

Mr. J. A. Scalice
 Chief Nuclear Officer and
 Executive Vice President
 Tennessee Valley Authority
 6A Lookout Place
 1101 Market Street
 Chattanooga, TN 37402-2801

October 12, 1999

SUBJECT: ISSUANCE OF AMENDMENTS - SEQUOYAH NUCLEAR PLANT, UNITS 1 AND 2,
 REGARDING ELIMINATION OF INDEPENDENT SAFETY ENGINEERING GROUP
 REQUIREMENTS FROM THE OPERATING LICENSE CONDITIONS (TAC NOS.
 MA5055 AND MA5056) (TS 98-05)

Dear Mr. Scalice:

The Commission has issued the enclosed Amendment No. 248 to Facility Operating License No. DPR-77 and Amendment No. 239 to Facility Operating License No. DPR-79 for the Sequoyah Nuclear Plant, Units 1 and 2, respectively. These amendments are in response to your application dated March 2, 1999, requesting elimination of the Independent Safety Engineering Group from the License Condition section (2.C) of each license. The enclosed amendments delete License Conditions 2.C.(22).A from Operating License DPR-77 and License Condition 2.C.(16).b from Operating License DPR-79. This action is consistent with the action taken on August 26, 1999 (Enclosure 4), to eliminate the requirement for independent technical reviews from the Tennessee Valley Authority Nuclear Quality Assurance Plan (NQAP).

A copy of the Safety Evaluation (SE) is also enclosed. Notice of Issuance will be included in the Commission's biweekly Federal Register notice.

Sincerely,

Original signed by:

Ronald W. Hernan, Sr. Project Manager, Section 2
 Project Directorate II
 Division of Licensing Project Management
 Office of Nuclear Reactor Regulation

Docket Nos. 50-327 and 50-328

- Enclosures: 1. Amendment No. 248 to License No. DPR-77
 2. Amendment No. 239 to License No. DPR-79
 3. Safety Evaluation
 4. Letter Transmitting NQAP SE dated August 26, 1999

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cc w/enclosures: See next page

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UNITED STATES
NUCLEAR REGULATORY COMMISSION

WASHINGTON, D.C. 20555-0001

October 12, 1999

Mr. J. A. Scalice
Chief Nuclear Officer and
Executive Vice President
Tennessee Valley Authority
6A Lookout Place
1101 Market Street
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SUBJECT: ISSUANCE OF AMENDMENTS - SEQUOYAH NUCLEAR PLANT, UNITS 1 AND 2,
REGARDING ELIMINATION OF INDEPENDENT SAFETY ENGINEERING GROUP
REQUIREMENTS FROM THE OPERATING LICENSE CONDITIONS
(TAC NOS. MA5055 AND MA5056) (TS 98-05)

Dear Mr. Scalice:

The Commission has issued the enclosed Amendment No. **248** to Facility Operating License No. DPR-77 and Amendment No. **239** to Facility Operating License No. DPR-79 for the Sequoyah Nuclear Plant, Units 1 and 2, respectively. These amendments are in response to your application dated March 2, 1999, requesting elimination of the Independent Safety Engineering Group from the License Condition section (2.C) of each license. The enclosed amendments delete License Conditions 2.C.(22).A from Operating License DPR-77 and License Condition 2.C.(16).b from Operating License DPR-79. This action is consistent with the action taken on August 26, 1999 (Enclosure 4), to eliminate the requirement for independent technical reviews from the Tennessee Valley Authority Nuclear Quality Assurance Plan (NQAP).

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Sincerely,

A handwritten signature in cursive script that reads "Ronald W. Hernan".

Ronald W. Hernan, Sr. Project Manager, Section 2
Project Directorate II
Division of Licensing Project Management
Office of Nuclear Reactor Regulation

Docket Nos. 50-327 and 50-328

Enclosures: 1. Amendment No. **248** to
License No. DPR-77
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dated August 26, 1999

cc w/enclosures: See next page



UNITED STATES
NUCLEAR REGULATORY COMMISSION
WASHINGTON, D.C. 20555-0001

TENNESSEE VALLEY AUTHORITY

DOCKET NO. 50-327

SEQUOYAH NUCLEAR PLANT, UNIT 1

AMENDMENT TO FACILITY OPERATING LICENSE

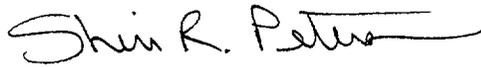
Amendment No. 248
License No. DPR-77

1. The Nuclear Regulatory Commission (the Commission) has found that:
 - A. The application for amendment by Tennessee Valley Authority (the licensee) dated March 2, 1999, complies with the standards and requirements of the Atomic Energy Act of 1954, as amended (the Act), and the Commission's rules and regulations set forth in 10 CFR Chapter I;
 - B. The facility will operate in conformity with the application, the provisions of the Act, and the rules and regulations of the Commission;
 - C. There is reasonable assurance (i) that the activities authorized by this amendment can be conducted without endangering the health and safety of the public, and (ii) that such activities will be conducted in compliance with the Commission's regulations;
 - D. The issuance of this amendment will not be inimical to the common defense and security or to the health and safety of the public; and
 - E. The issuance of this amendment is in accordance with 10 CFR Part 51 of the Commission's regulations and all applicable requirements have been satisfied.

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2. Accordingly, the license is amended as indicated in the attachment to this license amendment.
3. This license amendment is effective as of its date of issuance, to be implemented no later than 45 days after issuance.

FOR THE NUCLEAR REGULATORY COMMISSION



Sheri R. Peterson, Chief, Section 2
Project Directorate II
Division of Licensing Project Management
Office of Nuclear Reactor Regulation

Attachment: Changes to the Facility
Operating License

Date of Issuance: **October 12, 1999**

ATTACHMENT TO LICENSE AMENDMENT NO. 248

FACILITY OPERATING LICENSE NO. DPR-77

DOCKET NO. 50-327

Replace the following page of Operating License No. DPR-77 with the attached page. The revised page is identified by amendment number and contains a vertical line indicating the area of change.

Remove Page

8

Insert Page

8

(19) Mechanical Snubbers

This condition is deleted.

R239

(20) Low Temperature Overpressure Protection (Section 5.2.2)

At the first outage of sufficient duration, but no later than startup following the second refueling outage, TVA shall install an overpressure mitigation system which meets NRC requirements.

R27

(21) Control Rod Guide Thimble (Section 4.2)

Prior to startup after first refueling, TVA shall submit the details of the inspection program for control rod guide thimble tube wall wear for NRC approval.

(22) TMI Action Plan Full-Power Conditions

Each of the following conditions shall be completed to the satisfaction of the NRC by the times indicated:

A. Safety Engineering Group (Section 22.2, 1.B.1.2)

This condition is deleted.

B. Short-Term Accident Analysis and Procedure Revision (Section 22.2, I.C.1)

Within thirty effective full-power days, TVA shall revise Emergency Operating Procedures and brief the operators on the revision.

C. Control Room Design (Section 22.2, I.D.1)

TVA shall consider the benefits of installing data recording and logging equipment in the control room to correct the deficiencies associated with the trending of important parameters on strip chart recorders used in the control room as part of the Detailed Control Room Design Review. Implementation shall be carried out in accordance with SECY 82-111B.

R27

Amendment 23,
235, 248



UNITED STATES
NUCLEAR REGULATORY COMMISSION
WASHINGTON, D.C. 20555-0001

TENNESSEE VALLEY AUTHORITY

DOCKET NO. 50-328

SEQUOYAH NUCLEAR PLANT, UNIT 2

AMENDMENT TO FACILITY OPERATING LICENSE

Amendment No. 239
License No. DPR-79

1. The Nuclear Regulatory Commission (the Commission) has found that:
 - A. The application for amendment by Tennessee Valley Authority (the licensee) dated March 2, 1999, complies with the standards and requirements of the Atomic Energy Act of 1954, as amended (the Act), and the Commission's rules and regulations set forth in 10 CFR Chapter I;
 - B. The facility will operate in conformity with the application, the provisions of the Act, and the rules and regulations of the Commission;
 - C. There is reasonable assurance (i) that the activities authorized by this amendment can be conducted without endangering the health and safety of the public, and (ii) that such activities will be conducted in compliance with the Commission's regulations;
 - D. The issuance of this amendment will not be inimical to the common defense and security or to the health and safety of the public; and
 - E. The issuance of this amendment is in accordance with 10 CFR Part 51 of the Commission's regulations and all applicable requirements have been satisfied.

2. Accordingly, the license is amended as indicated in the attachment to this license amendment.
3. This license amendment is effective as of its date of issuance, to be implemented no later than 45 days after issuance.

FOR THE NUCLEAR REGULATORY COMMISSION



Sheri R. Peterson, Chief, Section 2
Project Directorate II
Division of Licensing Project Management
Office of Nuclear Reactor Regulation

Attachment: Changes to the Facility
Operating License

Date of Issuance: **October 12, 1999**

ATTACHMENT TO LICENSE AMENDMENT NO. 239

FACILITY OPERATING LICENSE NO. DPR-79

DOCKET NO. 50-328

Replace the following page of Operating License No. DPR-79 with the attached page. The revised page is identified by amendment number and contains a vertical line indicating the area of change.

Remove Page

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Insert Page

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(13) Fire Protection

TVA shall implement and maintain in effect all provisions of the approved fire protection program referenced in Sequoyah Nuclear Plant's Final Safety Analysis Report and as approved in NRC Safety Evaluation Reports contained in NUREG-0011, Supplements 1, 2, and 5, NUREG-1232, Volume 2, NRC letters dated May 29 and October 6, 1986, and the Safety Evaluation issued on August 12, 1997, for License Amendment No. 218, subject to the following provision:

R218

TVA may make changes to the approved fire protection program without prior approval of the Commission only if those changes would not adversely affect the ability to achieve and maintain safe shutdown in the event of a fire.

(14) Compliance With Regulatory Guide 1.97

TVA shall implement modifications necessary to comply with Revision 2 of Regulatory Guide 1.97, "Instrumentation for Light Water Cooled Nuclear Power Plants to assess Plant Conditions During and Following an Accident," dated December 1980 by startup from the Unit 2 Cycle 4 refueling outage.

R45

(15) Corrosion of Carbon Steel Piping

TVA shall carry out a surveillance program on corrosion of carbon steel piping in accordance with TVA document SQRD-50-328/81-10 dated August 25, 1981, and procedures for implementation are to be submitted for NRC concurrence by October 15, 1981.

(16) NUREG-0737 Conditions (Section 22.2)

Each of the following conditions shall also be performed to the satisfaction of the NRC:

R2

a. Shift Technical Advisor (Section 22.2, I.A.1.1)

TVA shall provide a fully-trained on-shift technical advisor to the shift operations supervisor.

R169

b. Independent Safety Engineering Group (Section 22.2, I.B.1.2)

This condition is deleted.



UNITED STATES
NUCLEAR REGULATORY COMMISSION
WASHINGTON, D.C. 20555-0001

SAFETY EVALUATION BY THE OFFICE OF NUCLEAR REACTOR REGULATION
RELATED TO AMENDMENT NO. 248 TO FACILITY OPERATING LICENSE NO. DPR-77
AND AMENDMENT NO. 239 TO FACILITY OPERATING LICENSE NO. DPR-79

TENNESSEE VALLEY AUTHORITY

SEQUOYAH NUCLEAR PLANT, UNITS 1 AND 2

DOCKET NOS. 50-327 AND 50-328

1.0 INTRODUCTION

By application dated March 2, 1999, the Tennessee Valley Authority (TVA, the licensee) proposed an amendment to the Operating Licenses for Sequoyah Nuclear Plant (SQN) Units 1 and 2. The requested changes would eliminate the Independent Safety Engineering Group (ISEG) from the License Condition section (2.C) of each license. This action would be consistent with the action taken on August 26, 1999, also originally requested by the TVA letter dated March 2, 1999, to eliminate the requirement for independent technical reviews and ISEG from the TVA Nuclear Quality Assurance Plan.

2.0 EVALUATION

The ISEG concept was developed as part of the U.S. Nuclear Regulatory Commission (NRC) Action Plan (NUREG-0660) to implement the various recommendations of official studies and investigations of the 1979 accident at Three Mile Island Unit 2. The ISEG was created to improve site organizations by providing on-site technical support and continuous evaluation and feedback of lessons learned from operating experience. The ISEG requirements established by NUREG-0737, Item I.B.1.2, apply to all operating licenses granted after June 26, 1980. SQN Unit 1 was granted an operating license on September 17, 1980. SQN Unit 2 was granted an operating license on September 15, 1981. The ISEG functions, established by NUREG-0737, are to:

Examine plant operating characteristics, NRC issuances, Licensing Information Service advisories, and other appropriate sources of plant design and operating experience for areas for improving plant safety.

Maintain surveillance of plant operations and maintenance activities to provide independent verification that these activities are performed correctly and that human errors are reduced as far as practicable.

Perform independent reviews and audits of plant activities including maintenance, modifications, operational problems, and operational analysis, and aid in the establishment of programmatic requirements for plant activities.

Enclosure 3

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The ISEG function is one of oversight only. The proposed amendment does not directly make changes to any system, structure or component (SSC). The change would not negatively impact the ability of an SSC to perform its safety function or negatively impact the ability of licensee personnel to ensure the SSC is capable of performing its intended safety function. The function that ISEG was intended to provide is now an everyday aspect of TVA's operations. A number of improvements in TVA's operating environment, industry initiatives, and some rulemaking since 1979 have superseded the ISEG functions. Collectively, they provide TVA's rationale as to why it is appropriate to eliminate ISEG as a specific SQN License Condition. These operating improvements include the following:

- The Design Engineering organization has been relocated to the SQN site. This organization provides technical leadership for TVA plants. Site Design Engineering functions include the development and maintenance of the plant design bases, implementation and maintenance of configuration management programs, and development of technically-correct, innovative, and cost-effective solutions to plant problems.
- Site System Engineering is now available for everyday consultation and is an integral part of the plant team. They readily monitor performance and resolve performance problems. They provide technical leadership through optimization of system performance and reliability, quality management for assigned engineering programs, and proactive identification and resolution of plant issues. Additionally, they provide technical assistance to the plant Operations and Maintenance organizations.
- TVA's Design Bases Reconciliation Programs have positioned TVA ahead of recent industry problems associated with conflicting and inadequate design bases at some facilities. TVA has kept pace with the latest developments in the industry and NRC regarding design bases and configuration management programs.
- System Status Reports provide a summary analysis of system performance that focuses management attention on systems not meeting goals by indicating adverse trends and problem areas. TVA's program for monitoring maintenance complies with Title 10, Code of Federal Regulations (10 CFR), Section 50.65 and employs Nuclear Management and Resource Council (NUMARC) 93-01, "Industry Guideline for Monitoring the Effectiveness of Maintenance at Nuclear Power Plants."
- TVA's Operating Experience Review Program has matured into a strong programmatic element under the Institute of Nuclear Power Operations guidance.
- The Training Rule was issued as 10 CFR 50.120, "Training and Qualification of Nuclear Power Plant Personnel," after ISEG requirements were first created. It requires licensees to establish, implement, and maintain a training program derived from a systematic approach.
- TVA has established a probabilistic safety analysis for each operating unit, incorporated risk assessments into work activities, and has obtained computer-based software tools

that enhance risk oversight. Risk assessments are performed for shutdown, outage, and online work activities.

- Self assessments are conducted by line organizations as a tool to monitor and improve overall performance. These assessments are self-critical evaluations of specific programs or processes, both technical and administrative, and typically result in the identification of findings or areas for improvement.
- Quarterly site trend reports are published with input from Problem Evaluation Reports, Self Assessment Reports, Nuclear Assurance (NA) Audit Reports and assessment results, and external assessment results. These reports are consolidated into a single "Level I Trend Report."
- NA functional area audits focus on selected systems, functions or components and do a more thorough job of assessing program performance. Typical functional area audits review prior line self assessments, NA oversight, industry trends, corrective actions, Institute of Nuclear Power Operations performance criteria, NRC inspection modules, lessons learned from previous audits and assessments, and documentation requirements.
- TVA's senior management meets annually to set strategic business performance goals. Performance indicators are readily available to management and employees through periodic trending reports posted on the TVA Network, Newsletters, and bulletin board postings.
- TVA has developed, and is in the process of implementing, the Excellence in Performance Program. This program reduces human performance errors through routine employee self evaluations, supervisor observation and coaching, and process improvements.
- The NA Evaluations and Analysis Group adds senior-assessment leadership and technical expertise to the Quality Assessment Program. This corporate-based group manages the programs associated with assessing Operations, Engineering/Technical Support, Modifications, Maintenance, Security, Chemistry, Emergency Preparedness, and Radiological Control Programs. Most of the review functions performed by this group are identical to the review functions outlined for the ISEG.

TVA has established a work environment where, (1) people identify problems, (2) the entire team focuses on solutions, and (3) TVA is increasingly self-critical with high expectations for performance. These developments are integral to a strong management culture that emphasizes system performance, the right people, program goals, assessment of performance against goals, and actions to correct deviations. These developments collectively assist TVA operating plants in resolving day-to-day operational problems and improve overall quality and safety. Therefore, the NRC staff agrees that ISEG's composition has become burdensome and redundant, and that it is appropriate to eliminate the ISEG and refocus these resources on more beneficial activities. The staff, therefore, agrees with TVA's proposed deletion of the Operating License Conditions that require maintenance of an ISEG.

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 amendments change recordkeeping, reporting, or administrative procedures or requirements. Accordingly, the amendments meet the eligibility criteria for categorical exclusion set forth in 10 CFR 51.22(c)(10). Pursuant to 10 CFR 51.22(b) no environmental impact statement or environmental assessment need be prepared in connection with the issuance of the amendments.

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.

Principal Contributor: Ronald W. Hernan, NRR

Date: October 12, 1999



UNITED STATES
NUCLEAR REGULATORY COMMISSION
WASHINGTON, D.C. 20555-0001

August 26, 1999

Mr. J. A. Scalice
Chief Nuclear Officer and
Executive Vice President
Tennessee Valley Authority
6A Lookout Place
1101 Market Street
Chattanooga, Tennessee 37402-2801

SUBJECT: SAFETY EVALUATION OF ELIMINATION OF INDEPENDENT SAFETY
ENGINEERING GROUP - BROWNS FERRY, WATTS BAR AND SEQUOYAH
NUCLEAR PLANTS (TAC NOS. MA5105, MA5106, MA5107, MA5054, MA5055,
MA5056)

Dear Mr. Scalice:

By letter dated March 2, 1999, supplemented by letters dated June 29 and August 25, 1999, the Tennessee Valley Authority (TVA or licensee) submitted a request to eliminate the requirement for independent technical reviews from the Nuclear Quality Assurance (NQA) Plan (TVA-NQA-PLN89A). This function implements the guidance of NUREG-0737 for establishment of an independent safety engineering group (ISEG) at nuclear sites.

The submittals document the evolution of the licensee's site processes and organizations since creation of the ISEG organizations in the early 1980s. Since that time, the licensee's operating experience program and corrective action programs have matured, design organizations have been relocated to each of the licensee's nuclear sites, and site system engineering organizations have been established. These processes and organizations, supplemented by other processes described in the submittals, effectively duplicate the independent technical review function.

The licensee proposes to transfer the responsibility for independent technical review to the site engineering organizations. The licensee has committed to incorporate changes reflecting this transfer of responsibility into the next updates to its NQA Plan and into its organizational topical (TVA-NPOD89), which is incorporated by reference into its quality assurance program plan.

ENCLOSURE 4

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J. A. Scalice

- 2 -

Because the ISEG functions have become redundant, in that they are accomplished by alternate means, its resources can be redirected toward more beneficial activities without reducing the ability of the licensed facilities to operate in a safe manner. The proposed transfer of responsibility for independent technical reviews to the engineering organizations is acceptable.

Sincerely,

A handwritten signature in black ink, appearing to read "Herbert N. Berkow". The signature is fluid and cursive, with a long, sweeping underline that extends to the left.

Herbert N. Berkow, Director
Project Directorate II
Division of Licensing Project Management
Office of Nuclear Reactor Regulation

Docket Nos. 50-390
50-259
50-260
50-296
50-327
50-328

Enclosure: Safety Evaluation

cc w/encl: See next page



UNITED STATES
NUCLEAR REGULATORY COMMISSION
WASHINGTON, D.C. 20555-0001

SAFETY EVALUATION BY THE OFFICE OF NUCLEAR REACTOR REGULATION

NUCLEAR QUALITY ASSURANCE PLAN (TVA-NQA-PLN89-A)

ELIMINATION OF THE INDEPENDENT SAFETY ENGINEERING GROUPS

TENNESSEE VALLEY AUTHORITY

BROWNS FERRY, SEQUOYAH, AND WATTS BAR NUCLEAR PLANTS

DOCKET NOS. 50-259, 50-260, 50-296, 50-327, 50-328, 50-390

1.0 INTRODUCTION

By letter dated March 2, 1999 (Ref. 1), as supplemented by letters dated June 29 and August 25, 1999, the Tennessee Valley Authority (TVA, the licensee) submitted a request proposing to eliminate the independent technical review function, which is currently the responsibility of Nuclear Licensing. The term "independent technical review," as used by the licensee, is synonymous with the term "independent safety engineering" (ISE) as described by NUREG-0737, Item I.B.1.2.

The submittal documents the evolution of the licensee's site processes and organizations since creation of the ISE Group (ISEG) organizations in the early 1980s. Since that time, the licensee's operating experience program and corrective action programs have matured, design organizations have been relocated to each site, and system engineering organizations have been established. These engineering organizations are responsible for review of all changes affecting the design basis, monitoring the performance of plant equipment, evaluating plant events such as reactor trips, plant transients and adverse equipment trends, and providing technical assistance to the operations and maintenance staffs.

Coupled with other established site processes described in the submittal, the licensee concludes that the ISEG organizations are redundant and should be redirected toward more beneficial activities.

This safety evaluation addresses the acceptability of the licensee's alternate means of satisfying the NUREG-0737 ISEG guidance.

2. BACKGROUND

2.1 Independent Safety Engineering Group

The ISEG concept was developed as part of the U.S. Nuclear Regulatory Commission (NRC) Action Plan (NUREG-0660) to implement the various recommendations of official studies and investigations of the 1979 accident at Three Mile Island (TMI) Unit 2. The ISEG was created to

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improve site organizations by providing on-site technical support and continuous evaluation and feedback of lessons learned from operating experience. The ISEG requirements established by NUREG-0737, Item I.B.1.2, apply to all operating licenses granted after June 26, 1980.

The ISEG functions, established by NUREG-0737, are to:

1. Examine plant operating characteristics, NRC issuances, Licensing Information Service advisories, and other appropriate sources of plant design and operating experience for areas for improving plant safety.
2. Maintain surveillance of plant operations and maintenance activities to provide independent verification that these activities are performed correctly and that human errors are reduced as far as practicable.
 - Perform independent reviews and audits of plant activities including maintenance, modifications, operational problems, and operational analysis, and aid in the establishment of programmatic requirements for plant activities.

It is noted that NUREG-0737 states clearly that the term "audits" is not to be interpreted in the formal sense of the audit program described by Section 4.5 of American National Standards Institute (ANSI) N18.7-1976 (Ref. 2). Further clarification is provided by the Improved Standard Technical Specifications (Ref. 3, 4) which drop the term "audit" from the scope of technical review responsibilities.

2.2 Improvements in On-Site Technical Support Since TMI

The licensee's submittal provides background information on improvements in providing on-site technical support since the creation of the ISEG organizations.

In accordance with the guidance of NUREG-0737, Item I.C.5, the licensee established an operating experience program at about the same time that the ISEG organizations were created. The operating experience program evaluates and distributes in-house and industry information to appropriate corporate and site personnel for review. Recommendations resulting from these reviews are implemented to improve safety and reliability.

In the 1980s, design engineering organizations were relocated to each of the sites. During this period, design basis issues were resolved through design basis reconstitution programs completed prior to restart of the Sequoyah units in 1988 and Browns Ferry Units 2 and 3 in the following decade. A similar design verification effort was completed for Watts Bar Unit 1 prior to obtaining a full-power operating license in 1996.

Also during the 1980s, system engineering organizations were established at each site with the responsibility to optimize system performance and reliability and to provide technical assistance to the operations and maintenance organizations.

The licensee's corrective action program contains the essential process elements of problem reporting, root-cause analysis, and corrective action. Oversight committees, comprised of site managers at least as senior as members of the Plant Operations Review Committee, are

established at each site. The submittal states that these committees have been effective in maintaining the quality, integrity, and visibility of the site corrective action programs. The submittal concludes that the above elements: (1) a mature operating experience program, (2) an effective corrective action program, and (3) site design and systems engineering organizations, supplemented by other processes and programs described in the submittal, satisfy the intent and guidance of NUREG-0737, Item I.B.1.2.

3. EVALUATION

This evaluation is performed in accordance with the guidance of NUREG-0737, the Improved Standard Technical Specifications, and the applicable acceptance criteria of NUREG-0800 (Ref. 5), Chapter 13.4, "Operational Review."

3.1 Functions/Responsibilities

The staff position with regard to ISEG responsibilities is provided in the Improved Standard Technical Specifications as encompassing:

- Plant operating characteristics, NRC issuances, industry advisories, Licensee Event Reports, and other sources which may indicate areas for improving plant safety,
- Plant operations, modifications, maintenance, and surveillance to independently verify that these activities are performed safely and correctly and that human errors are reduced as much as possible,
- Internal and external operational experience information that may indicate areas for improving plant safety.

Evaluation: The proposed ISEG alternative encompasses these responsibilities within the general responsibilities of the site engineering organizations. These responsibilities include system performance monitoring, review of operating experience information, operability evaluations, and review of changes to the technical specifications and the Final Safety Analysis Report that affect the design bases.

Design engineering organizations are responsible for maintaining the design bases and design configuration for each plant. Design bases reconstitution and verification programs have been implemented for each site. Engineering activities include support for operations, maintenance and outage activities and support for outage planning and execution.

System engineering organizations provide technical assistance to the plant maintenance and operations staffs. Through implementation of the Maintenance Rule, system engineers continuously collect equipment performance data and assess the data against performance goals. The licensee's corrective action program requires structured investigations and root cause analyses of adverse operational characteristics such as reactor trips, significant events, and negative trends.

The responsibilities of the site engineering organizations, as described in the submittal, meet the functional guidelines of NUREG-0737, Item I.B.1.2.

3.2 Independence

NUREG-0737 states that ISEG must be independent of the operating organization. The ISEG organization should report offsite to a corporate official who holds a high-level, technically-oriented position that is not in the management chain for power production.

Evaluation: The proposed ISEG alternative provides technical expertise by on-site engineering staffs. These engineering staffs report offsite to the Chief Engineer, a high-level corporate position that is not in the management chain for power production. The proposed alternative satisfies the NUREG-0737 guidance concerning organizational independence.

3.3 Composition

NUREG-0737 describes the ISEG organization as comprised of a minimum of five dedicated, full-time engineers.

Evaluation: The staff position regarding the composition of the ISEG organization has evolved, such that the staff has allowed and encouraged the integration of the ISEG function into a cohesive program that provides senior level management with an assessment of facility operation and recommendations to improve nuclear safety and plant reliability. A precedent for deletion of the composition requirement was established for Seabrook (Ref. 6), by an amendment issued on February 14, 1995. Deletion of the specific composition requirement in the proposed ISEG alternative is consistent with the current staff position and is acceptable.

3.4 Personnel Qualifications

The licensee follows the guidance of Regulatory Guide 1.8, Revision 2, "Qualification and Training of Personnel for Nuclear Power Plants," for engineering support personnel. The licensee's policy, implemented through position descriptions, is to staff the site engineering organizations with experienced engineers having, as a minimum, bachelor's degrees in engineering.

The licensee is a member of the National Academy for Nuclear Training, which assists members in developing, implementing and maintaining performance-based training programs and evaluates the quality and effectiveness of these programs. The licensee's implementation of the accredited Engineering Support Personnel training program is in compliance with 10 CFR 50.120, "Training Rule."

Evaluation: Qualification requirements for personnel performing the independent technical review function satisfy the guidance of NUREG-0737, Item I.B.1.2.

3.5 Reports

Quarterly trend reports, which identify plant reliability issues and provide a summary of plant performance, are submitted to the Executive Vice President and Chief Nuclear Officer. Input for these reports is prepared by system engineers, who collect equipment performance data and examine the data against established performance goals, in accordance with the Maintenance Rule (10 CFR 50.65).

Evaluation: NUREG-0737 guidance states that detailed recommendations should be provided to corporate management for such things as procedures, equipment modifications or other means of improving nuclear safety and reliability. These reports, coupled with a strong corrective action program, provide an acceptable method of implementing the NUREG-0737 guidance.

3.6 Licensee Commitments

The licensee has committed, in its letters of June 29 and August 25, 1999, to include in the next updates of its quality assurance plan (TVA-NQA-PLN89-A) and organization description (TVA-NPOD89) the information provided in support of the proposed alternate means of satisfying the NUREG-0737 ISEG guidelines.

The licensee's quality assurance plan incorporates, by reference, the TVA Nuclear Organization Description, TVA-NPOD89, which describes responsibilities for management, technical support, and operating organizations that meet the "content" guidance of Regulatory Guide 1.70, Revision 3.

The next update of TVA-NPOD89 will include the responsibilities of the site engineering organizations, which satisfy the ISEG functions of NUREG-0737, Item I.B.1.2. These responsibilities include (1) system health monitoring, (2) implementation of the Maintenance Rule, and (3) evaluation of industry operating experience. TVA-NPOD89 will also contain the explicit requirement to submit quarterly Level I Trend Reports, which provide system performance and status, to the Executive Vice President and Chief Nuclear Officer.

The next update of TVA-NQA-PLN89-A will transfer the responsibility for independent technical reviews from the Nuclear Licensing Manager (Section 4.1.4.D) to the Vice President, Engineering and Technical Services.

4.0 CONCLUSIONS

NUREG-0737, Item I.B.1.2, provides guidance for establishment of an independent safety engineering function to provide increased on-site technical support and evaluation and feedback of lessons learned from operating experience. Since creation of ISEG organizations in the early 1980s, other site organizations and processes have matured such that they essentially implement the ISEG functions. These processes include a mature operating experience program and an effective corrective action program. Site engineering, comprised of design engineering and system engineering, effectively incorporate and, thus, duplicate the ISEG functions of NUREG-0737, Item I.B.1.2.

Because the ISEG functions have become redundant in that they are accomplished by alternate means, these resources can be redirected toward more beneficial activities without reducing the ability of the facilities to operate in a safe manner. The proposed transfer of responsibility for independent technical review from Nuclear Licensing to Engineering and elimination of the formal ISEG organization are acceptable.

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5.0 REFERENCES

1. TVA Letter to NRC, "Elimination of Independent Safety Engineering Group - Nuclear Quality Assurance Plan (TVA-NQA-PLN89-A)," March 2, 1999.
2. ANSI N18.7/ANS-3.2, "Administrative Controls and Quality Assurance for the Operational Phase of Nuclear Power Plants," February 19, 1976.
3. NUREG-1431, "Standard Technical Specifications, Westinghouse Plants," Vol. 1, Section 5.5.2, "Review and Audit," January 1991.
4. NUREG-1433, "Standard Technical Specifications, General Electric Plants, BWR/4," Vol. 1, Section 5.5.2, "Review and Audit," January 1991.
5. NUREG-0800, "Standard Review Plan for the Review of Safety Analysis Reports for Nuclear Power Plants," Chapter 13.4, "Operational Review," June 1987.
6. Amendment No. 35 to Facility Operating License NPF-86, Seabrook Station, Unit No. 1, February 14, 1995.

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