



UNITED STATES  
NUCLEAR REGULATORY COMMISSION

WASHINGTON, D.C. 20555-0001

SAFETY EVALUATION BY THE OFFICE OF NUCLEAR REACTOR REGULATION

RELATED TO AMENDMENT NO. 204 TO FACILITY OPERATING LICENSE NO. DPR-79

TENNESSEE VALLEY AUTHORITY

SEQUOYAH NUCLEAR PLANT, UNIT 2

DOCKET NO. 50-328

1.0 INTRODUCTION

By application dated May 19, 1995, the Tennessee Valley Authority (the licensee) proposed an amendment to the Operating License for Sequoyah Nuclear Plant (SQN) Unit 2. The requested change would, on a one-time basis, revise License Condition 2.C.(17) to extend the required surveillance interval to May 4, 1996, for Surveillance Requirement (SR) 4.3.2.1.3 for certain engineered safety features response time tests. The tests involve the 36-month response time verification for safety injection, feedwater isolation, containment isolation Phase A, auxiliary feedwater pump, essential raw cooling water system, emergency gas treatment system, containment spray, containment isolation Phase B, turbine trip, 6.9-kilovolt shutdown board degraded voltage or loss of voltage, and automatic switchover to containment sump actuations. The proposed extension will limit the interval past the allowable extension of Technical Specification (TS) 4.0.2 (1.25 times the stated interval) to 4.5 months so they can be performed during the Cycle 7 refueling outage. All future tests will then return to the normal 36-month frequency specified in the TS.

Three other similar tests that are listed in the SR have been performed and are not affected by the requested extension (containment ventilation isolation, steam line isolation, and engineered safety feature actuation system interlocks).

By letter dated September 11, 1995, the licensee revised the proposed amendment to reflect a change to the start of the refueling outage from April 19, 1996 to May 3, 1996. As a result, the one-time extension for License Condition 2.C.(17) surveillance interval would be changed to May 18, 1996, and the interval past the extension allowed by TS 4.0.2 would be 5 months. The licensee indicated that no other surveillance tests than those described in the original submittal were affected by the change to the start of the refueling outage. In addition, the licensee indicated there was no change to the original justification for the changes and the no significant hazards consideration. A revised notice was published in the FEDERAL REGISTER, however, to reflect the interval change. The following analysis is based on the revised interval.

ENCLOSURE 2

## 2.0 EVALUATION

SN Unit 2 experienced an extended forced outage during Operating Cycle 6 due to equipment problems. This forced outage resulted in a delay in completing Cycle 6 operation, pushed all subsequent operating and refueling cycles forward a number of months, and created difficulty in meeting the required surveillance intervals for many surveillances that are performed during refueling outages. As a result, TVA requested and received approval to extend several surveillances into the Cycle 6 refueling outage. During that outage, TVA intended to return all affected surveillances to a schedule that would conform to the required testing intervals, thereby eliminating the need for additional schedular extensions. Operating Cycle 7 (the present operating cycle) commenced with startup from the Cycle 6 refueling outage in November 1994 and is scheduled to end when the next refueling outage begins in May 1996.

TVA discovered that 24 response-time surveillance procedures associated with SR 4.3.2.1.3, performed on a 36-month frequency, were overlooked and will expire before the Cycle 7 refueling outage. TVA performed 20 of the 24 procedures during the forced shutdown in April 1995, but could not perform the 4 remaining procedures without significantly extending the duration of the forced outage. These four procedures affect all of the systems that are listed above that need schedular extension. The first of these four procedures will exceed the 36-month surveillance interval, plus the 25 percent extension allowed by TS 4.0.2, on December 20, 1995, and the last on February 8, 1996.

The surveillance tests for which an extension is requested cannot be performed during power operation without risk of a unit transient. Without the extensions, either a shutdown on or before December 20, 1995, would be necessary or testing would have to be performed at power.

Normally the proposed extension period would end on the date that the unit is actually shut down to begin the refueling outage (May 3, 1996). However, to allow for unforeseen impacts to the operating capacity factor, TVA has requested to extend the proposed surveillances to May 18, 1996. The maximum surveillance interval extension requested for these procedures is, therefore, 5 months above the maximum extension allowed by TS.

In its application for the amendment, TVA concluded that the reliability established by the normal surveillance interval will not be significantly reduced by the extension. This conclusion is based on the following information supplied by TVA:

Response time tests are performed on instrumentation loops from the sensor to the final actuating device. These tests involve timing of the sensor, Eagle 21 components, solid state protection system (SSPS) logic and relays, and the final actuating device to determine an overall instrumentation loop response time. For the Eagle 21 components, the major contributor to response time is loop cycle time, which is verified by each quarterly functional test performed within that rack. The SSPS logic is tested on a

bi-monthly interval to verify functionality and supports acceptable response time capability. The required response time intervals for the Eagle 21 and SSPS logic are 309 and 6 milliseconds, respectively, and are not a significant contributor to overall loop response time. The sensors, SSPS relays, and final actuating devices are tested at refueling outages to assess the acceptability of their response times.

The sensors involved in the response time tests include pressure transmitters and differential pressure transmitters. A review of the past three surveillance performances for these devices did not indicate time-based trends that would result in exceeding response time requirements considering the proposed extension. Industry positions support the consideration of eliminating response time testing for transmitters and switches. This consideration is based on extensive evidence that these devices do not exhibit response time drift over a period of time. In general, the testing for response times of these devices in the industry has not detected response time failures that would not be identified by calibrations, functional testing, or channel checks. Therefore, channel checks, that will continue to be performed during the remainder of the fuel cycle, will provide reasonable confidence that the sensors are functional and that expected response times will remain within acceptable response time limits.

The SSPS relays that would require the proposed extension for response time considerations have not exhibited response time drift. Review of past response time tests have verified this position and do not indicate changes in testing values as a result of test intervals. The repeatability of response times associated with the operation of relays and the historical data supports the proposed change to extend the response time surveillances.

The majority of the final actuation devices for response time testing are valves. The affected valves for the proposed extension primarily involve those that are also tested by the Section XI Program. Of the valves not in the Section XI Program, a review of recent tests did not indicate a failure to meet the response time requirements. Recent response time tests for the other final actuating devices, which includes pumps and breakers, were also reviewed and no adverse trends were identified. The historical results of past response time tests, along with most valves also being tested in the Section XI Program, provide adequate confidence that response times will remain within acceptable values for the proposed extension interval.

Periodic surveillance requirements were not intended to adversely affect safe plant operation simply because a specified surveillance interval does not coincide with plant operating schedules. Normally, variations in schedules can be accommodated through the existing technical specifications. Specifically, TS 4.0.2 is an administrative control that ensures surveillance tests are performed within the specified interval, but it provides for an allowable tolerance of 25 percent for performing surveillances beyond the

normal surveillance interval. This tolerance provides operational flexibility to allow for scheduling and performance considerations while still ensuring that the reliability of the equipment or system associated with the surveillance is not significantly degraded beyond that obtained from the nominal specified surveillance interval.

The staff has determined that the additional extension for the particular engineered safety features response time procedures will not be adverse to safety. The staff has also determined that reasonable assurance exists that no significant degradation in the response times will occur for the instrument loops for which an extension in the surveillance schedule has been requested by the licensee. The surveillance interval extension proposed by TVA may result in a slightly diminished confidence in the reliability that would be provided by TS 4.0.2, but TVA has satisfactorily addressed this concern.

The proposed change to License Condition 2.C.(17) would extend certain specified engineered safety features response time instrument tests from 36 months to a maximum of 50 months. The staff believes that the change in the level of safety resulting from extending the surveillance interval approximately 5 months beyond the present maximum extension allowed by the TS (which includes the 25 percent allowed by TS 4.0.2) is not significant for the tests. Therefore, the staff finds the proposed license condition change acceptable.

### 3.0 STATE CONSULTATION

In accordance with the Commission's regulations, the Tennessee State official was notified of the proposed issuance of the amendment. The State official had no comments.

### 4.0 ENVIRONMENTAL CONSIDERATION

The amendment changes surveillance requirements. The NRC 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 the amendment involves no significant hazards consideration, and there has been no public comment on such finding (60 FR 49948). 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 the amendment.

### 5.0 CONCLUSION

The Commission 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, (2) such activities will be conducted in compliance with the Commission's regulations, and (3) the issuance of the amendment will not be inimical to the common defense and security or to the health and safety of the public.

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