TENNESSEE VALLEY AUTHORITY
CHATTANOOGA, TENNESSEE 37401

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FEB 2 9 1988

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

Gentlemen:

In the Matter of	)	Docket Nos. 50-327
Tennessee Valley Authority	)	50-328

SEQUOYAH NUCLEAR PLANT (SQN) - DIESEL GENERATORS (DGs) - OPERABILITY AND ANALYSIS

The purpose of this letter is to state TVA's position regarding the ability of the SQN DGs to perform their intended safety function in accordance with Regulatory Guide (RG) 1.9. TVA is providing NRC with the Sequoyah Nuclear Plant Diesel Generator Evaluation Report (DGER) as enclosure 1 to this letter. This report documents that the 1987 DG test results are bounded by TVA's DG analysis and that the safety-related systems/components will perform their intended safety function when powered by the DGs with acceptable margin to ensure their operability.

The DGER provides some background information with regard to the initial preoperational tests performed in 1980 on the SQN DGs. Also provided is a brief summary of the sequence of events related to the DGs up to the present day NRC/TVA discussions.

During the DG load sequence testing, it was not possible to fully load all the motors to their design basis load; therefore, the maximum voltage transients were not obtained for all of the load sequence steps. In order to determine the maximum transient voltage dip, the actual test voltage transients were increased to the maximum loading condition. The increased voltage drop was determined by adjusting the test voltage drop by the ratio of maximum design load current to test load current. This voltage analysis, Diesel Generator Voltage and Margin Analysis (DGVMA) SQN-E3-015, is included in attachment 1 of enclosure 1 for NRC review. TVA has utilized several consultants in preparing and reviewing the report. Please note that J. V. Pospisil, S. Z. Haddad, C. Concordia, and R. E. Allen have also signed the report. This calculation established the worst-case voltage profile for the 6.9-kV and 480-V Class 1E power system based on the aforementioned test results. It also provides the margins that exist in the connected equipment during the worst-case voltage profiles. These margins, which include DG capacity, motor voltage, motor starter contactor voltage (pickup and dropout), overcurrent protection, and DG load sequence timer, are detailed in

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U.S. Nuclear Regulatory Commission FEB 2 9 1988

section IV of the DGER. The DG load sequence timer margin (see enclosure 1, section IV.F) is supported by the demonstrated accuracy calculations DG Timer Relays and 27S1A, which are included in enclosure 1 as attachments 2 and 3 respectively.

Attachment 4 of the DGER contains a report by SQN's generator vendor, NEI Peebles Electric Products, Inc. This report provides a technical discussion regarding the voltage response characteristics of the voltage regulator/excitation system installed at SQN. The purpose of this report is to provide NRC a further explanation of why the DGs were responding in the manner seen during the load sequence tests.

In conclusion, TVA has demonstrated by testing and analysis that the SQN DG system will perform its intended safety function. Based upon these tests, the analysis, and the results, TVA has thereby concluded that the SQN DGs are both fully operable and totally capable of meeting the intent of RG 1.9 with acceptable margin. TVA trusts that the information provided will allow NRC to draw the same conclusion. Finally, TVA will commit to revise the appropriate sections of the SQN Final Safety Analysis Report in the next annual update to change the existing RG 1.9 commitments (specifically section 8.3.1) based upon the results of the DG tests and analysis. Enclosure 2 contains a list of commitments made by this letter.

If there are any questions regarding the information provided in this letter, please telephone M. R. Harding at (615) 870-6422.

Very truly yours,

TENNESSEE VALLEY AUTHORITY

R. Gridley, Director
Nuclear Licensing and
Regulatory Affairs

Enclosures
cc: See page 3

SEQUOYAH NUCLEAR

PLANT

DIESEL GENERATOR

EVALUATION REPORT

PREPARED BY: J. D. Hutson — DATE: 2/24/88
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Sargent & Lundy
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J. V. Pospisil — ** DATE: 2/24/88
NEI Peebles
Manager of Engineering

REVIEWED BY: C. Concordia — DATE: 2/24/88
Private Consultant

R. E. Allen — DATE: 2/24/88
United Engineer
Senior Consultant

APPROVED BY: W. S. Raughley — DATE: 2/29/88
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Chief
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J. B. Hosmer — DATE: 2/24/88
TVA
SQN Project Engineer

* Per telecon between S. Z. Haddad and J. D. Hutson on 2/29/88.

** Per telecon between J. V. Pospisil and J. D. Hutson on 2/29/88.

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FEB 2 9 1988

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Enclosure 1

Sequoyah Nuclear Plant
Diesel Generator Evaluation Report
(DGER)