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ENCLOSURE

SAFETY EVALUATION BY THE OFFICE OF NUCLEAR REACTOR REGULATION

TECHNICAL SPECIFICATION CHANGE 89-42

TENNESSEE VALLEY AUTHORITY

SEQUOYAH NUCLEAR POWER PLANT, UNIT 1

DOCKET NO. 50-327

1.0 INTRODUCTION

In its letter dated September 29, 1989, the Tennessee Valley Authority (TVA) proposed changes to the Sequoyah Nuclear Plant, Unit 1, Technical Specifications (TSs). These proposed changes were to add a one-time extension to the surveillance interval for the following surveillance requirements (SRs): (1) 4.3.3.7.20.b, channel calibration for the lower containment area high radiation monitors, (2) 4.7.11.2.c.2 and 4.7.11.2.c.3, visual inspection of the fire protection spray and sprinkler systems for the reactor coolant pump area and (3) 4.7.11.4.b.2 and 4.7.11.4.b.3, inspection of the fire hose stations for the reactor coolant pump and lower containment air filter area. This extension would be from October 26 or 27, 1989, depending on the SR, to December 15, 1989.

In the phone call on October 16, 1989, TVA added SR 4.7.11.4.b.1 to the list of SRs for which it requested a one-time extension of the surveillance interval to December 15, 1989. This SR is for the visual inspection of the fire hose stations in the reactor coolant pump and lower containment air filter area.

TVA stated that performance of these SRs requires a shutdown of the unit. The equipment is within the polar crane wall. This is a high radiation area during power operation and is, therefore, inaccessible for personnel to conduct the required surveillances during power operation. TVA stated that the next planned outage for Unit 1 is scheduled to begin in the first week of December 1989. The proposed extension of the surveillance intervals will allow more than sufficient time for the surveillances to be conducted after the shutdown of Unit 1. The surveillances would be completed before the restart of Unit 1 from this outage.

2.0 EVALUATION

2.1 Surveillance 4.3.3.7.20.b

Surveillance 4.3.3.7.20.b in Table 4.3-7 applies to the containment area monitors in the lower compartment of containment below the operating floor. These monitors are the NUREG-0737 containment high range radiation monitors which are used to monitor high radiation levels in the containment during and after an accident. The surveillance requires a channel calibration of the

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monitors at least once per 18 months. The surveillance interval, with the allowed extension of 25% in Specification 4.0.2, will expire on October 27, 1989. TVA is requesting that this interval be extended for one time to December 15, 1989.

Limiting Condition for Operation (LCO) 3.3.3.7 requires one of these monitors to be operable during power operation (Modes 1 and 2) and hot standby (Mode 3). Failure to perform the channel calibration within the required surveillance interval would result in both the monitors being declared technically inoperable.

TVA stated in its application that the system installed at Sequoyah consists of two redundant high-range monitors and both of these monitors should not be expected to fail to perform their intended function during the period of time requested by this change (approximately seven weeks). Additional assurance that the monitors would perform their intended function is provided by performance of the monthly channel check required by TS 3.3.3.7. In the event that both of the lower compartment high-range radiation monitors were to fail, an alternate method of monitoring containment airborne radiation exists through the use of the post-accident sampling system.

In addition, there are two of these high-range monitors in the upper compartment of the containment. These are also listed in Table 4.3-7 and would be operable. With the containment air return fans on, these monitors would also monitor the high radiation in lower containment during an accident. Although, NUREG-0737 required only two of these monitors, TVA installed four: two in the containment upper compartment and two in the lower compartment.

If LCO 3.3.3.7 can not be met, TVA is required to follow the Action Statement d for the LCO. This action statement specifies that if both the lower compartment monitors are declared inoperable, TVA must initiate an alternate method of monitoring within 72 hours and either restore an inoperable channel to operable status within seven days or submit a Special Report to the Commission within 14 days. The alternate method of monitoring for the lower compartment would be the post-accident sampling system which is designed to collect post-accident airborne samples from containment.

The issues before the staff are may the licensee knowingly fail to perform the required surveillances and allow the equipment to become technically inoperable and is this acceptable for the lower compartment monitors. The first issue is discussed in Section 2.4 below. For the second, the staff concludes based on the discussion above that it is acceptable for the lower compartment monitors to be technically inoperable for the brief seven weeks from October 27, 1989 until December 15, 1989 instead of shutting down Unit 1 on October 27, 1989 to perform the surveillance. The staff further concludes that the existing action statements for LCO 3.3.3.7 allow the licensee to operate Unit 1 until December 15, 1989 without adding the footnote to SR 4.3.3.7.20.b, as proposed by TVA. Therefore, at this time, the staff is not amending SR 4.3.3.7.20.b as requested by TVA.

2.2 Surveillance 4.7.11.2.c.2 and 4.7.11.2.c.3

Surveillances 4.7.11.2.c.2 and 4.7.11.2.c.3 apply to the spray and sprinkler systems for the Sequoyah fire protection program. The surveillances require that there be a visual inspection of (1) the dry pipe, spray and sprinkler headers for damage and (2) the nozzle's spray area to verify the spray pattern is not obstructed. The surveillances are required once per 18 months and, with the 25% extension to the inspection interval allowed in Specification 4.0.2, the surveillance interval will expire for this equipment in the reactor coolant pump area on October 26, 1989. TVA is requesting that this interval also be extended for one-time to December 15, 1989.

LCO 3.7.11.2 requires that the spray and sprinkler systems in the reactor coolant pump area of containment be operable when the unit is in power operation. Failure to perform the visual inspections of SRs 4.7.11.2.c.2 and 4.7.11.2.c.3 within the specified inspection interval would result in this equipment in the reactor coolant pump area being declared technically inoperable.

TVA stated in its application that the spray and sprinkler systems in the area of the pumps are passive systems; therefore, failure to visually inspect the systems would not prevent them from performing their intended function in the event of a fire in this area.

There are 16 fire detectors in the reactor coolant pump area which will be operable in the interval from October 16, 1989 to December 15, 1989. These detectors are listed in TS Table 3.3-11 and are required to be operable when the spray and sprinkler systems are required to be operable. If a fire should start in the pump area and the spray and sprinkler systems do not operate, the operators in the control room will be informed of the fire by the detectors. The unit can be immediately shutdown and personnel would immediately then be able to enter the pump area and put out the fire.

If LCO 3.7.11.2 can not be met, TVA is required to follow Action Statements a and b for the LCO. These action statements state with one or more of the required spray or sprinkler systems inoperable that (1) a continuous fire watch with backup fire suppression equipment be established in areas where redundant systems or components could be damaged and a hourly fire watch for other areas, (2) a Special Report to the Commission is submitted within the next 30 days and (3) the reactor is not required to be shut down if the LCO and the action statements can not be met.

The issues before the staff are may the licensee knowingly fail to perform the required surveillance and allow required equipment to become technically inoperable and is this acceptable for the spray and sprinkler systems in the reactor coolant pump area. The first issue is discussed in Section 2.4 below. For the second issue, the staff concludes based on the discussion above that it is acceptable for the spray and sprinkler systems in the reactor coolant pump area to be technically inoperable for the brief seven weeks/one day period from October 26, 1989 to December 15, 1989 instead of the unit shutting down to perform the surveillances. The staff further concludes that the existing action statements for LCO 3.7.11.2 allow the licensee to operate Unit 1 until

December 15, 1989 without adding the footnote to SRs 4.7.11.2.c.2 and 4.7.11.2.c.3, as requested by TVA. Therefore, at this time, the staff is not amending SRs 4.7.11.2.c.2 and 4.7.11.2.c.3 as requested by TVA.

2.3 Surveillances 4.7.11.4.b.1, 4.7.11.4.b.2, and 4.7.11.4.b.3

Surveillances 4.7.11.4.b.1, 4.7.11.4.b.2, and 4.7.11.4.b.3 apply to fire hose stations in Table 3.7-5 for the Sequoyah fire protection program. The surveillances require that (1) the fire hose stations not accessible during plant operations be visually inspected to assure all required equipment is at the station, (2) the hose is removed from its rack, inspected and re-racked, and (3) the gaskets for the hoses are inspected, respectively. The surveillances are required once per 18 months and, with the 25% extension to the inspection interval allowed in Specification 4.0.2, the surveillance interval will expire for this equipment in the reactor coolant pump and lower containment air filter area on October 26, 1989. TVA is requesting that this interval also be extended for one-time to December 15, 1989.

LCO 3.7.11.4 requires that the fire hose stations in the above areas be operable when the unit is in power operation. Failure to perform the above SRs within the specified inspection interval would result in the fire hose stations in the above area being declared technically inoperable.

TVA stated in its application that the fire hose stations inside the polar crane wall are inaccessible during power operation and, therefore, should not have been tampered with since the last performance of the SRs. The condition of the hoses (i.e., couplings, gaskets material, etc.) is not expected to be adversely affected by the brief extension to the surveillance interval.

The fire hose stations in containment which will be affected by TVA not doing the SRs are six stations out of 30 stations in containment. The 36 fire detectors in the reactor coolant pump and lower compartment air filter area will be operable in the interval from October 26, 1989 to December 15, 1989. These detectors are listed in TS Table 3.3-11 and are required to be operable when the fire hose stations are required to be operable. If a fire should start in the above area, the operators in the control room will be informed of the fire by the detectors. The unit can be shut down immediately and personnel would then be able to immediately enter these areas and use any of the six fire hose stations if this would be needed. There are also the additional 24 hose stations available in containment if these would be needed.

If LCO 3.7.11.4 can not be met, TVA is required to follow Action Statements a and b for the LCO. These action statements state with one or more fire hose stations in Table 3.7-5 inoperable that (1) additional fire hoses are routed to the unprotected areas from an operable fire hose station and (2) the inoperable fire hose stations are restored to operable status within 14 days or submit a Special Report to the Commission and (3) the reactor is not required to be shutdown if the LCO and the action statements can not be met.

Again, the issues before the staff are may the licensee knowingly fail to perform the required surveillances and allow required equipment to be technically inoperable and is this acceptable for the fire hose stations in the reactor coolant pump and lower containment air filter area. The first issue is discussed in Section 2.4 below. For the second issue, the staff concludes based on the discussion above that it is acceptable for the six fire hose stations to be technically inoperable for the brief seven weeks/one day period from October 26, 1989 to December 15, 1989 instead of the unit shutting down to perform the surveillances. The staff further concludes that the existing action statements for LCO 3.7.11.4 allow the licensee to operate Unit 1 until December 15, 1989 without adding the footnote to SRs 4.7.11.4.b.1, 4.7.11.4.b.2, and 4.7.11.4.b.3, as requested by TVA. Therefore, at this time, the staff is not amending these SRs as requested by TVA.

2.4 Failure to Perform Six Surveillances

There are six TS surveillances which TVA will not be able to perform in the specified TS inspection interval unless Unit 1 is shut down. To perform these surveillances, personnel would have to enter areas in containment within the polar crane wall which are inaccessible because of high radiation during power operation. TVA proposed to extend the specified inspection interval for these surveillances to December 15, 1989. These five surveillances are the following: (1) channel calibration of the lower containment area high range radiation monitors, (2) visual inspection of the spray and sprinkler systems for the reactor coolant pump area, and (3) inspection of the fire hose stations in lower containment. These surveillances were discussed individually in Sections 2.1 to 2.3, respectively, and the staff concludes that it is acceptable to extend the surveillance interval for each surveillance interval to December 15, 1989.

In this section, the staff will discuss the issues of (1) required surveillances not being performed in the required surveillance interval and (2) are these six surveillances too many not to be performed in the required surveillance interval. When equipment or systems are inoperable and an LCO can not be met, the action statements specify the actions to be taken. The action statements are written for equipment or systems which are functionally inoperable; however, they also apply for this equipment or systems if it is only believed that they may be inoperable. Not performing a required surveillance would be the basis for believing the equipment or systems may be inoperable. Because the action statements are based on the equipment or systems being functionally inoperable, it is conservative to apply these statements to the situation where the surveillance was not performed and the equipment or systems may or may not be functionally inoperable. Therefore, applying the action statements to the equipment which would be declared technically inoperable when the surveillances discussed in Sections 2.1 to 2.3 are not performed is acceptable.

The staff has considered the equipment related to the six surveillances which TVA proposes not to perform when required and concludes that they do not constitute sufficient degradation of the plant and its fire protection program

to warrant having the unit shut down to perform only these surveillance when they are required instead of waiting the brief seven weeks for the planned outage for the unit in early December 1989. The lower compartment containment area monitors are backed up by the post-accident sampling system and the upper containment area monitors. The spray and sprinkler system for the reactor coolant pumps and the fire hose stations in the lower containment are used only to fight a fire and fire detectors will inform the control room of a fire in the lower containment. There are 24 other fire hose stations in containment which will be operable.

3.0 CONCLUSION

The staff has considered the proposed changes to the Sequoyah Unit 1 TSs in TVA's letter dated September 29, 1989. As discussed in Sections 2.1 to 2.4 above, the staff concludes that (1) it is acceptable to extend the surveillance interval for the six SRs until December 15, 1989 and (2) it is not necessary to amend the Unit 1 TS as proposed by TVA to allow the unit to operate up to December 15, 1989, if needed, to perform these surveillances. The action statements for the LCO's of the six surveillances do not require the unit to shut down if the surveillances are not performed. The effect on the plant if the equipment related to these surveillances is in fact functionally inoperable does not warrant having the plant shut down to perform these surveillances instead of extending the surveillance interval to allow the unit to shut down during the planned outage in December 1989 to perform these surveillances.

The staff will request the TVA to withdraw the proposed changes to the TS because they are not needed.

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