

ENCLOSURE 1

PROPOSED TECHNICAL SPECIFICATION CHANGE

SEQUOYAH NUCLEAR PLANT UNITS 1 AND 2

DOCKET NOS. 50-327 AND 50-328

(TVA-SQN-TS-87-13)

LIST OF AFFECTED PAGES

Unit 1

3/4 9-7

Unit 2

3/4 9-8

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REFUELING OPERATIONS

3/4.9.7 CRANE TRAVEL - SPENT FUEL PIT AREA

LIMITING CONDITION FOR OPERATION

3.9.7 Loads in excess of ²¹⁰⁰~~2000~~ pounds* shall be prohibited from travel over fuel assemblies in the storage pool.

APPLICABILITY: With fuel assemblies in the storage pool.

ACTION:

With the requirements of the above specification not satisfied, place the crane load in a safe condition. The provisions of Specification 3.0.3 are not applicable.

SURVEILLANCE REQUIREMENTS

4.9.7 Crane interlocks and physical stops which prevent crane travel with loads in excess of ²¹⁰⁰~~2000~~ pounds over fuel assemblies shall be demonstrated OPERABLE within 7 days prior to crane use and at least once per 7 days thereafter during crane operation.

* The spent fuel pool transfer canal gate and the spent fuel pool divider gate may travel over fuel assemblies in the spent fuel pool provided the gates are lifted no higher than 18 inches above the top of the fuel assembly racks.

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ENCLOSURE 2

PROPOSED TECHNICAL SPECIFICATION CHANGE

SEQUOYAH NUCLEAR PLANT UNITS 1 AND 2

DOCKET NOS. 50-327 AND 50-328

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DESCRIPTION AND JUSTIFICATION FOR
CRANE TRAVEL OVER SPENT FUEL PIT AREA

ENCLOSURE 2

Description of Change

This change will revise Section 3/4.9.7, "Crane Travel - Spent Fuel Pit Area," to (1) revise the maximum load transported over the fuel assemblies in the storage pool from 2,000 pounds to 2,100 pounds and (2) allow for the fuel pool divider gate and the fuel transfer canal gate to be transported over the storage pool when following safe load paths.

Reason for Change

Limiting Condition for Operation 3.9.7 prohibits loads in excess of 2,000 pounds from travel over fuel assemblies in the storage pool. The basis for weight limit is listed in the bases for the technical specification as the weight of a single spent fuel assembly, control rod assembly, and associated handling tool. A review of the Westinghouse Electric Corporation drawings of a Sequoyah fuel assembly, rod cluster control assembly (RCCA), and spent fuel handling tool identified the total nominal weight to be 2,024 pounds. The proposed change will allow a 2,100-pound limit, which is rounded off to the next higher hundred to allow for this extra weight and any minor equipment or fuel weight changes in future assemblies.

Approximately once a year, TVA's Sequoyah Nuclear Plant performs a refueling operation. During refueling, the fuel pool divider gate and the fuel transfer canal gate are lifted with the main auxiliary building crane within the storage pool and must travel over the spent fuel storage racks in order to be placed in the gate storage racks. These gates each weigh 4,800 pounds, which is in excess of the 2,000-pound technical specification limit. The proposed change will allow these gates to be transported within the spent fuel pool with the safe load path.

Together, the above changes to the control of loads across fuel assemblies in the storage pool will resolve the weight limit discrepancy and the movement of the pool gates in excess of the present weight limit.

Justification for Change

The fuel handling accident analysis presented in section 15.4.5 of the Final Safety Analysis Report (FSAR) was examined to determine whether changing the load limit from 2,000 pounds to 2,100 pounds would invalidate the analysis. The accident is defined as dropping a spent fuel assembly onto the spent fuel pit floor and the environmental consequences of that accident. Changing the maximum weight limit from 2,000 to 2,100 pounds transported over the assemblies will not affect or invalidate the FSAR fuel handling accident.

The analysis assumes that the dropping of the fuel assembly results in a rupture of the cladding of all the fuel rods and the resultant offsite dose effects and consequences. The accident analysis is based on radioactivity and dose limits and not the specific weight; simply correcting the nominal weight limit to 2,100 pounds in the technical specification does not change the

results of the FSAR fuel handling accident. The 2,100-pound limit will not physically affect any normal plant operations but will allow the transport of a single fuel assembly, RCCA, and the handling tool over other fuel assemblies in the storage pool. Therefore, this review shows the proposed change is not detrimental to the health and safety of the public and is consistent with the basis for the technical specification.

Sequoyah compliance with the criteria of NUREG-0612 was evaluated and documented in the NRC Safety Evaluation Report (SER) and the Technical Evaluation Report (TER-C5506-393/411) prepared by Franklin Research Center regarding compliance with the criteria of NUREG-0612, "Control of Heavy Loads at Nuclear Power Plants." NRC established seven general guidelines for handling heavy loads in NUREG-0612. Six of those guidelines pertain to criteria for lifting the spent fuel pool divider gate and the fuel transfer canal gate by the main auxiliary building crane.

As identified in the TER, Sequoyah meets the criteria for the main auxiliary building crane, including operator training, crane testing, inspection, and maintenance, and the crane design standards of the American National Standards Institute (ANSI).

In accordance with the NUREG-0612 guidelines on lifting devices, Sequoyah uses properly inspected and tested slings which meet the requirements of ANSI B30.9-1971.

Safe load paths are defined in Maintenance Instruction (MI)-6.22, "Control of Heavy Loads in Critical Lifting Zones - NUREG-0612." The safe load path defines the area where, if the gate should be dropped, the structure is more likely to withstand the impact. MI-6.22 also requires a cognizant person to supervise the lift to ensure the safe load path is followed.

Finally, guideline requirements for load handling procedures are met. MI-6.22 defines required equipment to be used, inspections required, and the safe load paths. Surveillance Instruction (SI)-104 ensures electrical/mechanical interlocks associated with the auxiliary building crane function properly in accordance with Surveillance Requirement 4.9.7.

NRC also established interim measures to be implemented to provide assurance that heavy loads will be handled safely and reduce the potential for accidental load drops. The Interim Protection Measure 1 for technical specifications has been met since 3/4.9.7 exists to prohibit heavy loads over fuel in the storage pool without a single-failure-proof crane. The technical specification can be revised to permit lifts that have been properly evaluated, i.e., by the TER. Sequoyah can lift the spent fuel pool divider gate and the fuel transfer canal gate over the fuel in the storage pool provided the main auxiliary building crane is used, approved procedures are used, and the safe load path is followed.

The final conclusion of the TER and similarly the SER (reference: a letter from Thomas M. Novak, NRC, to H. G. Parris, TVA, dated March 26, 1985) states that Sequoyah units 1 and 2 comply with the guidelines in NUREG-0612 for handling heavy loads.

Westinghouse has also performed a kinetic energy calculation such that, if the gates are lifted no higher than 18 inches above the top of the fuel racks, their kinetic energy, if dropped, would be less than the kinetic energy of a dropped fuel assembly and handling tool. TVA will revise MI-6.22 to restrict the movement of the gates.

The proposed change will provide adequate protection of the health and safety of the public and is consistent with the NRC safety evaluation for NUREG-0612.

ENCLOSURE 3

PROPOSED TECHNICAL SPECIFICATION CHANGES

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DETERMINATION OF NO SIGNIFICANT HAZARDS CONSIDERATIONS
FOR CRANE TRAVEL OVER SPENT FUEL PIT AREA

SIGNIFICANT HAZARDS EVALUATION

1. Does the proposed amendment involve a significant increase in the probability or consequences of an accident previously evaluated?

No. The FSAR fuel handling accident analysis is not based on the weight of the fuel assembly and handling tool but on the radioactive release to the surroundings. Thus, the proposed change for the increased weight limit will not increase resultant offsite dose effects and consequences. The probability of an accident occurring that involves the spent fuel pool gates is very low. The gates are moved infrequently and many safety precautions are used, such as approved slings, procedures, and crane, to significantly lower the possibility of an accident.

2. Does the proposed amendment create the possibility of a new or different kind of accident from any accident previously evaluated?

No. The proposed changes do not affect the methodology and analysis previously used in the FSAR. Future refueling activities which involve moving fuel assemblies will be conducted as in the past. Plant instructions ensure safe load paths, inspected slings, and qualified cranes are used during refueling operations. Additionally, movement of the spent fuel pool gates will be restricted to lifting the gates only 18 inches above the top of the fuel racks as another safety precaution.

3. Does the proposed amendment involve a significant reduction in a margin of safety?

No. The safety evaluation report for NUREG-0612, "Control of Heavy Loads at Nuclear Power Plants," concludes that the guidelines have been followed and remain within the safety limits. The proposed change is in accordance with these guidelines and, thus, the margin of safety is not reduced.