UNITED STATES
NUCLEAR REGULATORY COMMISSION
REGION II
101 MARIETTA STREET, N.W.
ATLANTA, GEORGIA 30323

Report Nos.: 50-327/86-07 and 50-328/86-07

Licensee: Tennessee Valley Authority
6N38 A Lookout Place
1101 Market Street
Chattanooga, TN 37402-2801

Docket Nos.: 50-327 and 50-328 License Nos.: DPR-77 and DPR-79

Facility Name: Sequoyah 1 and 2

Inspection Conducted: January 21-24, 1986

Inspector: M. F. Runyan 2/24/86
Date Signed

Accompanying Personnel: G. A. Belisle, RII
R. W. Parkhill, IE

Approved by: G. A. Belisle, Acting Section Chief 2/24/86
Division of Reactor Safety
Date Signed

SUMMARY

Scope: This routine, unannounced inspection entailed 41 inspector-hours at the site during normal duty hours in the area of design control.

Results: No violations or deviations were identified.

REPORT DETAILS

1. Persons Contacted

Licensee Employees

*R. Birchell, Compliance
K. Boyd, Modifications
D. Craven, QA Staff Supervisor
D. Cowart, Quality Surveillance Supervisor
D. Hamilton, QA Staff Supervisor
*G. Kirk, Compliance Supervisor
M. McGuire, Quality Engineering Branch
*R. Olson, Modifications Manager
J. Ownby, Supervisor, OE
*H. Rankin, Manager, Design Services
*J. Vineyard, Project Manager, OE
*P. Wallace, Plant Manager
*D. Widner, Modifications

Other licensee employees contacted included technicians and office personnel.

Other Organizations

W. Leininger, Gilbert/Commonwealth
C. Paschall, Gilbert/Commonwealth
C. Whitehead, Gilbert/Commonwealth

NRC Resident Inspectors

*K. Jenison, Senior Resident Inspector
L. Watson, Resident Inspector

*Attended exit interview

2. Exit Interview

The inspection scope and findings were summarized on January 24, 1986, with those persons indicated in the paragraph above. The inspector described the areas inspected in detail. No dissenting comments were received from the licensee. The licensee did not identify as proprietary any of the materials provided to or reviewed by the inspector during this inspection.

3. Licensee Action on Previous Enforcement Matters

This subject was not addressed in the inspection.

4. Unresolved Items

Unresolved items were not identified during the inspection.

5. This inspection broadly addressed the status of design controls at Sequoyah with specific emphasis on the contracted services of Gilbert/Commonwealth, Inc. It represented a continuation of an NRC inspection conducted December 16 - 20, 1985. That inspection is documented in NRC Report Nos. 50-327/85-48 and 50-328/85-48.

Gilbert/Commonwealth (G/C) performed a review of the current Sequoyah design control program. This report was intended to provide an overall assessment of the completeness of the program and its understanding and implementation by engineering personnel. The report, entitled "Assessment of Design Control Program for the Sequoyah Nuclear Plant," and dated October 1985, was transmitted to the NRC by TVA in a letter dated November 7, 1985. Enclosure 2 of this letter presented TVA's corrective action for each of the three "exceptions" identified in the G/C report.

Regarding G/C Exception 3.2.1, TVA committed to evaluate a new modification control system utilizing Design Change Supplements (DCS) by February 1, 1986. This system is now being implemented at Browns Ferry. The inspector discussed the status of this review with several Office of Engineering (OE) personnel and was informed that the decision had been made to initiate the DCS system at Sequoyah. An implementation plan with appropriate milestones will be completed by February 1, 1986. The conversion will replace as-built and as-designed drawings with a single set of configuration control drawings. Each Engineering Change Notice (ECN) will be prioritized within groups of outstanding ECNs pertaining to a given system and the configuration control drawing will not be updated until the ECN is completed. This should provide a positive, systematic means of ensuring proper configuration control. The commitment schedule and implementation of the DCS system will be assessed by NRC during future inspections.

Regarding G/C Exception 3.2.2, TVA committed to amend the Sequoyah Project Manual (a site-specific document which lists variances to the TVA Engineering Program Directives Manual) by expanding the required design input for each plant modification to include revision control, determination of safety classification, designation of interfacing disciplines, and other items. The affected document, Office of Engineering Procedure (OEP)-06 Variance, Section VII of the Sequoyah Project Manual, was revised January 13, 1986, to include the items recommended by G/C.

Regarding G/C Exception 3.2.3, TVA committed to revise OEP-11, Change Control, to include the requirement to review the Unresolved Safety Question Determination (USQD) upon design completion to ensure that the original evaluation is still valid in light of any changes made to the initial concept. OEP-11 was revised January 14, 1986, to include this requirement.

The October 1985, G/C report addressed only the existing design control program. The deficiencies noted in this review raised questions as to the previous design control program adequacy. TVA committed in the Sequoyah Nuclear Performance Plan to conduct a sample review of designs generated under the previous design control program since plant licensing. This effort was also contracted out to G/C. G/C personnel were onsite for direct inspection from January 6-24, 1986. The inspector reviewed G/C's "Review Plan for Sequoyah Nuclear Plant Modifications," dated January 1986. This

document functioned as the contract between G/C and TVA concerning services rendered within the context of their continuing services contract. It describes the scope, organization, and approach for the review. Utilizing the selection criteria presented in the review plan, G/C narrowed the scope to those modifications initiated and implemented on the Main and Auxiliary Feedwater Systems since issuance of the operating license for Unit 1. The modifications were to be evaluated for effect on system operation, conformance with original design bases, interfaces with other plant systems and structures, and field implementation and documentation. The inspector discussed the preliminary findings (technical issues) with G/C personnel on the final day of their onsite inspection. They are briefly described below:

1. Leak off lines from the feedwater isolation valves were capped to control leakage. Since the leakoff line taps between the first and second layer of packing, its capping may subject the second packing layer to a high differential pressure. TVA did not evaluate this situation.

2. Electrical cables were abandoned and left in place on cable trays without being accounted for in the computer loading analysis. Though a procedure governs the allowable number of cables per tray, the above scenario could permit overloading.

3. A certain cable type in the main steam room was not environmentally qualified. TVA identified the situation and issued an ECN to replace it, but could not provide documentation to G/C verifying that it was environmentally qualified.

4. TVA discovered that an auxiliary feedwater valve would not open in 60 seconds as required in the event of loss of offsite power followed by a diesel startup. A device was installed on the valve to allow it to open faster. This device was qualified to three times the acceleration of gravity (3g) but preliminary estimates indicate that it may be subject to as much as 4g.

5. Auxiliary feedwater level control valves were continually leaking. TVA installed a cavitating venturi in place of a valve, permitting the delivery of more volume to the auxiliary feedwater pump. As a result, the pump draws additional current. An FSAR change was made to reflect the change; however, a similar analysis was not performed for the diesel which also would be affected.

These findings or "technical issues" are subject to change pending further evaluation by TVA and G/C. The most significant observation from NRC's viewpoint is that only one of the findings (#2) involve configuration control, the major programmatic error found in the October 1985, G/C review. In all, the preliminary findings appear to be isolated and do not suggest a major breakdown of the past design control system. G/C will issue a final report by March 1, 1986.

TVA assembled a configuration task force to investigate configuration control problems throughout the TVA nuclear system. At Sequoyah a task force memorandum dated June 13, 1984, identified problems in processing Field Change Requests (FCRs). An FCR is the site's means of changing an ECN and obtaining corporate engineering approval. The memorandum reads in part as follows:

(1) The Field Services Group (now called Modifications), FCR log has not always been maintained accurately and is apparently not used to followup on later or missing FCRs.

(a) Not all FCR revisions are entered on the log. Engineering Design (EN DES) recorded receipt of numerous R1 and R2 revisions of FCRs which were not on Sequoyah FSG's log.

(b) Sequoyah's log indicated that for over 80 old FCRs, the completed FCR package had never been received from EN DES. This information was apparently not used to followup even though some the these FCRs were five years old.

(c) Since this log is an important source of information not maintained elsewhere, consideration should be given to maintaining it as a QA record.

(2) For over 40 FCRs between 1979 and 1982, it appears that Nuclear Power (NUC PR) got verbal approval to work an FCR but never submitted the FCR package to EN DES. Consequently, the FCRs are probably not reflected on as-designed drawings. The workplans were pulled by plant drawing control for several of these FCRs. In these cases, the workplans were found to neither contain or reference the FCR. This raises questions as to whether the as-constructed drawings were updated to reflect these FCRs.

(3) EN DES engineers are not following up on overdue FCR's as required by EP 4.06. NUC PR often fails to submit FCRs within the required 14 days but EN DES does not reestablish an expected submission date. Followup on FCRs is hindered by improperly and incomplete filled out FCR log sheets. A number of current FCR log sheets omit essential information such as the date of the first call, whether the FCR was approved or disapproved, and the date of approval or disapproval.

The inspector requested documentation of the closeout action for item (2), which appeared to be the most significant finding of the task force review. TVA could not provide this documentation. Responsibility for addressing this problem was passed through several individuals but never formally tracked or documented. The inspector discussed this matter with several TVA employees and was informed that a 100 percent review of FCRs in the 1979-1982 timeframe was conducted in lieu of focusing on the 40 FCRs individually cited, apparently due to a loss of information specifying the FCRs. The result of this survey was not documented

and the inspector could not determine the outcome other than the apparent fact that many problems had been found and corrected. This included several cases where OE's as-designed drawings were updated to reflect FCR packages that had never arrived.

In the process of attempting to answer NRC questions on this matter, TVA audited the FCR log for the period 1979-1982, and found three FCRs still pending OE approval and one FCR for which no documentation existed. FCR 607 was reconstructed from the memory of the person who worked it and the pour card upon which it was annotated. The three pending FCRs were closed out. Although it is evident that actions were taken to correct the problems identified by the task force, there remains uncertainty as to whether item 2 was fully addressed and whether items 1 and 3 were similarly handled. The Office of Inspection and Enforcement (IE) will follow up on this issue during future inspections.