TENNESSEE VALLEY AUTHORITY
CHATTANOOGA, TENNESSEE 37401
400 Chestnut Street Tower II

February 15, 1984

U.S. Nuclear Regulatory Commission
Region II
ATTN: James P. O'Reilly, Regional Administrator
101 Marietta Street, NW, Suite 2900
Atlanta, Georgia 30303

Dear Mr. O'Reilly:

Enclosed is our response to your January 16, 1984 letter to H. G. Parris transmitting Inspection Report Nos. 50-259/83-53, -260/83-53, -296/83-53, -327/83-27, -328/83-27, -390/83-49, -391/83-38, -438/83-30, -439/83-30 regarding quality assurance related activities at our Browns Ferry, Sequoyah, Watts Bar, and Bellefonte Nuclear Plants which appeared to have been in violation of NRC regulations. We have enclosed our response to Appendix A, Notice of Violation (enclosure 1). If you have any questions, please call Jim Domer at FTS 858-2725.

The information you requested regarding concerns with implementation of our quality assurance program are addressed in enclosure 2.

To the best of my knowledge, I declare the statements contained herein are complete and true.

Very truly yours,

TENNESSEE VALLEY AUTHORITY

L. M. Mills, Manager
Nuclear Licensing

Enclosures

ENCLOSURE 1

RESPONSE - NRC INSPECTION REPORT NOS.
50-259/83-53, 50-260/83-53, 50-296/83-53, 50-327/83-27,
50-328/83-27, 50-390/83-49, 50-391/83-38, 50-438/83-30, 50-439/83-30
JAMES P. O'REILLY'S LETTER TO H. G. PARRIS
DATED JANUARY 16, 1984

Appendix A

Violation 1 (259, 260, 296/83-53-01; 327, 328/83-27-01; 390/83-49-01; 391/83-38-01; 438, 439/83-30-01)

'10 CFR 50 Appendix B, Criterion I, requires that persons and organizations performing quality assurance functions shall have sufficient authority and organizational freedom to identify quality problems, to recommend solutions, and to verify implementation of solutions. Criterion XVI further requires that measures shall be established to assure conditions adverse to quality are promptly corrected. The accepted QA Program (TVA-TR75-1A), Section 17.0.3, states that the Office of Quality Assurance is responsible for establishing and ensuring effective execution of an overall integrated quality assurance program for TVA. It also states that OQA may identify quality problems; initiate, recommend, or provide solutions through designated channels; verify implementations of solutions; determine the adequacy of facilities and equipment to carry out approved procedures and instructions; and issue special instructions necessary to execute its responsibilities. Section 17.2.16 states that adverse conditions are evaluated, reported to supervision, and corrected in a manner consistent with their safety.

Contrary to the above, OQA is not ensuring effective execution of the quality assurance program in that all conditions adverse to quality have not been promptly corrected. The current Composite Open Item Review Summary contains one outstanding item from 1979, 16 outstanding items from 1981 and 65 outstanding items from 1982. Region II has issued four violations since February 1981, for failure to take prompt corrective action by mechanisms defined within the QA Program.

Similar items relative to corrective action inadequacies were brought to your attention in our letters dated February 13, 1981; March 18, 1981; April 29, 1982; and August 24, 1983.'

1. Admission or Denial of the Alleged Violation

TVA admits that the violation occurred as stated.

2. Reasons for the Violation if Admitted

Both standard procedures and informal escalation measures have failed in the past to achieve timely corrective action in a number of instances, as demonstrated by numbers cited in the NRC report.

3. Corrective Steps Which Have Been Taken and the Results Achieved

OQA has initiated the following actions to correct the cited condition:

a. All open audit items are currently being evaluated to determine their present status with respect to corrective action. This includes those specific open audit items mentioned in the NRC violation.

b. Upon determination of the current status of these open audit items, the control elements of the Office of Quality Assurance procedures will be applied, as appropriate, to expedite their closure. Priority will be placed on effecting timely closure of those specific open audit items identified in the NRC report.

The procedures mentioned above are internal OQA procedures which are presently in place to control the identification, documentation, disposition, and escalation to higher levels of management within the performing organization, as appropriate, of deviations discovered during verification activities.

c. Specific individuals in each branch have been assigned the responsibility to expedite the closure of existing open audit items and any subsequent deviations through the application of deviation control procedures, as appropriate.

4. Corrective Steps Which Will Be Taken to Avoid Further Violations

TVA believes implementation of the measures above, coupled with verification program activities, will minimize recurrence of this violation.

5. Date When Full Compliance Will Be Achieved

Disposition of backlogged open items is an ongoing problem that must be carefully managed, but is difficult to eliminate. Through the corrective actions stated above, especially increased attention to open items by OQA and line management, TVA anticipates a significant improvement in efficiency and management control in dispositioning deviations.

1. Open item status will be determined by March 1, 1984.

2. Appropriate follow-up, including escalation actions, will be initiated on all backlogged open items by March 15, 1984.

Violation 2 (259, 260, 296/83-53-02; 327, 328/83-27/02; 390/83-49/02; 391/83-38-02; 438, 439/83-30-02)

'10 CFR 50 Appendix B, Criterion III, and the accepted QA Program require establishing measures to assure that applicable regulatory requirements and the design basis are correctly translated into specifications, drawings, procedures, and instructions. In addition, Criterion III requires measures to identify and control design interfaces and to coordinate among participating design organizations. Section 17.1.3.2 and 17.2.3.3 of the

accepted QA Program (TVA-TR75-1A) collectively require formal control and coordination of all design criteria involving groups both internal and external to TVA. The program endorses Regulatory Guide 1.64 and ANSI N45.2.11-1974. Section 5 of this standard specifically requires formal documentation of all internal and external design control interfaces.

Contrary to the above, measures have not been established to implement these requirements for all nuclear plant design activities. TVA Audit 83V-26 performed in February 1983 revealed several problems involving the transfer of design information between TVA and Gilbert Associates related to safety-related piping analysis. Problems identified during this audit included: (1) failure to formally transmit certain design inputs and outputs on the Sequoyah, Watts Bar, and Bellefonte projects; (2) failure to notify Gilbert of nonconformances identified by TVA; (3) inadequate documentation by Gilbert of the design baseline for input and output data; (4) different methods of handling design data in the Sequoyah, Watts Bar, and Bellefonte project groups within the EN DES Civil Engineering Branch; and (5) the use of unverified computer programs. Similar problems were identified by the QA staff during TVA audit 83V-73 conducted in September 1983 which also involved pipe stress analysis performed for TVA by a different contractor. As of this inspection, action had not been taken to determine the full scope of this problem within all TVA groups performing design activities and measures had not been established which require formal documentation of all internal and external design interface activities.'

1. Admission or Denial of the Alleged Violation

   TVA admits that a violation of Criterion III of 10 CFR 50, Appendix B, did occur. However, the violation occurred only at contract interfaces involving one branch of the Division of Engineering Design (EN DES) and affected only three contractors performing the same type of work. Internal reviews have indicated that neither EN DES nor OQA has identified similar problems with any other design interfaces.

2. Reasons for the Violation if Admitted

   A single point failure existed for piping analyses regarding the interface with contractors either working strictly under TVA's procedures or performing work to TVA procedures under their own quality assurance program. There are no documented instructions that provide information to personal service contractors on how to perform analyses to TVA parameters.

3. Corrective Steps Which Have Been Taken and the Results Achieved

   Because of understandable apprehensions expressed by the NRC inspection team, the following response deals at length with the details of this violation.

a. Background

During TVA audit 83V-26 performed in February and March 1983, five deviations involving the transfer of design information between TVA and Gilbert Associates were identified. These deviations included:

Nos. 1 and 3 Lack of formal documented quality assurance program procedures that resulted in three different methods of handling documents existing for the Sequoyah, Watts Bar, and Bellefonte project groups within EN DES Civil Engineering Support Branch. Further, there was no document control program established to control these documents (i.e., deviation Nos. 1 and 3 go hand-in-hand).

No. 2 Inadequate documentation of the design baselines for input and output data for Sequoyah and Watts Bar work only.

No. 4 Use of computer programs lacking proper controls and documentation.

No. 5 Failure to notify Gilbert of nonconformance identified by TVA.

Deviations Nos. 1, 2, and 3 were identified as significant by TVA and reported to the NRC, but later downgraded to nonreportable in TVA's final report.

In addition to Gilbert Associates, TVA has two other contractors performing piping analyses: TES and Impell Corporation (formerly EDS Nuclear). Gilbert performs all work under TVA's program while the other two companies perform their work under their own quality assurance programs using TVA documents for guidance.

The generic implication of deviation No. 1 was identified by the audit team with the inclusion of the statement on the deviation that procedures be prepared to provide instructions on the methods needed to conduct and document the piping analysis.

The audit team did not make specific reference to the generic implications of deviation No. 3 due to the differences in the quality assurance program requirements of the contracts.

Deviation No. 2 was exclusive of generic applicability even in relation to Gilbert (Sequoyah and Watts Bar only). TES only performs Bellefonte work, and Impell was performing very limited work on Watts Bar. TVA reviews all completed analyses for adequacy and documents the results.

Deviation No. 4 was generic in nature. The deviation required corrective action internal to TVA as well as all contractors.

Deviation No. 5 concerned only the TVA/Gilbert interface on nonconformances and should have been (in retrospect) generic in

nature. However, the auditors had no objective evidence that this problem was generic in nature and were reluctant to broaden its scope at that time.

The audit team also recommended audits of the other two piping analysis contractors (TES and Impell) as soon as possible. Impell was audited in September 1983 and TES in October 1983.

b. Corrections and Improvements

Gilbert Associates

The audit report on the Gilbert/TVA audit (83V-26) was transmitted on April 28, 1983. Corrective action responses were received and full implementation was to be completed by November 30, 1983.

Another audit at Gilbert to review elements of program implementation that could not be reviewed during the earlier audit (i.e., document control) was conducted December 20, 1983. Problems with implementation of corrective action for Audit 83B-26 were identified.

Subsequently, on January 12 and 26, 1984, OQA and EN DES personnel met to discuss status of corrective action. Corrective action was indicated as being fully implemented with the exception of one procedure which is due to be issued March 1, 1984. A follow-up audit to verify corrective action in all areas except the above-mentioned procedure (which will be verified within one month after issue) is scheduled for early February 1984.

Impell

On September 13 and 14, 1983, an audit of Impell Corporation was conducted with three deviations being identified against TVA. These were the same as three of (Nos. 1, 3, and 5) those discovered during the Gilbert/TVA audit.

EN DES requested that new deviation reports be prepared, as the response to the Gilbert deviations was already in the approval cycle and did not address the generic implications.

The EN DES corrective action essentially referenced the corrective action proposed earlier for the Gilbert audit (83V-26), making the deviations generic in nature. This proposed corrective action was accepted December 14, 1983. In 1983 Impell performed only a few reanalyses and EN DES does not intend to use them for further piping analyses. Because of this, there will not be any major effort to implement corrective action unless work is resumed with Impell in the future. The audit was considered historical in nature with the last piping analysis work reviewed being from June 1983.

TES

An audit of TES was conducted October 4 and 5, 1983. Deviation Nos. 83V-26-3 and -5 were identified as being applicable to TES/TVA also. However, no additional deviation reports were written because the corrections for TES would be included in the corrective actions for Gilbert and Impell.

4. Corrective Steps Which Will Be Taken to Avoid Further Violations

OQA will continue to perform detailed audits of internal design organizations and contractors providing engineering services as discussed in section 2. These audits will address both internal and contractor interfaces. In the future, more immediate response to deviation reports will be required in a more timely manner.

5. Date When Full Compliance Will Be Achieved

TVA will be in full compliance by the end of March 1984.

Violation 3 (259, 260, 296/83-53-03; 327, 328/83-27-03; 390/83-49-03; 391/83-38-03; 438, 439/83-30-03)

'Browns Ferry Technical Specification (TS) 6.10.C requires that audits be forwarded to the Manager of Power and to the management positions responsible for the areas audited within 30 days after completion of the audit. Sequoyah Technical Specification 6.5.2.10.C contains the same requirement. The licensee's accepted QA Program (TVA-TR75-1A) Tables 17D-1, 17D-2, and 17D-3 endorse Regulatory Guide 1.144 and ANSI N45.2.12, Requirements for Auditing of Quality Assurance Programs for Nuclear Power Plants. Paragraph 4.4.6 of this standard contains essentially this same requirement.

Contrary to the above, the following audits were not forwarded as required by TS or ANSI N45.2.12 within 30 days after completion of the audit:

Audit	Audit Completion Dates	Issue Date
BF-83TS-10	07/21/83	08/29/83
SQ-83TS-11	08/04/83	09/13/83
CH-83TS-03	09/02/83	10/21/83
CH-8300-06	09/30/83	Not issued as of 11/15/83
CB-83-05	08/12/83	09/22/83
CB-83-06	08/29/83	10/04/83
CB-83-07	09/29/83	Not issued as of 11/09/83
83V-26	03/17/83	04/26/83
83V-58	07/14/83	08/26/83
83V-72	09/23/83	Not issued as of 11/09/83
83V-73	09/14/83	10/26/83
83V-75	09/29/83	Not issued as of 11/09/83
83V-78	09/29/83	Not issued as of 11/09/83
83V-79	07/14/83	08/22/83
QDBVA-84-1	10/05/83	Not issued as of 11/08/83

A similar item was brought to your attention in our letter dated August 24, 1983.'

1. Admission or Denial of the Alleged Violation

TVA admits the violation occurred as stated.

2. Reasons for the Violation if Admitted

The root causes for this violation were personnel error (Construction Quality Assurance Branch (CQAB)) and insufficient manpower (DQAB and Operations Quality Assurance Branch (OQAB)). In DQAB there was insufficient emphasis by audit team leaders and the Planning and Support Services (PSS), in part. In CQAB, there was insufficient emphasis by PSS and management. In OQAB, a conscious decision had been made to upgrade the audit program by increasing the depth of audits and placing a premium in the near term on training and orientation of employees added in a staff expansion. During this transition, some reports were not issued as promptly as required.

3. Corrective Steps Which Have Been Taken and the Results Achieved

All currently overdue audit reports were issued by December 16, 1983. Since that time, all audit reports (except two that were one day late) have been issued within 30 days.

4. Corrective Steps Which Will Be Taken to Avoid Further Violations

The following actions to prevent recurrence will be applied:

a. The OQA audit procedure was revised on November 21, 1983, to delineate a required issue date of audit reports (within 30 days of post-audit conference).

b. Additional emphasis has been placed on the need for timely distribution (i.e., within 30 days) of audit reports within each auditing branch.

5. Date When Full Compliance Will Be Achieved

Full compliance was achieved on December 16, 1983, following revision of the management control procedure and release of the last overdue audit report.

Violation 4 (259, 260, 296/83-53-04; 327, 328/83-27-04; 390/83-49-04; 391/83-38-04; 438, 439/83-30-04)

'10 CFR 50 Appendix B, Criterion XVIII, and the licensee's accepted QA Program (TVA-TR75-1A) Section 17.2.18 collectively require a comprehensive system of planned and periodic audits to verify compliance with all aspects of the quality assurance program. Tables 17D-1, 17D-2, and 17D-3 of the QA Program endorse Regulatory Guide 1.144 and ANSI N45.2.12, Requirements for Auditing of Quality Assurance Programs for Nuclear Power Plants. Paragraph

4.5.1 of this standard requires management of the audited organization to respond in writing within 30 days after receipt of the audit report.

Contrary to the above, the following audit responses were not submitted by the audited organization within 30 days:

Audit	Date Issued	Date Responded
BF-8300-03	09/22/83	11/03/83
SQ-83TS-11	09/13/83	10/25/83
SQ-83TS-09	08/17/83	09/22/83
83V-79	08/22/83	No response as of 11/09/83

Similar items were brought to your attention in our letters dated February 13, 1981, and August 24, 1983.'

1. Admission or Denial of the Alleged Violation

   TVA admits the violation occurred as stated.

2. Reasons for the Violation if Admitted

   The root cause of this violation is lack of management emphasis within OQA and the audited organizations to promptly define actions required to achieve corrective action.

3. Corrective Steps Which Have Been Taken and Results Achieved

   Personnel are now assigned specific responsibilities in PSS of each branch to perform follow-up actions of tracking unresolved deviations, securing corrective action, and closing items that have been resolved. Increased attention and frequent personal interfacing with audited organizations will decrease the likelihood of recurrence.

4. Corrective Steps Which Will Be Taken to Avoid Further Violations

   OQA's audit administration procedure will be revised by February 27, 1984, to state explicitly that audit responses are to be requested within 30 days of the transmittal memorandum.

   ADP systems are under development and implementation in both OQA and other parts of TVA to improve the management of problem follow-up and resolution.

   OQA's management action request (MAR) procedure will be used as necessary to elevate attention to higher management levels if the required timeframe is not met. The MAR procedure is currently in effect.

   Note: OQA records show audit 83V-79 had been cancelled and, therefore, is the basis for no response on that item.

5. Date When Full Compliance Will Be Achieved

Full compliance will be administratively achieved by March 30, 1984, when all actions committed above, except development of ADP tracking systems, are expected to be complete.

Violation 5 (259, 260, 296/83-53-05; 327, 328/83-27-05; 390/83-49-05; 391/83-38-05; 438, 439/83-30-05)

'10 CFR 50 Appendix B, Criterion II, states that the quality assurance (QA) program shall provide for indoctrination and training of personnel performing activities affecting quality as necessary to assure that suitable proficiency is achieved and maintained. The accepted QA program (TVA-TR75-1A) requires an indoctrination and training program for personnel performing quality related activities. Tables 17D-1, 17D-2, and 17D-3 endorse Regulatory Guide 1.146 and ANSI N45.2.23-1978, Qualification of Quality Assurance Program Audit Personnel for Nuclear Power Plants. Paragraph 2.2 of this standard requires the auditing organization to establish audit personnel qualifications and Paragraph 2.3 requires a scoring system involving verification of a minimum of ten credits prior to being designated a Lead Auditor.

Contrary to the above, measures had not been established to require verification of the minimum credits needed to be a Lead Auditor.'

1. Admission or Denial of the Alleged Violation

TVA admits the violation occurred as stated. However, TVA believes that the requirement was being implemented by alternate means, as follows:

Regarding the matter of the ten points for certification of lead auditors not being specified, the job descriptions for evaluators specify that they shall be qualifiable as lead auditors under ANSI N45.2.23. The point system described in that standard was, in fact, being applied to the certification of audit personnel as documented on a standard form in OQA's certification records, although this was not required by the procedure cited in the details of the report.

2. Reasons for the Violation if Admitted

There was a lack of clarity in the OQA personnel certification procedure in that all applicable criteria of ANSI N45.2.23 had not been clearly specified or referenced as requirements for lead auditor certification.

3. Corrective Steps Which Have Been Taken and the Results Achieved

The certification procedure was revised on November 21, 1983, to clearly specify meeting the requirements of N45.2.23 for lead auditor qualification/certification requirements, including maintenance of qualifications. Also, a record form was incorporated into the procedure to detail a determination method and specify minimum point requirements for certification of auditors and lead auditors per ANSI N45.2.23.

4. Corrective Steps Which Will Be Taken to Avoid Further Violation

A general program to ensure the full implementation of TVA commitments in OQA procedures is being conducted as follows:

An OQA review of office procedures against TVA commitments was completed in December 1983. Procedure revisions will be completed by April 30, 1984.

5. Date When Full Compliance Will Be Achieved

With the approval and issuance of the revised personnel certification procedure on November 21, 1983, procedural compliance with the regulatory requirement was achieved.

Violation 6 (259, 260, 296/83-53-06; 327, 328/83-27-06; 390/83-49-06; 391/83-38-06; 438, 439/83-30-06)

'10 CFR 50 Appendix B, Criterion XVII, requires maintaining sufficient records to furnish evidence of activities affecting quality. The records shall include closely-related data such as qualifications of personnel. The accepted QA Program (TVA-TR75-1A) addresses similar requirements and endorses Regulatory Guide 1.88 and ANSI N45.2.9, Requirements for Collection, Storage, and Maintenance of Quality Assurance Records for Nuclear Power Plants. This standard requires maintaining qualification and training records of personnel performing safety-related activities.

Contrary to the above, records were not maintained to demonstrate that all auditors and lead auditors were qualified to perform safety-related QA audits. Specific examples identified during the inspection involved missing records, failure to establish records, and incomplete records for lead auditors.'

1. Admission or Denial of the Alleged Violation

TVA admits the violation occurred as stated, except that in one case (Lead Auditor, J. O. Malley) where evidence of a test had been in question, reexamination of the record showed that an oral examination for lead auditor certification had been completed and documented on October 16, 1979.

2. Reasons for the Violation if Admitted

Root causes for the other cited examples were personnel errors in initiating or maintaining certification records.

3. Corrective Steps Which Have Been Taken and the Results Achieved

All auditor certification records have been carefully reviewed and are being updated as necessary to be completed by March 30, 1984.

4. Corrective Steps Which Will Be Taken to Avoid Further Violations

OQA's procedures require that:

a. Branch supervisors of Planning and Support Services (PSS) must verify that all team members are properly certified before an audit.

b. The Training and Certification Staff (TRG&CERT) provides a quarterly listing of certified auditors to each branch of OQA. The expiration date of current certification is displayed on this list.

c. TRG&CERT notifies the affected branch before expiration of an auditor's certification.

5. Date When Full Compliance Will Be Achieved

Full compliance will be achieved by March 30, 1984.

Violation 7 (259, 260, 296/83-53-07; 327, 328/83-27-07; 390/83-49-07; 391/83-38-07; 438, 439/83-30-07)

'10 CFR 50 Appendix B, Criterion XVIII, establishes requirements for conducting audits of the quality assurance program. The accepted QA program (TVA-TR75-1A) Tables 17D-1, 17D-2, and 17D-3 collectively endorse Regulatory Guide 1.144 and ANSI N45.2.12, Requirements for Auditing of Quality Assurance Programs for Nuclear Power Plants. Paragraph 4.4.3 of this standard requires the audit report to identify persons contacted during pre-audit, audit and post-audit activities.

Contrary to the above, measures had not been established which require audit reports to provide identification of persons contacted during the audit.'

1. Admission or Denial of the Alleged Violation

TVA admits the violation occurred as stated. The procedure required listing of personnel who attended the pre-audit and post-audit conferences, but not those contacted during the audit.

2. Reasons for the Violation if Admitted

There was a lack of clarity in incorporation into the procedure of the ANSI N45.2.12 requirement to identify personnel contacted during an audit.

3. Corrective Steps Which Have Been Taken and the Results Achieved

The audit procedure was revised November 21, 1983, to correct the noncompliance. The revised text requires listing of all individuals contacted who provided input information reflected in an audit report.

ENCLOSURE 2

RESPONSE - NRC INSPECTION REPORT NOS.
50-259/83-53, 50-260/83-53, 50-296/83-53, 50-327/83-27,
50-328/83-27, 50-390/83-49, 50-391/83-38, 50-438/83-30, 50-439/83-30
JAMES P. O'REILLY'S LETTER TO H. G. PARRIS
DATED JANUARY 16, 1984

NRC Comment

In addition to the need for corrective action regarding these specific violations, we are concerned about the implementation of your quality assurance program that permitted their occurrence. Consequently, in your reply, you should describe in particular those actions taken or planned to improve the effectiveness of your quality assurance program.

TVA Response

TVA has reviewed and is addressing in detail the specific violations and concerns identified in the NRC report. Program improvements affecting each violation and concern has been or is being taken with major program improvements occurring in the following areas:

1. Quality Assurance Program Development

TVA is developing an overall, integrated quality assurance program that establishes unified policies and requirements designed to minimize friction at organizational interfaces and ensure that the desired quality is achieved in all quality affecting activities. Two principal improvement measures which will greatly strengthen the quality assurance program are as follows:

a. Management Policies and Requirements Document

TVA is redefining requirements and responsibilities in an integrated set of procedures (the Management Policies and Requirements (MPR) documents) which will apply throughout the TVA nuclear program. These MPRs will more clearly define organizational responsibilities, standardize terminology, and establish policies and requirements based on management desires and regulatory commitments. The MPRs are being developed on a high priority basis and those necessary to replace the existing upper-tier program documents are intended to be substantially completed by the end of 1984.

At the same time, TVA is upgrading or developing Interdivisional Quality Assurance Procedures (ID-QAPs) as necessary to resolve interface and implementation problems until the MPRs can be developed and implemented. For example, TVA has recently or is in the process of developing the following:

Procedure	Title	Status
ID-QAP 2.6	Construction Work on an Operating Nuclear Unit	To be issued by March 1984
ID-QAP 2.7	Q-Lists	Issued October 1983
ID-QAP 2.8	Designer Requirements Control Program	To be issued by June 1984

b. Verification Program

TVA is in process of implementing a comprehensive verification program of audit and surveillance reviews to verify that both program control measures and implementing activities are performed to acceptable standards of quality. Verification plans and schedules have been developed and are being implemented for the following programs--owner, designer, constructor, and operator--to ensure that a comprehensive review of all activities and elements of each major program is accomplished on a periodic basis.

In addition to the programmatic improvements expected, TVA has increased the number of personnel, and increased in general the required qualifications and training of all personnel in the Office of Quality Assurance. As another improvement, the scope and depth of audit activities is being broadened commensurate with improvements in procedures and training.

2. Training Area Improvements

In the area of training, OQA has taken a number of actions to improve the performance of its personnel in the quality assurance program. All OQA personnel have had orientation in the basic program philosophy and methodology in the Employee Orientation and Indoctrination (EO&I) Program. All evaluator personnel have been given orientation training in the procedures governing the verification process. In addition, individual supervisors have provided orientations and instructions on procedures affecting work in their specific areas. All these actions increase our confidence in the ability of our evaluators to effectively carry out the portion of the quality assurance program executed by OQA.

3. Staffing Area Improvements

In the area of staffing, the recent availability of a number of well-qualified personnel has allowed us to accelerate our schedule for the filling of positions including some key positions which we expected to find difficult to fill. The performance of OQA within the TVA Quality Assurance Program has been enhanced both by the appointment of additional staff and by the quality of new staff members that have been acquired. The filling of several key positions, such as that of the Supervisor, Owner Program Section, will allow us to more fully implement the OQA program and ensure the overall quality of OQA's performance and TVA's work.