on safety and would be beneficial to overall plant safety. Excessive wear of the thimble tubes results in a degradation of the reactor coolant system pressure boundary and can create the possibility of a non-isolable leak of reactor coolant. The proposed change will reduce the likelihood of the reactor coolant boundary being compromised and should be permitted with minimum delay. Consequently, the NRC staff determined that exigent circumstances exist which justify reducing the public notice period normally provided for licensing amendments and proposed, in the Public Notice published on June 21, 1989, to issue the amendment at the close of business on June 23, 1989.

4.0 FINAL NO SIGNIFICANT HAZARDS CONSIDERATION

The licensee has evaluated this proposed change with regard to the determination of whether or not a significant hazards consideration is involved. Operation of Sequoyah, Unit 1 in accordance with the proposed amendment will not involve a significant increase in the probability or consequences of an accident previously evaluated. The proposed change to the Sequoyah, Unit 1 Technical Specifications is to provide an alternative method for verifying shutdown rod position in the event the associated RPI becomes inoperable. The proposed change meets the intent of the current specification in that it ensures verification of position of the shutdown rod(s) once every eight hours. The proposed change provides only an alternative method of monitoring shutdown rod position and does not change the assumption or consequences of any previously evaluated accident. Therefore, the proposed change will not increase the probability or consequences of any previously evaluated accident.

The proposed change will not create the possibility of a new or different kind of accident from any previously analyzed. As described above, the proposed change provides only an alternative method of determining shutdown rod(s) position. The proposed change does not affect the reactor protection system or the full-length rod control system. Therefore, the proposed change does not create the possibility of a new or different kind of accident from any previously analyzed.

The proposed change will not involve a significant reduction in a margin of safety. The Bases of Specification 3.1.3.2 state that the operability of the control RPIs is required to determine control rod positions and thereby ensure compliance with the control rod alignment and insertion limits. The proposed change does not alter the requirement to determine rod position but provides an alternative and reliable method for determining the position of the affected rod(s). Therefore, the proposed change does not reduce the margin of safety.

The requested amendment has been evaluated against the standards in 10 CFR 50.92 and the NRC staff has determined that the requested amendment involves no significant hazards considerations. The changes do not affect the probability or consequences of any accident previously considered, create the possibility of an accident of a different kind, nor decrease any margin of safety.

5.0 CONSULTATION WITH THE STATE

On June 16, 21, and 23, 1989, the State of Tennessee was contacted by telephone and the proposed amendment was discussed. A copy of the Public Notice issued by the staff with its preliminary determination of no significant hazards consideration was telecopied to the State. On June 23, 1989, the State contact had no comments on this determination.

6.0 RESPONSES FROM THE PUBLIC

In the Public Notice for this proposed action, the NRC staff stated that all comments received by close of business on June 23, 1989 would be considered in reaching a final determination of no significant hazards consideration. No comments were received by the staff before the close of business on June 23, 1989.

7.0 ENVIRONMENTAL CONSIDERATION

This amendment involves a change to a requirement with respect to 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 exposure. The Commission has previously issued a proposed finding that this 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 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.

8.0 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 amendments will not be inimical to the common defense and security nor to the health and safety of the public.

Principal Contributor: J. Donohew

Dated: June 23, 1989