

TENNESSEE VALLEY AUTHORITY

CHATTANOOGA, TENNESSEE 37401

5N 157B Lookout Place

APR 13 1990

U.S. Nuclear Regulatory Commission
ATTN: Document Control Desk
Washington, D.C. 20555

Gentlemen:

In the Matter of
Tennessee Valley Authority

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Docket Nos. 50-327
50-328

SEQUOYAH NUCLEAR PLANT (SQN) UNITS 1 AND 2 - TECHNICAL SPECIFICATION (TS)
CHANGE 89-33 - ADDITIONAL INFORMATION

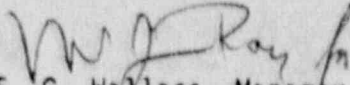
Reference: TVA letter to NRC dated January 12, 1990, "Sequoyah Nuclear Plant
(SQN) - Technical Specification (TS) Change 89-33 - Vantage 5
Hybrid (V5H) Fuel Upgrade"

A telephone conference call was held on April 4, 1990, to allow TVA to respond to NRC questions concerning the referenced TS change request. During that telephone call, NRC staff requested that TVA docket the enclosed information concerning fuel failure criteria used for the locked rotor analysis performed to support the use of V5H fuel at SQN.

No commitments are contained in this submittal. Please direct questions concerning this issue to Bruce S. Schofield at (615) 843-6172.

Very truly yours,

TENNESSEE VALLEY AUTHORITY


E. G. Wallace, Manager
Nuclear Licensing and
Regulatory Affairs

Enclosure
cc: See page 2

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U.S. Nuclear Regulatory Commission

APR 13 1990

cc (Enclosure):

Ms. S. C. Black, Assistant Director
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TVA Projects Division
U.S. Nuclear Regulatory Commission
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Rockville, Maryland 20852

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Sequoyah Nuclear Plant
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Soddy Daisy, Tennessee 37379

Mr. B. A. Wilson, Assistant Director
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U.S. Nuclear Regulatory Commission
Region II
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Atlanta, Georgia 30323

ENCLOSURE

TENNESSEE VALLEY AUTHORITY
SEQUOYAH NUCLEAR PLANT (SQN)
RESPONSE TO NRC QUESTION ON THE SQN
VANTAGE 5H PLANT SAFETY EVALUATION

(L38 900409 800)

L38 900 409 800

Westinghouse
Electric CorporationCommercial Nuclear
Fuel DivisionBox 3812
Pittsburgh Pennsylvania 15230-3812

April 5, 1990

90IV*-G-0035

JAK CWT

VICTOR
PUNE
-K. JJB

Mr. T. A. Keys, Manager
Fuel Fabrication and Utilization
Tennessee Valley Authority
1101 Market Street
BR 6N 60A
Chattanooga, Tennessee 37401

Dear Mr. Keys:

TENNESSEE VALLEY AUTHORITY
SEQUOYAH AND WATTS BAR NUCLEAR POWER PLANTS
RESPONSE TO NRC QUESTION ON THE SEQUOYAH
VANTAGE 5H PLANT SAFETY EVALUATION

Listed below is our response to NRC Condition 9 concerning the Locked Rotor analysis for the Sequoyah VANTAGE 5H Upgrade.

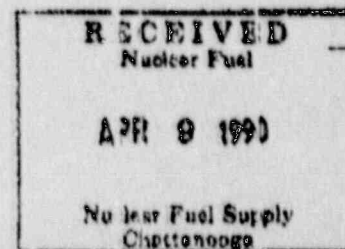
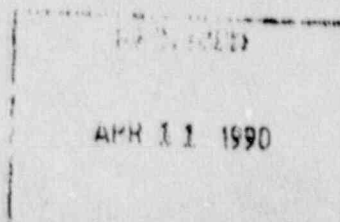
NRC Condition

With regard to the RCS pump shaft seizure accident, the fuel failure criterion should be the 95/95 DNB limit. The mechanistic method mentioned in WCAP-10444 is not acceptable.

Response

The mechanistic method for quantifying fuel failure was not used for the RCS pump shaft seizure (locked rotor) accident performed for the Sequoyah Nuclear Units 1 and 2 VANTAGE 5H fuel transition. Westinghouse performed two separate and distinct analyses for the locked rotor event.

The first analysis, using the LOFTAN and FACITAN computer codes, was performed to determine the peak RCS pressure, the peak clad temperature, and the amount of zirc-water reaction. A conservative assumption in the clad temperature calculation is that DNB is assumed to occur at the beginning of the transient. The results of this analysis are presented in Section 5.1 of Reference 1 and were not used in any way to determine the number of rods-in-DNB. The limiting criteria for the Peak Clad Temperature (PCT) is described in Reference 2.



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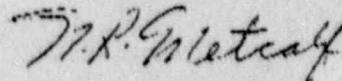
A second analysis, using the LOFTRAN, FACIRAN and THINC computer codes, was also performed for VANTAGE 5H fuel transition to determine the number of rods which experience DNB during the locked rotor accident. Any rods which violated the 95/95 DNER limit were assumed to fail. The results showed that less than 10% of the rods were predicted to be below the 95/95 DNER limit. To reiterate, the mechanistic approach identified in Reference 9 (NUREG-0562) of WCAP-11157 was not used. The conclusions in FSAR Section 15.4.4.2 remain valid.

References

1. Plant Safety Evaluation for Sequoyah Nuclear Plant Units 1 and 2 VANTAGE 5H Fuel Upgrade, November, 1989 and Revision 1, December 1989.
2. NS-NRC-89-3466, "Use of 2700 degF PCT Acceptance Limit in Non-LOCA Accidents," Letter from W. J. Johnson (Westinghouse) to Mr. Robert C. Jones (NRC), October 23, 1989.

Should you have any questions regarding this subject, please do not hesitate to call or write.

Very truly yours,



N. R. Matcalf
Project Engineer
CNFD Projects

NRM:mld

cc: I. R. Williamson