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ENCLOSURE 1

October 1985

ASSESSMENT

OF

THE DESIGN CONTROL PROGRAM

FOR THE

SEQUOYAH NUCLEAR PLANT

PREPARED FOR

THE TENNESSEE VALLEY AUTHORITY

G/C REPORT NO. 2600

W. J. Leininger, Team Leader

Gilbert/Commonwealth, Inc.
P.O. Box 1498
Reading, Pa. 19603

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EXECUTIVE SUMMARY

Gilbert/Commonwealth, Inc. (G/C) was requested by the Tennessee Valley Authority (TVA) to perform a review of the current design control program for the Sequoyah Nuclear Plant. This review was intended to provide an overall assessment of the completeness of the program, and its understanding and implementation by engineering personnel.

This review was performed by a team of personnel with experience in the principal engineering disciplines, design control, quality assurance, and project management of nuclear plant engineering.

The G/C review team determined that the current design control program is adequate with three exceptions: 1) the need for reliable information on plant configuration for engineering personnel, 2) the need for increased emphasis on the documentation of design inputs, and 3) the requirement for completed design work to be reviewed for potential unreviewed safety questions. In addition, the review team recommended three areas for program enhancement.

The design control program was found to be well understood by TVA engineering personnel. This was attributed to the significant indoctrination effort on the part of the staff responsible for program development.

The review team determined that at this time there is insufficient data to judge the implementation of the current program due to the small number of multidiscipline design activities completed under the current program. However, the sample work available did suggest that implementation is in progress.

1.0 INTRODUCTION

The TVA Office of Engineering (OE) management initiated changes to the design control program in the form of the Engineering Program Directives Manual, which was issued for implementation on June 28, 1985. These directives replace the Engineering Procedures and provide the overall program approach for all OE activities in lieu of the previous Branch-specific procedures.

The procedures governing the engineering design process are provided in the OE Procedures (OEPs) section of the Directives Manual. These procedures provide a standard approach to control of design and design changes for both nuclear and non-nuclear engineering activities.

Project-specific requirements such as the project organization, controls, interfaces, and any variances from the OE Directives Manual, including the OEPs, are required to be identified, approved and controlled in a Project Manual. The Sequoyah Project Manual was issued on September 27, 1985.

Subordinate to the OEPs are the Engineering Discipline Branch Procedures, which provide technical guidance to Branch personnel. The Branch Procedures are currently being reviewed for consistency with the OEPs. While some revisions are already issued, completion of the Branch Procedures review effort is scheduled for December 1985.

As a result of these changes in the design control program, TVA management requested Gilbert/Commonwealth, Inc. (G/C) to provide an objective assessment of the current design control program for the Sequoyah Nuclear Plant. The approach and results of the G/C review are discussed in subsequent sections of this report.

2.0 APPROACH

The following sections describe the task assigned to the review team, formation of the team, and the approach to satisfying the task requirements.

2.1 Assignment Scope

In response to the TVA request, Gilbert/Commonwealth assembled a team to assess the design control program currently in use at Sequoyah Nuclear Plant. Specifically, the assignment required the development of answers to three questions:

1. Is the design control program in place for the Sequoyah Plant adequate to facilitate the production of quality design for original and modification work?

2. Are the program requirements understood by the personnel responsible for implementation?

3. Are the program requirements being implemented?

To answer these questions, the review team's efforts were divided into three phases: (1) review of design control program components, (2) interviews with key personnel involved in implementing the program, and (3) review of sample work performed since implementation of the revised design control program.

2.2 Staffing

The review team consisted of seven personnel with varied experience related to the design of nuclear power plants and modification of operating units implementing 10CFR50, Appendix B and ANSI N45.2.11 requirements. The expertise of the team included design engineering (mechanical/nuclear, civil/structural, electrical, and instrumentation and controls), development and implementation of design control programs, quality assurance, and project management of nuclear power plant design. An additional consultant experienced in nuclear power plant engineering and nuclear safety was provided by TVA as a resource for the review team.

The review team's qualifications are summarized in Attachment 5-1.

2.3 Review of Design Control Program Components

The first phase, program document review, was performed in the course of three days and consisted of reviewing the TVA Office of Engineering Program Directives Manual, the Sequoyah Nuclear Plant Project Manual, and, to a lesser degree, the existing TVA Engineering Discipline Branch Procedures. During the document review phase, TVA personnel responsible for development of the design control program participated in discussions with the review team to clarify the philosophy and status of the design control program.

2.4 Interviews With Key Personnel

The second phase, interviewing personnel involved in implementing the program, was accomplished in the course of three days and included discussions with both engineering and management personnel located at the Sequoyah Nuclear Plant and in Knoxville. The interviews were based on questions and issues developed by the review team during the first phase. Interviews included project and lead engineers involved in the detailed implementation of the design control program, Sequoyah Plant functional managers who interface with the engineering organization, the Sequoyah Site Director, and OE Branch Chiefs and Manager of Engineering.

A list of personnel contacted is provided in Attachment 5-2.

2.5 Review of Sample Engineering Change Notices (ECNs)

Since the majority of work performed by the Office of Engineering for the Sequoyah Plant consists of modifications, the third phase, review of sample work, concentrated on Engineering Change Notices (ECNs) performed since implementation of the revised program. The sampling of work produced under the current design control program was intended to demonstrate (1) that the program requirements are being implemented and (2) that the program is capable of providing satisfactory output. Personnel directly involved in development of the ECNs were contacted during the review of the sample.

3.0 DISCUSSION

The following sections present the results of the review team's assessment of the design control program at Sequoyah Nuclear Plant, the identified exceptions to program adequacy, and additional recommendations for program enhancement.

3.1 Assessment of the Design Control Program for Sequoyah Nuclear Plant

The assessment of the design control program for the Sequoyah Nuclear Plant resulted from development of answers to the three questions identified by TVA:

1. Is the design control program in place for Sequoyah Plant adequate to facilitate the production of quality design for original and modification work?

   It is the review team's judgement that, given appropriate resolution of the three exceptions noted in Section 3.2 of this report, the design control program is adequate. This assessment is based upon the team's experience with the design and modification of other nuclear power plants committed to compliance with 10CFR50, Appendix B and ANSI N45.2.11.

   Based upon Branch charters and delineated responsibilities and authorities, the OEPs provide a firm baseline for generic design activities related to original design and plant modifications. The recently issued Project Manual for Sequoyah presents broad direction in invoking, clarifying, and stating variances to OEPs and, therefore, constitutes a significant portion of the design control program for Sequoyah. However, the Project Manual should be refined to outline the key design-related interfaces between OE and the remainder of the Sequoyah Plant organization. Applicability of the Engineering Discipline Branch Procedures to the project should also eventually be reflected in the Project Manual. While these comments on the Project Manual do not constitute an exception to program adequacy, refinements of the Project Manual are key to resolution of several review team observations.

2. Are the program requirements understood by the personnel responsible for implementation?

   The review resulted in the assessment that the program is understood by both the personnel responsible for performing the design tasks and those responsible for providing management direction. The basis for this assessment is the interviews with various levels of Sequoyah Plant and Knoxville office personnel. The review team attributes this understanding to the detailed training sessions conducted by the TVA staff responsible for developing the program. In addition, the three introductory sections of the Office of Engineering Directives Manual provide excellent information to engineers and designers relative to TVA's design philosophy, design process, and overall organization. The availability of this information expedites understanding of the total program.

3. Are the program requirements being implemented?

   The review team concluded that an insufficient number of multidiscipline Engineering Change Notices (ECNs) have been designed and installed to enable assessment of program implementation. However, a review of a limited number of ECNs performed since the Office of Engineering Program Directives Manual was issued indicates the beginning of an effective implementation of the program.

3.2 Exceptions

The determination of program adequacy is contingent upon resolution of three exceptions, each of which is discussed below.

3.2.1 Configuration Control

A reliable configuration control system is essential to the design and operation of the Sequoyah Plant. The Office of Nuclear Power (NUC PR) has responsibility for establishing and maintaining the configuration control system. While the team did not investigate the accuracy and reliability of the existing system, the team did determine that the existing program does not provide a systematic source of plant configuration information to the responsible design organization.

OE needs accurate and reliable configuration information to perform the Unreviewed Safety Question Determination. A valid safety review is possible in the absence of configuration control information only through diligent research and inspection of on-site conditions. However, the accuracy and comprehensiveness of the safety review function, not to mention the efficiency, are optimized by a configuration control system which presents the safety evaluator with up-to-date information.

Also important is OE's need for reliable configuration control information in order to provide the best possible service to its client. The ability to provide timely response to plant needs and to enable a level of design accuracy necessary to minimize interferences is dependent upon access to reliable information on plant configuration.

The most important attribute of a sound configuration control program is the timely preparation of "as-constructed" drawings. Without access to "as-constructed" drawing information, configuration control is more difficult to accomplish. At Sequoyah there is a clear distinction between the design organization (OE) and the operating organization (NUC PR) relative to responsibility for drawings: OE is responsible for the "as-designed" drawings and NUC PR for the "as-constructed" drawings.

The team did not investigate the system employed by NUC PR to maintain "as-constructed" information. It was reported that this is normally done by marking up a single set of drawings. The details of how this activity is controlled and how often the drawings are formally revised were not reviewed. However, the central point from the OE perspective is that the design organization must have a reliable, controlled source of actual plant configuration information.

The team's review confirmed that OE personnel are aware of the need for up-to-date plant information and have developed methods of obtaining current plant configuration information. These communication links and sources have been greatly facilitated by the relocation of OE personnel to the Sequoyah site.

During the course of this review, several topics pertaining to configuration control and interface with the plant operations staff were identified for discussion. In general, these topics represent identified industry problems. Interviews with OE and NUC PR personnel revealed that they were aware of the following issues and were developing methods to address them.

1. Status of modifications - Since scoping for installation work packages can be, and often is, very different from the scope of a design change, it is difficult for OE to determine the exact completion status of plant modifications. Whenever feasible, release of plant modification designs as complete packages rather than individual documents should simplify the determination and control of plant configuration.

2. Sequence - OE design personnel work from the latest revision of the design document when designing a plant modification. This practice presumes that previously issued modifications have been implemented completely and in the same sequence in which they were designed. In reality, this is not always the case and could result in interrelated designs not being implemented in the proper sequence. Factors such as material availability, regulatory commitment, access to work areas, outage scheduling, and available resources affect the sequence of modification implementation. While the implementation decisions are appropriately made in NUC PR, the potential safety impact upon interrelated designs should be evaluated by the responsible design organization.

3. Partial completion - An ECN which is partially implemented should be subjected to a safety evaluation. In this context, a partially completed change may constitute a subtle temporary design change affecting the safety function of the system, and therefore, requires evaluation by the responsible design organization.

A new design change control system utilizing Design Change Supplements (DCS) has been developed and is to be implemented on a trial basis at the Browns Ferry Nuclear Plant. The team reviewed a Quality Notice referencing Part V, Section 2.4 of the TVA Nuclear QA Manual, which describes the DCS system. The Quality Notice requires that the originating design engineer review all outstanding ECN packages on a particular system or structure to determine which previous changes should be considered prerequisites to an ECN under design. These prerequisite

determinations would take into consideration system function, construction sequence, and safety evaluation. The DCS concept also embodies timely preparation of "as-constructed" drawings. Successful implementation of the DCS concept at Sequoyah should resolve many of the team's concerns regarding configuration control.

3.2.2 Design Bases/Design Input

As the nuclear industry has evolved, so has the expected level of documentation required to justify design. As utilities upgrade procedures and documentation levels, the necessity to examine the existing design bases to assure adequacy for continued design gains prominence. However, the review team considered historical design bases to be beyond the scope of its assignment, and therefore limited the review to documentation of design inputs for each plant modification.

Design input is addressed generically in the OEPs, but acceptance criteria for adequate documentation of design bases are not prescribed. The review team found that, because of the information required for its completion, the Unreviewed Safety Question Determination (USQD) had been relied upon as one method of identifying design considerations influencing modifications. The review team cautions against the use of the USQD in place of documented design inputs, since the form is incomplete to serve in that capacity. The USQD must remain as the primary documentation for recording the results of a 10CFR50.59 evaluation.

In clarifying the applicability of OEP-06, "Design Input," to the project, the Sequoyah Project Manual provides a method to document the design bases for each plant modification. The form is the Modification Criteria, which provides a list of generic considerations to be addressed prior to design development. The review team endorses the use of the form, and recommends its enhancement by additions such as revision control, determination of safety classification of the modification, designation of interfacing disciplines, and consideration of those items addressed in OEP-11, "Change Control," Attachment 5. In addition, the lead discipline Project Engineer should be designated responsible for developing the Modification Criteria for the scope of the Engineering Change Notice and routing it to affected disciplines for use in detailed design. Ultimately, the verifier should use the form to confirm that appropriate design inputs have been selected and incorporated in the design.

Through interviews with OE site personnel, a general recognition of the need to document design inputs was confirmed. Consistent implementation of the Modification Criteria to the level of detail required to direct the design approach and facilitate design verification will satisfy this requirement.

3.2.3 USQD Development and Use

In 10CFR50.59, the Code of Federal Regulations requires that all design changes to operating plants be reviewed to determine whether they constitute an unreviewed safety question. At Sequoyah Nuclear Plant, this is documented on an Unreviewed Safety Question Determination (USQD) form, which is typically prepared by the OE Nuclear Engineering Branch.

The USQD is prepared during the early stages of the design change process, before the development of the detailed design output documents. This is a practical step, since this preliminary determination may influence the feasibility of the proposed change from a licensing standpoint. However, all of the safety implications of a proposed design change may not be discernable at the conceptual stage.

Upon completion of all design output documents necessary to implement an Engineering Change Notice (ECN), a formal USQD must be prepared to assure that the design change, as reflected in the detailed output documents, does not constitute an unreviewed safety question. As suggested earlier in this report, the packaging of a complete design change will greatly facilitate this review.

Subsequent changes to issued ECNs in the form of Field Change Requests (FCRs) also require re-evaluation of the USQD. Similarly, ECNs which are only partially implemented must be evaluated prior to startup or placement in service of the modification. The Design Change Supplement system being developed and to be implemented on a trial basis at the Browns Ferry Plant includes provisions for USQD re-evaluations such as those identified above.

3.3 Enhancements

Three areas to be considered for enhancement of the Sequoyah design control program were noted by the review team and are described below.

3.3.1 Control of OE Internal Interfaces

While reviewing OE internal interfaces, the review team observed that OE personnel located at the Sequoyah site control the day-to-day engineering and design activities. Leadership of the OE project team resides at the site, including the Project Engineer from each discipline. However, many tasks which are more generic in nature are developed and controlled by OE personnel in the Knoxville office. Examples of this type of work are environmental qualification and Appendix R analysis.

The advantage of assigning a Knoxville group as a primary resource for certain work is clear. However, the review team believes that the potential exists for issuance of a design modification by the site group which is inconsistent with the design bases established and maintained by Knoxville. Recognizing the risk factors associated with an increased number of interfaces or development of special interfaces, the team recommends that these interfaces be detailed procedurally, either in the OEPs or in Section VI, "Interface Control," of the Project Manual. OEP-11, "Change Control," already provides a list of generic items to be considered during development of a modification. As stated in Section 3.2.2 of this report, these generic items should be addressed in developing modification criteria for each Engineering Change Notice. If developed early in the process and maintained current, the Modification Criteria will help to mitigate the potential for inconsistent design activities between the site and Knoxville groups. However, additional training may also be necessary to ensure that site personnel responsible for identifying appropriate design interfaces are fully aware of the work performed by Knoxville groups and its potential impact upon site designs.

3.3.2 Integration of OE Personnel into the Site Organization

The recent relocation of OE personnel to the Sequoyah site appears to have already proven beneficial to the effort of the OE group. The increased ease of communication and access to operational information via discussion and plant

walkdowns is conducive to development of design that is technically adequate and readily installed.

It is understood that the total integration of a once remotely located unit into the site project team must be given time to evolve, but the effort should be managed in a planned, deliberate fashion. That the OE site group is not yet fully integrated into the plant organization is suggested by the absence of recognition of the group in the procedures of interfacing units. In addition, the Engineering Project Manual does not identify the site interfaces external to OE which affect design. For example, to perform most effectively, design personnel require an understanding of how design output is received and used by interfacing groups, and how it might be "packaged" or presented most advantageously for implementation, training, plant operation, and maintenance.

Existing procedures governing Plant Modifications unit work, "as-constructed" drawing control, and site QA activities related to design and procurement assurance are key areas where interfaces should be defined to the extent that each affected unit sufficiently recognizes the interfacer's objectives, constraints, and preferences. Procedures such as these should be made available to OE site personnel, or a condensed version of their requirements included in the Project Manual.

In addition to the use of interfacing procedures, the current approach of assigning a Project Engineer by the Site Director to each task should be strengthened. As "task overseer," the Project Engineer is in an optimum position to assure that the interfaces relative to definition of the task objectives, packaging of the design output, procurement of the hardware, sequencing of the modification work, and feedback of as-constructed information are properly planned, scheduled, and implemented.

3.3.3 Design Verification

The OE approach to design verification as described in OEP-10 meets the requirements of ANSI N45.2.11, Section 6. However, the team identified the following areas for program enhancement.

1. Terminology - The definitions and usage of the terms "checking" and "verification" in the OEPs are not consistent with current practice in the nuclear industry. The more common connotation for checking is to determine arithmetic

correctness or correct transcription of data. At TVA, checking is considered synonymous with verification and is the more prevalent term used in the OEPs. The semantics are not important internally if OE is performing the necessary work to address the questions posed in Attachment 5 to OEP-10. The semantics may, however, prompt unnecessary questions with external interfaces.

2. Scope of Verification - The OE procedures require verification of essentially all design documents as they are generated. The team could not determine in the available time that the overall design considerations, not necessarily evident on detailed design output documents, are being subjected to an appropriate verification. The industry standards require verification of the "design," not of any particular documents. Most design organizations choose to meet that requirement by specifying in their programs exactly what design documents will be subjected to verification. The design control program should assure that the focus of design verification remains upon "design" and not the sort of details typically associated with checking detailed design output documents.

3. Documentation - Current industry requirements for documentation of design verification dictate that the verification results be auditable against the method used. In the examples reviewed by the team, only the signature or initials of the checker were provided. Further, the team believes that it may benefit TVA in the long term to capture more evidence of verification activities by describing the method used and extent of verification, and summarizing the verifier's findings.

The team was made aware of two initiatives which, if implemented on Sequoyah, will serve to enhance the design verification process. First, the Design Change Supplement (DCS) concept, currently planned for implementation on Browns Ferry, promotes the use of a "unitized" design change package. Control and release of design changes in a single package would greatly facilitate a broader approach to verification of "design." Secondly, the Sequoyah Project Manual (Section VII, OEP-6) provides an enhancement which tabulates design modification criteria. Implementation of this form on future plant modifications will facilitate design review through identification of design inputs and considerations influencing the modification.

4.0 CONCLUSIONS

The design control program being implemented by TVA at the Sequoyah Nuclear Plant has been evaluated and found adequate for future design work with three exceptions pertaining to configuration control, design basis and design input control, and the timing of the Unreviewed Safety Question Determination. Three additional program enhancements have been identified which do not constitute exceptions, but concern areas where additional attention may benefit the Sequoyah design control program. These include interfaces between the OE site staff and Knoxville support groups, interfaces between OE and the Sequoyah plant staff, and design verification.

It is significant that TVA has programs already being developed that, when fully implemented at Sequoyah, will address most of the identified issues. In particular, two subjects come up repeatedly which have broad implications:

1. Design Modification Packaging - The Design Change Supplement concept includes a "unitized" design change package which should enhance configuration control, control of design bases, USQD documentation, and design verification.

2. Modification Criteria - Use of the Modification Criteria form provided to document design input for each modification will also benefit historical design bases, interface reviews, and design verification.

The review team recommends that these two initiatives be deliberately and fully implemented on Sequoyah.

The design control program developed in OE and being implemented on Sequoyah is commensurate with industry direction and should provide acceptable levels of design quality. The hierarchy of documents, beginning with the Management Manual, the Organization Manual and the Design Process Guide, provides the backdrop against which the implementing procedures are more easily understood. The concept of using basic design control procedures augmented and implemented by Project Manuals is a proven method of standardizing design processes for both new projects and plant modification work. Even at this early stage of program

implementation, it was evident to the team that the improved concepts embodied in the program had been well accepted by the OE technical personnel interviewed. This is a positive reflection on both the program and the efforts which accompanied its introduction.

REVIEW TEAM QUALIFICATIONS

Team Leader

W. J. Leininger holds an M.S. in Civil Engineering and has been involved in nuclear power plant design for eighteen years. He participated in the initial development of the G/C Design Control Program. For the past ten years, Mr. Leininger has served as Project Manager for both construction projects and operating units. His current assignment is Project Manager of the Perry Nuclear Power Plant design and startup.

Team Members

R. P. Cronk holds a B.S. in Electrical Engineering and has been active in nuclear power plant design and modification for fifteen years. He is currently Section Manager, Electrical Nuclear Engineering, and functions as Project Electrical Engineer on the Crystal River - Unit 3 Continuing Services Project. He has served on the G/C Design Control Procedures Committee for eight years.

D. T. Klinksiek has a Ph.D. in Mechanical Engineering. His experience in nuclear power plant system design and modification spans nineteen years. For one year he was dedicated to the Design Control Group, with the assignment to revise the Design Control Program as needed and to coordinate mechanical system design reviews. His current function in G/C is as Consultant in Mechanical/Nuclear Engineering.

H. A. Manning holds a B.S. in Civil Engineering and has fifteen years' experience in quality program development and management for both construction projects and operating units. He is a member of the ANSI/ASME Nuclear Quality Assurance Work Group - Design Control, and functions in G/C as Manager, Corporate Quality Assurance Programs.

C. C. Paschall has an M.A. and five years' experience in design control program development and management. Since 1982 she has served as Manager of Quality Management, responsible for the G/C design, construction, and procurement control programs. She is also responsible for G/C licensing support of nuclear power plants under construction and in operation.

G. B. Sanders holds an M.S. in Civil Engineering and has ten years' experience in civil/structural design, piping analysis, support design, and component qualification. As Project Manager of the G/C piping analysis and support design work for the Watts Bar Project, he has developed and implemented Project Management Manual direction and engineering interface procedures.

V. H. Willems has a B.S. in Electrical Engineering. He has been responsible for instrumentation and control system design and modification on nuclear power plants for twenty-four years. He has served on the G/C Design Control Procedures Committee for three years, and currently functions as Consultant in Control Systems design.

TVA - Provided Resources

The team wishes to thank Mr. M. Bender, consultant to the review team, for his able assistance in establishing perspective on TVA organization and program initiatives.

The team extends its appreciation to Mr. J. J. Wilder of TVA for his efforts as team liaison with TVA personnel.

TVA PERSONNEL CONTACTED

H. L. Abercrombie	-	SQN - Site Director
R. O. Barnett	-	Branch Chief, Civil Engineering Branch
E. G. Beasley	-	Chief, Quality Management Staff
N. D. Black	-	SQN - Supervisor, Electrical Engineering
T. B. Bucy	-	SQN - Civil Design Supervisor
R. Campbell	-	SQN - Acting Project Nuclear Engineer
R. W. Cantrell	-	Manager of Engineering, Office of Engineering
C. A. Chandley	-	Branch Chief, Mechanical Engineering Support Branch
R. Daniel	-	SQN - Supervisor, Mechanical Engineering
G. T. Hall	-	SQN - Electrical Project Engineer
R. C. Jenkins	-	SQN - Supervisor, Electrical Contract Engineering Section
C. N. Johnson	-	SQN - Civil Project Engineer
J. Key	-	SQN - Project Mechanical Engineer
K. L. Mogg	-	SQN - Civil Design Supervisor
R. W. Olsen	-	SQN - Modification Branch
J. E. Ownby	-	SQN - Project Coordination
H. B. Rankin	-	SQN - Manager, Design Services
R. P. Reese	-	Supervisor, Electrical Engineering
T. W. Roberts	-	Branch Chief, Engineering & Computer Methods Branch
J. H. Robinson	-	SQN - Civil Design Supervisor
J. E. Staub	-	SQN - Supervisor, Electrical Engineering I&C

J. Struggs	-	Assistant to Branch Chief, Electrical Engineering Branch
J. P. Vineyard	-	SQN - Office of Engineering Project Manager
P. R. Wallace	-	SQN - Plant Manager
R. Weir	-	SQN - Acting Chief Nuclear Engineer
J. J. Wilder	-	Nuclear Engineer, Nuclear Engineering Branch
T. Wooten	-	SQN - Mechanical Engineer

Exception 3.2.1 CONFIGURATION CONTROL

As indicated in the Gilbert/Commonwealth report, a new modification control system utilizing design change supplements (DCS) has been developed and is being implemented at Browns Ferry. A similar modification control system will be evaluated for use at Sequoyah. This evaluation will be completed by February 1, 1986. In the interim period, a review of new safety-related modifications involving applicable portions of the "as constructed" and "as designed" drawings will be performed and any differences resolved.

Exception 3.2.2 DESIGN BASES/DESIGN INPUT

As stated in the Gilbert/Commonwealth report, the Sequoyah Project Manual provides a method to document the design bases for each modification through the Modification Criteria. The manual will be reviewed to ensure that the recommended changes are addressed. This review will also ensure that appropriate design inputs are documented in accordance with ANSI N45.2.11 - 1974. This review will be completed by January 15, 1986.

Exception 3.2.3 USQD DEVELOPMENT AND USE

The design control procedure (OEP-11) will be revised as needed to ensure that the USQD is reviewed upon design completion and is consistent with the detailed design. This review and revision will be completed by January 15, 1986. Subsequent changes to issued ECNs in the form of Field Change Requests (FCRs) are presently evaluated and USQD revisions are made as appropriate. Evaluations are also made and a USQD prepared for partially implemented safety-related ECNs prior to declaring the modified equipment operable.