REVISION LOG

REVISION NUMBER	EFFECTIVE DATE	DESCRIPTION OF REVISION	PAGES AFFECTED
0	Refer to Appendix A	Initial Issue	All
1	No later than 2/25/91	First annual update	All
2	No later than 4/17/92	Second annual update	All
3	No later than 4/19/93	Third annual update	All
4	No later than 3/1/94	Fourth annual update	All

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NUCLEAR QUALITY ASSURANCE PROGRAM (NQAP) POLICY STATEMENT

It is the policy of the Tennessee Valley Authority (TVA) that activities which affect quality be accomplished in a planned and systematic manner to achieve compliance with preestablished quality objectives and acceptance criteria. Accordingly, TVA has established and will maintain a Nuclear Quality Assurance Program (NQAP). The NQAP includes the Nuclear Quality Assurance Plan and the approved documents which are used to implement the plan. The quality assurance program and requirements for specific items and activities are applied commensurate with their importance to safe, reliable nuclear operations.

Management policies and requirements for the TVA NQAP are established by the Senior Vice President, Nuclear Power. These management policies and requirements provide the controls that must be applied to the activities performed by and for the agency to ensure implementation of TVA commitments.

Nuclear Assurance is responsible for maintaining the TVA Nuclear Quality Assurance Plan. Nuclear Assurance is responsible for determining if the quality assurance program and quality requirements are being implemented by performing verification activities, and informing management of quality problems.

Line management is responsible for establishing quality requirements in procedures and instructions and ensuring that the achievement of quality receives major emphasis in planning, implementing, verifying, and documenting work. Quality assurance objectives are not to be subordinated to achieving cost or schedule objectives. Line management will be held accountable for compliance with the quality assurance program and quality requirements.

Conflicts involving interpretation of quality assurance requirements of TVA's NQAP are resolved by the General Manager, Nuclear Assurance or, if necessary, the Senior Vice President, Nuclear Power. Where TVA has delegated responsibility for implementation of parts of the NQAP to contractors, TVA line management retains responsibility for adequacy of contractor implementation of quality requirements.

Activities may be performed by a contractor using their quality assurance program, provided that the contractor's quality assurance program is approved by TVA and appropriate interfaces are established.

Each employee is encouraged and expected to do the job right the first time and is responsible for complying with the requirements contained in the Nuclear Quality Assurance Plan and its implementing documents. Procedures and instructions must be followed or appropriately changed through a controlled change process before work proceeds.

Mark O. Medford
Vice President, Technical Support

Paul R. Baron
General Manager, Nuclear Assurance

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LIST OF ABBREVIATIONS

The following abbreviations are used in this plan:

AISC	- American Institute of Steel Construction
ALARA	- As Low as Reasonably Achievable
ANS	- American Nuclear Society
ANSI	- American National Standards Institute
ASME	- American Society of Mechanical Engineers
ASME III QAM	- ASME Section III Quality Assurance Manual
ASNT	- American Society for Nondestructive Testing
ATWS	- Anticipated Transient Without Scram
AWS	- American Welding Society
BFN	- Browns Ferry Nuclear Plant
BLN	- Bellefonte Nuclear Plant
CFR	- Code of Federal Regulations
CSSC	- Critical Structures, Systems, and Components
DOE	- Department of Energy
EPRI	- Electric Power Research Institute
FSAR	- Final Safety Analysis Report
I&C	- Instrument and Control
IEEE	- Institute of Electrical and Electronics Engineers
ISEG	- Independent Safety Engineering Group
M&TE	- Measuring and Test Equipment
NA&LM	- Nuclear Assurance and Licensing Manager
NDE	- Nondestructive Examination
NFPA	- National Fire Protection Association
NLRA	- Nuclear Licensing and Regulatory Affairs
NNS	- Non-nuclear Safety
NO	- Nuclear Operations
NP	- Nuclear Power
NPS	- Nuclear Procedures System
NQAP	- Nuclear Quality Assurance Program
NRC	- Nuclear Regulatory Commission
NSRB	- Nuclear Safety Review Board
NSSS	- Nuclear Steam Supply System
P&OM	- Policy and Organization Manual
QA	- Quality Assurance
QC	- Quality Control
SNM	- Special Nuclear Material
SQM	- Site Quality Manager
SQN	- Sequoyah Nuclear Plant
TVA	- Tennessee Valley Authority
WBN	- Watts Bar Nuclear Plant

1.0 PURPOSE

This document defines and describes the Quality Assurance (QA) requirements for Nuclear Power (NP) and establishes responsibilities and methods necessary for their implementation. The principal objective of the Nuclear Quality Assurance Program (NQAP) is to provide confidence that activities affecting quality during design, construction, operation, and maintenance are accomplished in a manner to achieve compliance with preestablished quality objectives and acceptance criteria.

A description of the NQAP elements to be applied to deferred nuclear plants is provided in Appendix F of this plan.

2.0 APPLICABILITY

The NQAP applies to (1) NP personnel and organizations performing activities that could affect quality-related structures, systems, and components at TVA's nuclear plants; (2) non-NP TVA organizations as required by Intergroup Agreement; and (3) contractor activities that could affect quality-related structures, systems, and components, unless NP has approved alternate administrative controls for those activities.

3.0 GENERAL

This Nuclear Quality Assurance Plan is formatted in such a manner as to provide users with a functionally usable document from which NPS documents are developed to implement the requirements stated herein.

The source requirement documents for QA activities are listed in Appendix B. Not only are the source requirement documents listed (e.g., ANSI Standards and Regulatory Guides) but they also specify the particular sections of these source documents that must be addressed (e.g., ANSI N18.7, Section 5.2.12). Providing specific sections of the source requirement documents facilitates use by individuals responsible for the development of applicable procedures and instructions.

However, it must be stressed that the entire set of source requirement documents referenced in each section must be reviewed and understood to capture the program requirements of each source requirement document in NQAP procedures and instructions.

The following subsections identify the management and regulatory requirements applicable to the NQAP. An overview of the program and a description of the functions of the various organizations performing activities within the scope of the program are provided.

3.1 General Management Requirements

The management policies and requirements for the NQAP are established by the Senior Vice President, Nuclear Power. These management policies and requirements provide the administrative controls that shall be applied to activities performed by and for TVA to ensure activities are performed in a manner consistent with QA objectives and to provide adequate record of accomplishment of commitments.

3.2 General Regulatory Requirements

The NQAP shall address the conditions of licenses and permits and encompass the applicable regulatory requirements contained in Appendix B of this plan.

3.3 NQAP Overview

The NQAP includes the NQAP Policy, this Nuclear Quality Assurance Plan, the ASME Section III Quality Assurance Manual (ASME III QAM), and other quality-related NPS documents. The NQAP provides direction and implements requirements derived from regulatory requirements, national codes and standards, and other TVA commitments. General regulatory guidance and national standards that TVA is obligated to implement in the NQAP are listed in Appendix B, "Regulatory Guide Conformance Status."

3.3.1 Implementation

The requirements established by this plan and the ASME III QAM are implemented by Intergroup Agreements and NP documents sponsored by various organizations. To ensure the NQAP is fully integrated and implemented, procedures and instructions address additional implementing level details contained in requirement documents on which the NQAP is based.

The terms "procedure" and/or "instruction," when used within this plan, include written rules, orders, policies, directives, standards, procedures, instructions, and other documents of a similar nature.

3.3.2 Authority and Organizational Freedom of Those Performing QA Verification

Personnel with responsibility for performing QA verification functions shall have sufficient authority and organizational freedom to:

A. Identify quality problems.

B. Initiate, recommend, and provide corrective actions through a comprehensive corrective action program.

C. Verify the implementation of corrective actions.

D. Initiate stop work, if required, to restrict further processing, delivery, or installation of a nonconforming item or unsatisfactory condition until completion of corrective action or satisfactory dispositioning.

The individuals and organizations responsible for performing QA verifications and assessments of the NQAP shall be formally designated and sufficiently independent from considerations of cost or scheduling to ensure objectivity in performing assessments. They shall be afforded direct access to appropriate management levels.

3.3.2 (continued)

QA verification of conformance to established quality assurance program requirements is accomplished by those who have neither the direct responsibility nor the authority for performing the quality-related work activities being verified.

3.3.3 Assessment of Effectiveness

The General Manager, Nuclear Assurance shall assess the overall effectiveness of the NQAP for Corporate and nuclear plant sites (BFN, SQN, WBN, and BLN). Assessment results shall be reported to the Senior Vice President, Nuclear Power, and affected vice presidents. These assessments include Nuclear Power and non-Nuclear Power TVA organizations and contractors. Nuclear Assurance verifies the effectiveness of NSSS suppliers through audits and annual review of their performance.

The Vice President, Technical Support shall arrange for an annual assessment of TVA Site and Corporate quality assurance organizations' performance by an organization external to the quality assurance organizations.

3.3.4 Achievement of Quality in Performance

Management personnel shall ensure, through organizational structure and assigned functional responsibilities, that the attainment of program objectives is accomplished by those who have been assigned the work. Achievement of quality in the performance of quality-related activities is the responsibility of each individual involved in TVA's nuclear power program.

3.3.5 Interpretation of Quality Assurance Program Requirements

The General Manager, Nuclear Assurance shall provide interpretation of Nuclear Quality Assurance Plan requirements. Differences involving interpretation or implementation of the Nuclear Quality Assurance Plan shall be immediately identified and reported to Nuclear Assurance for resolution. If satisfactory resolution is not readily attainable, then the difference shall be escalated to the Senior Vice President, Nuclear Power.

4.0 ORGANIZATION

The organizational structure, functional responsibilities, levels of authority, and lines of internal and external communication for the management, direction, and execution of the NQAP shall be clearly established for all organizational levels. The NP Policy and Organization Manual (P&OM) describes the general organizational structure and primary responsibilities of NP organizations and responsibilities of non-NP TVA organizations involved in the NQAP. The Employee Relations and Development organization shall prepare organization charts that show overall NP organizational structure.

4.0. (continued)

The overall organizational structure is shown in Appendix H. The Technical Support organization is responsible for establishing upper-tier QA Program requirements and implementation of quality assurance functions at Corporate and nuclear plant sites. The size of the NA organization, including the size of respective Site NA staffs, is determined by assessing the resources required to adequately perform functions and workloads assigned to each NA organizational unit.

Chapter 13 of each plant's Final Safety Analysis Report (FSAR) references the TVA Nuclear Power Organization Description (TVA-NPOD89) or provides a description of other key organizational positions, including the vice president's organization and plant operating staffs, responsible for administering and implementing the NQAP.

4.1 Functions of Organizations

NP management, while carrying out their functions, are required to fully comply with all aspects of the NQAP applicable to their organization and ensure proper implementation. This subsection identifies (1) functional responsibilities that are generally implemented through procedures and instructions by all NP organizations involved in the program, and (2) specific NQAP responsibilities for sponsors of upper-tier Corporate program documents.

4.1.1 The Senior Vice President, NP has the overall responsibility for the establishment, implementation, and administration of TVA's NQAP and the evaluation of its effectiveness. This responsibility is administered through his management staff, including:

Vice President, Technical Support
Vice President, Nuclear Projects
Senior Vice President, Nuclear Operations
Manager, Nuclear Employee Relations and Development (matrix reporting relationship)
Manager, Materials Management (matrix reporting relationship)

4.1.2 NP Organizations

All NP organizations have the following general functions:

A. Invoke appropriate NQAP requirements on non-NP TVA organizations that provide services for quality-related programs and features.

B. Regularly review the status and adequacy of those parts of the NQAP which they are executing.

4.1.2 (continued)

C. Develop, control, and maintain procedures and instructions as appropriate to implement quality-related activities and processes.

D. Ensure appropriate controls for documents and records generated within the organization or received from external sources.

E. Ensure appropriate controls are developed and implemented to maintain housekeeping and cleanness requirements of facilities, systems, and components during the performance of work activities.

F. Identify and resolve adverse conditions and perform related corrective action activities including assessing trends for internally and externally identified problems.

G. Make personnel and resources available during audit performance and ensure that audit responses and corrective actions are completed within established timeframes.

H. Develop certification programs as appropriate and ensure that trained, qualified, and, where required, certified employees are used in the performance of quality-related activities.

I. Initiate stop work within their area of responsibilities when warranted.

J. Ensure personnel performing quality-related activities receive indoctrination and training as necessary to ensure that adequate proficiency is achieved and maintained.

K. Ensure procedures adequately address interfaces of affected organizations.

L. Ensure during preparation and review of procedures and procurement documents that appropriate technical and QA requirements are included.

4.1.3 Technical Support

A. In addition to the responsibilities described in subsection 4.1.2, the Vice President, Technical Support is responsible for establishing and managing Nuclear Support, Nuclear Licensing and Regulatory Affairs, Operations Services, Nuclear Assurance, Nuclear Safety Review Board, and Corporate Engineering and Modifications functions, and ensuring that the QA requirements established by this Plan in the following activity areas are either included or referenced (as appropriate) in related Technical Support-sponsored upper-tier Corporate program documents.

1. Procedures and instructions.

2. Document control.

4.1.2 (continued)

C. Develop, control, and maintain procedures and instructions as appropriate to implement quality-related activities and processes.

D. Ensure appropriate controls for documents and records generated within the organization or received from external sources.

E. Ensure appropriate controls are developed and implemented to maintain housekeeping and cleanness requirements of facilities, systems, and components during the performance of work activities.

F. Identify and resolve adverse conditions and perform related corrective action activities including assessing trends for internally and externally identified problems.

G. Make personnel and resources available during audit performance and ensure that audit responses and corrective actions are completed within established timeframes.

H. Develop certification programs as appropriate and ensure that trained, qualified, and, where required, certified employees are used in the performance of quality-related activities.

I. Initiate stop work within their area of responsibilities when warranted.

J. Ensure personnel performing quality-related activities receive indoctrination and training as necessary to ensure that adequate proficiency is achieved and maintained.

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1. Procedures and instructions.

2. Document control.

4.1.3.B (continued)

1. General Manager, Nuclear Support

The General Manager, Nuclear Support reports to the Vice President, Technical Support and is responsible for ensuring that the QA requirements established by this plan in the following activity areas are either included or referenced (as appropriate) in related Technical Support-sponsored upper-tier Corporate program documents.

a. Procedures and instructions.

b. Document control.

c. Quality assurance records.

d. Computer software and data.

In addition, the General Manager, Nuclear Support is responsible for nuclear fuel-related activities. Responsibilities include supplier interface from plant design and construction through operation and disposal of the fuel. The General Manager, Nuclear Support, is responsible for ensuring that the QA requirements established by this plan in the following activity areas related to nuclear fuel are either included or referenced (as appropriate) in related Technical Support-sponsored upper-tier Corporate program documents.

a. Procurement document control.

b. Control of purchased material, equipment, and services.

c. Identification and control of materials, parts, and components.

d. Handling, storage, and shipping.

2. Manager, Nuclear Licensing and Regulatory Affairs (NLRA)

The Manager, NLRA reports to the Vice President, Technical Support, and is responsible for maintaining an interface between TVA and NRC for quality-related activities.

4.1.3.B (continued)

1. General Manager, Nuclear Support

The General Manager, Nuclear Support reports to the Vice President, Technical Support and is responsible for ensuring that the QA requirements established by this plan in the following activity areas are either included or referenced (as appropriate) in related Technical Support-sponsored upper-tier Corporate program documents.

a. Procedures and instructions.

b. Document control.

c. Quality assurance records.

d. Computer software and data.

In addition, the General Manager, Nuclear Support is responsible for nuclear fuel-related activities. Responsibilities include supplier interface from plant design and construction through operation and disposal of the fuel. The General Manager, Nuclear Support, is responsible for ensuring that the QA requirements established by this plan in the following activity areas related to nuclear fuel are either included or referenced (as appropriate) in related Technical Support-sponsored upper-tier Corporate program documents.

a. Procurement document control.

b. Control of purchased material, equipment, and services.

c. Identification and control of materials, parts, and components.

d. Handling, storage, and shipping.

2. Manager, Nuclear Licensing and Regulatory Affairs (NLRA)

The Manager, NLRA reports to the Vice President, Technical Support, and is responsible for maintaining an interface between TVA and NRC for quality-related activities.

4.1.3.B (continued)

5. Chairman, Nuclear Safety Review Board

The Chairman, Nuclear Safety Review Board (NSRB) reports to the Vice President, Technical Support and has an independent reporting relationship to the Senior Vice President, Nuclear Power and other Vice Presidents on nuclear safety matters. The Chairman, NSRB is responsible for ensuring that the QA requirements established by this plan related to NSRB functions are either included or referenced (as appropriate) in related procedures or instructions. The Chairman, NSRB is also responsible for providing recommendations to the Senior Vice President, Nuclear Power for improving the NQAP and for complying with the administrative requirements delineated in Technical Specifications.

6. Chief Engineer, Corporate Engineering and Modifications

The Chief Engineer, Corporate Engineering and Modifications reports to the Vice President, Technical Support and is responsible for ensuring that the QA requirements established by this plan in the following activity areas are either included or referenced (as appropriate) in related Technical Support-sponsored upper-tier Corporate program documents.

a. Design control
b. Developing and maintaining the ASME III QAM.
c. Control of special processes.
d. QC and NDE Inspection.

C. General Manager, Nuclear Assurance

The General Manager, Nuclear Assurance is responsible for:

1. Developing and administering the Nuclear Quality Assurance Plan and the Nuclear Assurance organization procedures required to ensure that TVA activities provide the required degree of safety and reliability.

2. Auditing, inspecting, and assessing the conduct of TVA activities at Corporate and nuclear plant sites to ensure that they provide the required high degree of safety and reliability and are carried out consistent with applicable laws, regulations, regulatory commitments, licenses, and other requirements.

3. Directing and managing the Nuclear Assurance organization.

4.1.3.C (continued)

4. Performing assessments on a planned and periodic basis to comprehensively determine the effectiveness of the program and its implementation at Corporate and nuclear plant sites and submitting results of assessments to the Senior Vice President, Nuclear Power, and affected vice presidents.

5. Stopping work or further processing, delivery, or installation or taking other comparable actions when warranted to control and/or prevent the use of nonconforming materials or continuance of activities adverse to quality at Corporate and nuclear plant sites.

6. Establishing upper-tier QA requirements for QA training and for assessing the implementation and effectiveness of that training.

7. The General Manager, Nuclear Assurance administers quality assurance responsibilities through the following managers:

   Quality Programs Manager
   Site Quality Managers (SQN and WBN)
   Site Nuclear Assurance and Licensing Manager (BFN and BLN)
   Nuclear Experience Review/Independent Safety Engineering Manager
   Senior Consultant

   The General Manager, Nuclear Assurance is required to have a bachelor's degree in an engineering or related science, or equivalent related experience. The General Manager, Nuclear Assurance shall have at least 10 years experience in an executive managerial capacity with five years' experience in nuclear quality assurance.

   The Nuclear Assurance organization is shown in Appendix H.

   a. Quality Programs Manager

      The Quality Programs Manager is responsible to:

      1. Develop and implement the materials and procurement QA program which includes auditing, source inspection, and surveillance of supplier activities. Develop and maintain the Acceptable Supplier List (ASL) of approved vendors.

4.1.3.C.7.a (continued)

2. Develop, review, and maintain the Nuclear Quality Assurance Plan.

3. Provide quality assurance support for NP organizations.

4. Review and approve QA programs of TVA and supplier organizations supporting the nuclear program.

5. Establish upper-tier QA requirements for auditing and assessing activities.

6. Manage a program for tracking and trending adverse conditions.

7. Assess NDE, Quality Engineering, Quality Control, and QA activities.

8. Review and/or assess Corporate procurement documents for QA requirements, utilizing graded approach criteria.

9. Conduct overview of procured engineering services (offsite) including the review of procurement documents for QA requirements utilizing graded approach criteria, in-depth technical and/or performance based auditing, performing preaward surveys, and reviewing contractor QA programs.

10. Audit or assess TVA quality-related programs.

11. Review and/or assess Corporate directives and standards identified as quality related, utilizing graded approach criteria, to assess their adequacy.

12. Provide an annual assessment on the adequacy and effectiveness of QA program implementation.

13. Plan, conduct, and report the results of Corporate audits and to follow-up identified adverse conditions to ensure appropriate corrective action has been taken.

14. Conduct in-depth technical audits and assessments to assess the technical adequacy of TVA engineering activities.

15. Perform audits and assessments of engineering, construction and operations activities to determine compliance with QA program requirements.

4.1.3.C.7.a (continued)

16. Review and audit QA programs of TVA organizations which support quality-related activities.

17. Perform audits and assessments of onsite major engineering contractors who perform engineering services.

18. Provide Nuclear Safety Review Board support.

b. Site Quality Manager (SQN and WBN) and Site Nuclear Assurance and Licensing Manager (BFN and BLN)

The Site Quality Manager (SQM) establishes and maintains a quality assurance organization to perform the quality control, technical support, and quality audit/assessing/engineering functions. In addition, at BFN and BLN, the Site Nuclear Assurance and Licensing Manager (NA&LM) provides a Site Licensing and Independent Review/Analysis organization. The SQM/NA&LM is involved in day-to-day plant quality-related activities through participation in plant meetings, review of relevant documentation, and execution of the following duties and responsibilities:

1. Assisting Site management in developing, planning, initiating, directing, and auditing nuclear plant QA programs.

2. Reviewing and/or assessing work control documents and activities, utilizing graded approach criteria to verify their adequacy.

3. Evaluating the effectiveness of the nuclear quality assurance program through auditing, assessing, inspection, and review.

4. Verifying through assessing or other means that quality assurance requirements are contained in applicable Site QA program procedures.

5. Developing and implementing the Site quality control inspection program.

6. Working with Site management to support quality improvement by performing functions such as trend analysis, root cause analysis of quality deficiencies, evaluation of dispositions of major quality issues, interface with line management on quality improvement initiatives, and development of QA operational/start-up readiness assessment plans.

4.1.3.C.7.b (continued)

7. Stopping work or further processing, delivery or installation, and issuing formal stop work orders when warranted to control and/or prevent the use of nonconforming materials or continuance of activities adverse to quality.

8. Performing in-depth technical assessments to determine the effectiveness of engineering work (onsite).

9. Reviewing and/or assessing procurement documents and activities, including services (onsite), utilizing graded approach criteria to assess their adequacy.

10. Providing periodic assessments on the adequacy and effectiveness of QA program implementation by involved Site TVA organizations and support by Corporate organizations.

11. Implementing inspection activities associated with the ASME Section III Program at applicable Sites and assisting the responsible organization at the Sites in the performance of ASME Section XI NDE.

12. Planning, conducting, and reporting the results of Site audits and assessments, and following up identified adverse conditions to ensure appropriate corrective action has been taken.

13. Ensuring audits and assessments of Site engineering, construction, and operations activities are performed to determine compliance with QA program requirements.

14. Performing audits and assessments of onsite contractors.

15. Establishing and maintaining a Site Licensing Program (BFN and BLN) and performing Nuclear Experience Review activities (BLN and WBN).

16. Performing Nuclear Experience Review and Independent Safety Engineering activities (BFN)

17. Reviewing the ASME III QAM (WBN and BLN).

The SQMs (SQN and WBN) and the Site Nuclear Assurance and Licensing Manager (BFN and BLN) are required to have a bachelor's degree in an engineering or scientific discipline, or equivalent related experience. They shall have at least nine years

4.1.3.C.7.b (continued)

experience in plant design, construction, power plant operation or maintenance, including five years experience in QA-related activities. They are required to have at least one year of experience in the QA organization of a nuclear power plant at the time of initial core loading or assignment to the active position.

The SQMs (SQN and WBN) and the Site Nuclear Assurance and Licensing Manager (BFN and BLN) organizations are shown in Appendix H.

c. Nuclear Experience Review/Independent Safety Engineering Manager

The Nuclear Experience Review/Independent Safety Engineering Manager is responsible for the Independent Safety Engineering function (as required by NUREG 0737) and the Nuclear Experience Review Program.

d. Senior Consultant

The Senior Consultant is responsible for special projects as assigned by the General Manager, Nuclear Assurance and the Vice President, Technical Support, such as assisting in the development of an operationally-based Quality Assurance Program for WBN.

4.1.4 Nuclear Projects

In addition to the responsibilities described in subsection 4.1.2, the Vice President, Nuclear Projects is responsible for the following:

A. Ensuring that the QA requirements established by this plan in the following activity areas are either included or referenced (as appropriate) in related upper-tier program documents.

1. Design control.

2. Procurement document control.

3. Control of purchased material, equipment, and services.

4. Identification and control of materials, parts, and components.

5. Inspection and line verification.

6. Control of special processes.

4.1.4.A (continued)

7. Test control.

8. Control of M&TE and installed safety-related I&C devices.

9. Handling, storage, and shipping.

10. Inspection, test, and operating status.

11. Control of maintenance.

12. Indoctrination, training, qualification, and certification.

B. Implementing programs at unlicensed units, ensuring that the QA requirements of this plan are appropriately established in unlicensed units site procedures.

C. Implementing the deferred plant QA program requirements as identified in Appendix F, as applicable.

4.1.5 Nuclear Employee Relations and Development

In addition to the responsibilities described in subsection 4.1.2, the Manager, Nuclear Employee Relations and Development is responsible for maintaining a position qualification documentation and validation program.

4.1.6 Nuclear Operations (NO)

In addition to the responsibilities described in subsection 4.1.2, the Senior Vice President, NO is responsible for the following:

A. Ensuring that the QA requirements established by this plan in the following technical programs and operations activity areas are either included or referenced (as appropriate) in related upper-tier program documents:

1. Technical Programs

a. Chemistry and Environmental Protection.

b. Protective Services (Fire Protection, Nuclear Security).

c. Emergency Preparedness.

d. Radiological Control.

e. Radioactive Waste Management.

4.1.6.A (continued)

2. Operations Activity Areas

a. Design control.

b. Procurement document control.

c. Control of purchased material, equipment, and services.

d. Identification and control of materials, parts, and components.

e. Inspection and line verification.

f. Control of special processes.

g. Test control.

h. Control of M&TE and installed safety-related I&C devices.

i. Handling, storage, and shipping.

j. Inspection, test, and operating status.

k. Control of maintenance.

l. Indoctrination, training, qualification, and certification.

B. Implementing programs at licensed units, ensuring that the QA requirements of this plan are appropriately established in licensed units Site procedures.

4.1.7 Materials Management

In addition to the responsibilities described in subsection 4.1.2, the Manager, Materials Management is responsible for ensuring that the QA requirements established by this Plan in the following activity areas are either included or referenced (as appropriate) in related Materials Management-sponsored upper-tier Corporate program documents.

a. Procurement document control.

b. Control of purchased material, equipment, and services.

c. Identification and control of materials, parts, and components.

d. Handling, storage, and shipping.

5.0 NUCLEAR QA PROGRAM

The General Manager, Nuclear Assurance develops this plan to establish the requirements of the NQAP that encompass the General Management and General Regulatory Requirements in Sections 3.1 and 3.2 of this plan. The program requirements apply to design, construction, testing, operation, maintenance, repair, replacement, and modification of TVA nuclear facilities. Units in transition to the operational phase require special processing. The Vice President, Nuclear Projects shall provide notification to the Senior Vice President, NO and the Vice President, Technical Support of those activities affecting the unit that have been transitioned to Operations.

NP organizations performing activities within the scope of the NQAP shall implement the program through written procedures and instructions.

Non-NP TVA organizations providing services within the scope of the NQAP shall develop QA programs as required by Intergroup Agreements. Non-NP TVA organization QA programs shall be reviewed and approved by Nuclear Assurance.

5.1 Program Scope

A. The requirements of the NQAP shall apply to safety-related structures, systems, and components and associated activities and shall take into account special equipment, environmental conditions, skills, or processes.

B. The requirements shall also apply to TVA identified quality-related programs and features which are important to the continued reliable operation of TVA's nuclear facilities. Organizations responsible for these programs and features shall determine the extent to which these requirements apply and develop and document applicable NQAP elements and the levels of verification required. Technical requirements related to engineering design are specified by the Vice President, Technical Support. Nuclear Assurance shall review or assess these programs and features. The program procedures shall be included in NPS documents.

Programs and features for which the NQAP applies are listed below. Appendix C, "Guidelines for Determination of TVA-Identified Quality-Related Classifications," was used to develop the list.

1. Radiological Control.

2. Emergency Preparedness.

3. Nuclear Plant Security.

4. Radioactive Material Shipment.

5. Special Nuclear Material Management.

5.1.B (continued)

6. Independent Offsite Safety Review.

7. Fire Protection.

8. Radwaste Management Systems, Structures, and Components.

9. Seismic Category I (L) Items.

10. Non safety-related Anticipated Transient Without Scram (ATWS) Equipment.

11. Chemistry.

12. Safety Parameter Display System

When using services outside NP, responsible organizations, for the above programs and features, shall specify the extent of applicable QA requirements.

C. To facilitate proper application and implementation of the NQAP, the Vice President, Nuclear Projects and the Senior Vice President, NO shall develop a Q-List for each nuclear unit. The Q-List shall document and classify structures, systems, and components consistent with their importance to safety. During the transition to the Q-List, the Critical Structures, Systems, and Components (CSSC) list and other program documents will provide the items which are subject to the QA program.

5.2 Graded Approach

The NQAP shall provide for the graded application and verification of QA requirements to quality-related items and activities.

A. The following criteria are to be considered when applying NQAP requirements:

1. The impact on safety of an item malfunction or failure.

2. The specification, design, fabrication complexity, or uniqueness of the item, and the environment under which the item must function.

3. The need for special controls and assessments of equipment, processes, and operational activities.

4. The degree to which functional compliance can be demonstrated by an inspection or test.

5. The quality history of the item or activity and its degree of standardization.

5.2.A (continued)

6. The intended life span during which the item must perform a quality-related function.

7. Requirements of applicable codes and standards.

B. The following factors are to be considered in the degree of QA verification required to ensure implementation of NQAP requirements:

1. New activities not previously performed or implemented.

2. Trend or previous histories of quality problems.

3. Activities critical to safety or having the most potential to impact safety.

4. Revisions of the procedures which have recently been implemented.

5. Activities that have not been assessed in the recent past or are performed infrequently.

6. Activities that are performed by new personnel, contractors, or technicians.

7. The requirements of applicable codes and standards that are mandated for the item or activity.

5.3 Program Elements

This section identifies or references the NQAP elements delineated through the NP P&OM, the ASME III QAM, and implemented through NP procedures and instructions. The documents identified in Appendix B contain QA requirements applicable to the NQAP elements. The NQAP shall encompass the following elements:

A. Establishment and use of a comprehensive list of safety-related structures, systems, and components for each TVA nuclear plant unit identifying the critical plant features that will receive the highest level of QA program application.

B. Use of a graded approach in the application and verification of NQAP requirements. Quality-related items and activities shall be subjected to a level of QA controls and verification commensurate with their importance to nuclear safety.

C. Assignment of responsibilities to appropriate organizations and positions for implementation of the NQAP.

D. Preparation of NPS documents which provide specific guidance in planning, performing, assessing, and controlling activities affecting quality to ensure that quality-related activities are performed in accordance with applicable national codes and standards, regulatory requirements, licensing commitments, and management requirements.

5.3 (continued)

E. Verification of the adequacy of quality-related structures, systems, and components by appropriate inspections, tests, and assessments; and of quality-affecting activities by periodic reviews, audits, and assessments to ensure the adequacy and effectiveness of the NQAP and its implementation.

F. Provisions for adequate indoctrination and training of personnel, and qualification or certification when required, prior to their performing activities which affect quality.

G. Provisions for special controls, processes, test equipment, tools, and skills necessary to attain the required quality.

H. Measures to control cleanness of facilities, material, and equipment; fire prevention; plant access; and equipment protection. Controls shall be applied to the extent necessary to ensure that only proper materials, equipment, processes, and procedures are utilized, and that the quality of items is not degraded through improper practices and techniques.

I. Prompt identification, documentation, evaluation, and correction of adverse conditions.

J. Generation and retention of adequate records to demonstrate compliance with NQAP requirements, applicable national codes and standards, and regulatory requirements.

5.4 Program Documents

The NQAP shall be documented by written procedures and instructions. The NQAP documents, required by this plan, and the ASME III QAM are contained in the NPS. Requirements for preparation, review, concurrence, and approval of NQAP documents are contained in NPS documents.

A. NP P&OM

This manual defines the structure and principal responsibilities of NP organizations and formalizes the division of responsibilities between NP and other TVA organizations.

B. ASME III QAM

Associated with this plan is the ASME III QAM. The ASME III QAM is a self-contained manual that prescribes specific QA requirements for the control of items and activities subject to the ASME Code Section III, Division 1. The ASME III QAM satisfies the ASME Section III Code requirement to fully describe both the quality assurance program and the specific responsibilities applied to TVA's activities as an "N" certificate holder. The ASME III QAM is filed with the Authorized Inspection Agency in accordance with the requirements of ASME Code, Section III. Changes to the ASME III QAM shall be coordinated with the Authorized Inspection Agency for review and acceptance prior to implementation.

5.4 (continued)

C. Nuclear Quality Assurance Plan

This Nuclear Quality Assurance Plan contains regulatory and management QA requirements and responsibilities that other NPS documents must address. This plan and implementing documents meet the requirements of 10 CFR 50, Appendix A; 10 CFR 50, Appendix B; and applicable ASME Section XI requirements for a nuclear QA program. To ensure the nuclear program is fully integrated, additional implementing level details contained in requirements documents shall be included in procedures and instructions sponsored by implementing organizations.

D. Implementing Procedures

The Nuclear Quality Assurance Plan establishes the quality assurance program requirements. The Nuclear Quality Assurance Plan places responsibilities on identified sponsors to develop specific elements of the quality assurance programs addressing specific requirements of source requirement documents. Sponsors of NPS documents are required to identify the document as "quality related" if it contains quality assurance program requirements. Corporate directives and standards identified as quality related receive review and concurrence by Nuclear Assurance personnel or others knowledgeable of QA requirements.

5.5 Program Changes

Changes to the Nuclear Quality Assurance Plan shall be submitted to the NRC in compliance with 10 CFR 50.54 and 10 CFR 50.55.

6.0 CONTROL OF DOCUMENTS AND RECORDS

6.1 Procedures and Instructions

6.1.1 General

The QA program requires that quality-related activities shall be prescribed by documented procedures and instructions appropriate to the circumstances. Activities shall be accomplished in accordance with these procedures and instructions.

The requirements of this section are applicable to the preparation, review, and approval of procedures and instructions (for example, this plan, NPS documents, ASME III QAM, etc.). Requirements for the preparation, review, and approval of drawings are in Section 7.0 of this plan. Requirements for control after approval and for use of procedures, instructions, and drawings are in Section 6.2 of this plan.

6.1.2 Program Elements

A. Content

Procedures and instructions shall:

1. Describe quality-related activities in adequate detail for the intended user, and include quantitative or qualitative acceptance criteria sufficient for determining that the activities have been satisfactorily accomplished.

2. Describe significant interfaces between personnel and organizations that affect, or are affected by, quality-related activities.

3. Include or reference appropriate technical, QA, regulatory, and licensing requirements, including those in design output documents.

B. Review

Procedures and instructions shall:

1. Receive a documented review for adequacy by a qualified reviewer other than the preparer.

2. Receive the review and concurrence of affected organizations outside the issuing organization prior to approval, unless concurrence has been established in a higher-level document.

3. Receive a review to ensure proper incorporation of QA requirements. These reviews are by NA personnel or others knowledgeable of QA requirements.

C. Approval

Procedures and instructions shall be approved for release by the sponsoring organization prior to use.

D. Procedural Control

Procedures shall be issued for the identification and control of quality-related procedures, instructions, and their changes. The organizations responsible for preparing, reviewing, approving, and issuing procedures, instructions, and changes shall be specified.

E. Review of Operational Phase Procedures

Operational phase Site procedures and instructions shall be reviewed to ensure that specific known changes in source documents or changes identified through usage are included as necessary and in a timely manner. The following mechanisms ensure that appropriate procedure reviews are conducted:

6.1.2.E (continued)

1. Plant modification program

2. Resolution of issues identified by NA, NRC, Nuclear Experience Review, and corrective action program

3. Technical specification and FSAR update reviews

4. Source document program and process for administering Site procedures

5. Testing program

F. Change Control

1. Changes to procedures and instructions shall be reviewed and approved prior to their implementation by the same organizations that performed the original review and approval, or by another organization assigned by appropriate management or designated in a controlling procedure or instruction.

2. Changes shall be reviewed by organizations having access to pertinent background information upon which to base their approval and having adequate understanding of the requirements and intent of the original document.

3. Minor changes, such as inconsequential editorial corrections that do not affect the outcome, results, functions, processes, responsibilities, and requirements of the performance of procedures or instructions, do not require the same review as the original, but shall be reviewed and approved as defined in controlling documents.

6.1.3 Responsibilities

A. The Vice President, Technical Support as delegated to the General Manager, Nuclear Support is responsible for the development of programs to control procedures and instructions. The program elements in Section 6.1.2 and the related source requirements contained within the documents listed in Section 6.1.4 shall be addressed.

B. The Vice President, Technical Support as delegated to the General Manager, Nuclear Assurance shall:

1. Perform reviews or assessments of NPS documents that implement the NQAP and,

2. Verify through assessing or other means that reviews are conducted by personnel knowledgeable in QA requirements.

6.1.3 (continued)

C. NP organizations are responsible for:

1. Implementing the requirements of the QA program through written procedures and instructions.

2. Ensuring reviews of NPS documents that implement the NQAP are conducted by personnel knowledgeable of QA requirements.

6.1.4 Source Requirement Documents

The applicable source requirement documents and their exceptions are noted in Appendix B of this plan. These establish mandatory controls which must be addressed in the development of programs for procedures and instructions.

6.2 Document Control

6.2.1 General

The QA program requires that for activities affecting quality, measures shall be established to ensure that documents prescribing the activity, including changes, are approved for release by authorized personnel, reviewed for adequacy, and made available to personnel performing the prescribed activity prior to commencing work.

The requirements of this section are applicable to the distribution and control of documents after they have been approved for use.

6.2.2 Program Elements

A. Identification and Distribution

1. The types of documents to be controlled shall be identified. Appendix G lists types of controlled documents and manuals.

2. Master document indexes shall be established and maintained for identifying all controlled documents and their revision status.

3. The distribution of documents shall be controlled and maintained to assist in preventing the use of obsolete or superseded documents.

B. Controlled Use

1. Quality related activities shall be performed in accordance with approved and controlled instructions, procedures, and drawings.

6.2.2.B (continued)

2. Organizations shall ensure through procedures or instructions that those participating in an activity are made aware of and use proper and current documents.

C. Control of Equipment Technical Information

Administrative controls shall provide for control and distribution of equipment technical information (ETI) supplied to TVA.

6.2.3 Responsibilities

The Vice President, Technical Support as delegated to the General Manager, Nuclear Support is responsible for the development of programs to control documents. The program elements in Section 6.2.2 of this section and the related source requirements contained within the documents listed in Section 6.2.4 shall be addressed.

6.2.4 Source Requirement Documents

The applicable source requirement documents and their exceptions are noted in Appendix B of this plan. These establish mandatory controls which must be addressed in the development of programs and procedures for the control of documents.

6.3 QA Records

6.3.1 General

The QA program established for the generation, collection, storage, maintenance, and retrieval of QA records requires that records be correctly identified, reviewed, stamped or otherwise authenticated, retained, and retrievable without undue delay.

6.3.2 Program Elements

A. Sufficient records and documentation shall be prepared and maintained to provide evidence of the quality of items or activities affecting quality. QA records shall be legible, complete, and identifiable to the item involved.

B. Design specifications, procurement documents, procedures, and instructions shall specify the QA records to be generated, supplied, and maintained by or for TVA. Retention times shall be designated. Indexes shall be established to designate those types of QA records to be maintained.

C. Measures shall be established to maintain control of in-process QA documents prior to their completion.

6.3.2 (continued)

D. Requirements and responsibilities shall be established consistent with applicable codes, standards, and procurement documents for record transmittal, receipt, retention, updating and supplementing of information, and maintenance of the records subsequent to the completion of work and record retrieval.

E. Permanent and temporary QA record storage facilities shall be established to store QA records to prevent infestation, deterioration, or destruction.

F. Measures shall be taken to preclude the entry of unauthorized personnel into QA record storage areas to ensure the integrity of the stored QA records.

G. Records shall be maintained in a manner that will allow access by the Authorized Inspection Agency representative.

6.3.3 Responsibilities

The Vice President, Technical Support as delegated to the General Manager, Nuclear Support is responsible for the development of a QA records program. The program elements in Section 6.3.2 and the related source requirements contained within the documents listed in Section 6.3.4 shall be addressed.

6.3.4 Source Requirement Documents

The applicable source requirement documents and their exceptions are noted in Appendix B of this plan. These establish mandatory controls which must be addressed in the development of programs and procedures for the control of records.

7.0 DESIGN CONTROL

7.1 General

The QA program requires that measures shall be established and documented to ensure that applicable specified design requirements, such as design bases, regulatory requirements, and codes and standards, are correctly translated into specifications, drawings, procedures, or instructions.

7.2 Program Elements

7.2.1 Basic

A. Specific items, services, and activities subject to design control shall be identified (e.g., reactor physics analysis, stress and thermal analyses, computer code development and use, computer software, compatibility of materials, drawings, specifications, engineering procedures, and instructions).

7.2.1 (continued)

B. Design activities shall be documented in sufficient detail to permit verifications and audits.

C. Measures shall be established and implemented to ensure that design output documents appropriately identify engineering requirements that apply to plant activities, and to ensure that plant personnel are made aware of engineering requirements that could affect the performance and scope of their responsibilities before those engineering requirements are implemented.

D. Measures shall be established and implemented to provide test requirements in design output documents for the following tests as appropriate:

1. Design qualification.

2. Product acceptance (proof).

3. Preoperational.

4. Construction.

5. Start-up.

6. Surveillance.

7. Functional.

8. Postmaintenance.

9. Postmodification.

E. Measures shall be established and implemented to provide documented input to other organizations which may request input for their special tests.

F. Acceptance criteria shall be defined for verifications, inspections, and tests in appropriate design output documents.

G. Design output documents shall be utilized, as appropriate, for procurement activities.

H. The Q-List identified in Section 5.1.C of this plan shall be developed using appropriate regulations, regulatory guides, and national codes and standards (such as 10 CFR 50, Appendix R; Regulatory Guides 1.26 and 1.29; and ASME Boiler and Pressure Vessel Code).

I. Measures shall be established to ensure the environmental qualification (EQ) of safety-related electrical and mechanical equipment is included, as appropriate, within the design basis.

7.2.1. (continued)

J. Errors and deficiencies in approved design documents, including design methods (such as described in calculations) that could affect quality-related activities are documented and corrected.

7.2.2 Design Inputs

A. Design assumptions, design inputs, and deviations from approved design inputs shall be identified, reviewed, approved, and documented prior to declaring the structure, system, or component affected by the design operable.

B. Design inputs shall be correctly translated into design outputs.

C. Provisions shall be made to relate the final design to the source of design input.

7.2.3 Design Analysis

A. The performance of design analysis shall be planned and controlled.

B. The suitability of application of materials, parts, equipment, and processes essential to the function of a structure, system, or component shall be reviewed to ensure that functional requirements are met.

7.2.4 Interface Control

Internal and external design responsibilities and interface controls shall be established and defined to facilitate the preparation, review, approval, release, distribution, and revision of documents involving design interfaces. This process ensures that quality-related structures, systems, and components are compatible geometrically, functionally, and with plant processes and environments.

7.2.5 Design Output

A. Engineering requirements on plant activities (e.g., operation, maintenance, installation, modification, surveillance) shall be identified in design output documents.

B. Measures shall be established and documented to control the preparation, review, approval, issuance, and revision of design output documents. These measures shall include criteria and responsibilities to ensure that adequate technical and quality requirements are incorporated prior to issuance.

C. Drawings and specifications shall include, as appropriate, quantitative and qualitative acceptance criteria. These acceptance criteria shall be sufficient for determining that

7.2.5.C (continued)

quality-related activities have been satisfactorily accomplished.

D. Drawings and specifications shall receive documented reviews and approvals (and concurrences as required) by responsible organizations prior to use.

E. After approval, drawings shall be controlled in accordance with the requirements of Sections 6.2 and 6.3 of this plan.

F. Revisions shall be reviewed and approved by the same organizations that performed the original review unless another appropriate organization that has access to pertinent background information is designated in the appropriate NPS document or procurement documents.

7.2.6 Design Verification

A. The translation of design inputs into design documents shall be verified and the verification documented.

B. Criteria for determining design verification methods shall be established, identified, implemented, and procedurally controlled. The responsibilities of the verifier, the areas and features to be verified, and documentation requirements shall be included.

C. Design verification shall be performed by individuals or groups other than those who performed the original design.

D. For nuclear units under a construction permit, design verification shall be complete prior to initial fuel loading.

E. For operating nuclear units, design verification shall be complete prior to reliance upon the component, system, or structure to perform its function. Design outputs which are released prior to verification being completed shall be identified and tracked to ensure the component, system, or structure is not relied upon to perform its function until the verification is complete.

F. When a verification test is used to verify the adequacy of a specific design feature in lieu of other verifying processes, the test shall include suitable qualification testing of a prototype unit under conditions that simulate, to the extent practical, the most adverse design condition. The prototype, component, and feature tests are performed as early as possible and prior to plant installation of the equipment or at least prior to the point where installation of the item would be relied upon to perform its function. In those cases where the most adverse design conditions can not be achieved in tests, suitable analysis shall be performed to extrapolate test results to design conditions.

7.2.7 Design Changes

A. Design changes, including field changes and modifications, shall be identified. They are subject to design control measures commensurate with or better than those applied to the original design.

B. Design changes shall be reviewed and approved by the organization responsible for the original design unless another appropriate organization that has access to pertinent background information is designated in the appropriate NPS document or procurement documents.

C. Design changes that affect the supply of quality-related items or services controlled by procurement documents shall not be implemented or considered approved until: (1) the change is reflected in the appropriate change document such as a contract or purchase order change notice, (2) the change document has received the requisite reviews and approvals, and (3) the change document has been submitted to and accepted by the respective supplier.

D. Proposed modifications to quality-related structures, systems, and components shall be reviewed, approved, and controlled in accordance with applicable requirements of the Operating License and Plant Technical Specifications.

E. Design modifications shall be at least equivalent to the quality specified in the latest approved design basis.

F. Measures to control plant configuration and ensure that the actual plant configuration is accurately depicted on drawings and other appropriate design output documents and reconciled with the applicable design basis shall be established, documented, and implemented.

G. The design integrity shall be maintained during plant maintenance and modification processes, including temporary changes, and throughout the life of the plant.

7.3 Responsibilities

A. The Vice President, Technical Support as delegated to the Chief Engineer, Corporate Engineering and Modifications is responsible for the development of a design control program. The program elements in Section 7.2 and the related source requirements contained within the documents listed in Section 7.4 shall be addressed.

B. The Vice President, Nuclear Projects is responsible for implementation of programs for maintaining design control at unlicensed units.

C. The Senior Vice President, NO is responsible for implementation of programs for maintaining design control at licensed units.

7.4 Source Requirement Documents

The applicable source requirement documents and their exceptions are noted in Appendix B of this plan. These establish mandatory controls which must be addressed in the development of programs and procedures for control of the design process.

8.0 PROCUREMENT AND MATERIAL CONTROL

8.1 Procurement Document Control

8.1.1 General

The QA program requires that measures shall be established to ensure that control is applied to documents used to obtain materials, parts, components, spare and replacement parts, and services required to construct, test, modify, maintain, repair, or operate nuclear facilities, commensurate with their importance to safety.

8.1.2 Program Elements

A. Procurement Document Planning

The procurement process, as documented in NP procedures, shall identify each activity in the process, who accomplishes the activity, how, and when the activity is performed. The process shall be planned to integrate the following activities as a minimum:

1. Document preparation, review, and change control.

2. Selection of procurement sources.

3. Bid evaluations and award.

4. Purchaser control of supplier performance.

5. Verification activities of purchaser.

6. Control of nonconformances.

7. Corrective actions.

8. Acceptance of item or service.

9. QA records.

10. Audit of procurement program.

8.1.2. (continued)

B. Procurement Document Content

In the preparation of procurement documents, responsible organizations shall as applicable:

1. Specify or reference applicable design basis technical requirements, such as regulatory requirements (including 10 CFR 50.49 and 10 CFR Part 21 as applicable); QA requirements; material and component identification requirements; drawings; specifications; inspection and test requirements (including acceptance criteria); calibration, handling, storage, packaging, and shipping requirements; and special process instructions. All technical requirements shall be prepared, reviewed, and released under the requirements established by Section 7.0 of this plan.

2. For commercial-grade replacement items intended for safety-related use, Site Engineering shall determine critical characteristics and specify inspection and acceptance criteria to ensure that items dedicated after receipt are acceptable for use as replacement parts.

3. As appropriate, require that suppliers have a documented QA program that is approved by TVA and appropriate interfaces established.

4. As appropriate, require that NQAP requirements be imposed on subvendors and subcontractors in sub-tier procurement documents.

5. Identify the documentation to be prepared and/or maintained by the supplier and submitted to TVA for review and approval.

6. Identify records to be retained, maintained, and controlled by the vendor or contractor, and those documents and records that the vendors or contractors shall transfer to TVA prior to installation or use of an item or service as applicable.

7. Include provisions for right of access to the facilities and records of vendors, contractors, and sub-tier vendors and contractors for source surveillances and audits.

8. Include requirements to ensure that suitable spare and replacement materials and components are purchased to the applicable requirements of the NQAP and:
(1) specifications and codes equivalent to those specified for the original equipment, or those specifications and codes specified by approved design output; or (2) in cases where the original item or part

8.1.2.B.8 (continued)

is found to be commercially "off the shelf" or without specifically identified quality assurance requirements, spare and replacement parts may be similarly procured but, at the very least, equivalent performance is ensured; or (3) in those where the QA requirements of the original item cannot be determined, a documented evaluation establishing the requirements and controls is conducted.

9. Include requirements for reporting nonconformances and for approving corrective actions and nonconformance dispositions.

C. Procurement Document Review and Approval

The review and approval of procurement documents shall include a documented review to ensure that technical, QA, and administrative requirements are included in procurement documents prior to their use.

D. Procurement Document Change Control

Changes in procurement documents shall be subject to the same degree of control as was utilized in the original documents. Changes such as typographical corrections, quantity, or monetary changes do not require technical or QA approval.

8.1.3 Responsibilities

A. The Manager, Materials Management and the Vice President, Technical Support as delegated to the General Manager, Nuclear Support are responsible for the development of a procurement document control program. The program elements in Section 8.1.2 and the related source requirements contained within the documents listed in Section 8.1.4 shall be addressed.

B. The Vice President, Nuclear Projects is responsible for implementation of programs for maintaining procurement document control at unlicensed units.

C. The Senior Vice President, NO is responsible for implementation of programs for maintaining procurement document control at licensed units.

8.1.4 Source Requirement Documents

The applicable source requirement documents and their exceptions are noted in Appendix B of this plan. These establish mandatory controls which must be addressed in the development of programs and procedures for control of procurement documents.

8.2 Control of Purchased Material, Equipment, and Services

8.2.1 General

The QA program requires that measures shall be established to assure that purchased material, equipment, and services, whether purchased directly or through contractors, conform to the procurement documents.

8.2.2 Program Elements

A. Evaluation and Selection of Suppliers

1. Evaluations of prospective suppliers shall be conducted and documented to demonstrate that their qualifications and capabilities are adequate to meet procurement document requirements. Supplier evaluations shall include supplier performance assessments as appropriate.

2. Evaluations and selection of procurement sources shall include, as appropriate, the use of historical quality performance data, source surveys or audits, or source qualification programs.

3. A list of approved suppliers shall be maintained.

B. Bid Evaluation and Award

A documented system for reviewing and evaluating bids and correcting bid discrepancies shall be established to ensure suppliers' conformance to procurement document requirements.

C. Effectiveness Assessments

1. The effectiveness of the suppliers' control of quality shall be assessed through periodic audits and/or surveillances utilizing a graded approach consistent with the importance, complexity, and quantity of the items and services procured.

2. The assessments shall consist of, as appropriate, checks, reviews, verifications, examinations, and witnessing of activities related to the fabrication, testing, inspection, and shipment of material, including periodic assessments of suppliers' certificates of conformance.

3. Records, qualifications, and process specifications or procedures shall be documented and verified to be in accordance with contract requirements.

8.2.2 (continued)

D. Acceptance of Procured Services

Procured services shall be accepted, as appropriate, by:

1. Technical verification of product/data produced.

2. Assessments and/or audit of the activity.

3. Review of objective evidence such as certifications.

E. Acceptance of Procured Items

Procured items shall be accepted by receipt inspection and any combination of the following, as appropriate, based on the item's degree of complexity, uniqueness, and safety classification.

1. Source verification.

2. Preinstallation testing inspection.

3. Supplier certificate of conformance.

4. Post installation testing.

F. Receipt Inspection

1. Receipt inspection shall be performed utilizing graded approach criteria to ensure that material and equipment is properly identified to the purchase document and receiving documentation and meets requirements of procurement documents. When graded approach criteria are applied to receipt inspection activities, line verification will be required. The QA organization shall independently verify line organization performance to ensure adequacy of line verifications.

2. Deficiencies, such as damage, shall be documented and resolution of the deficiency shall be in accordance with approved documents.

3. Records, such as inspection and test records, shall be available at the Site prior to installation or use of the material or equipment.

G. Maintaining Disposition of Received Items

1. A quality control method for identifying the status of items (e.g., an inventory system, tagging, labeling, color code) shall be employed that indicates whether items received are acceptable or unacceptable for installation.

8.2.2.G (continued)

2. Items may be installed prior to final disposition of a deficiency. Nonconforming items shall be controlled in accordance with Section 10.2.1.

8.2.3 Responsibilities

A. The Manager, Materials Management and the Vice President, Technical Support as delegated to the General Manager, Nuclear Assurance and to the General Manager, Nuclear Support are responsible for the development of programs to control purchased material, equipment, and services. The program elements in Section 8.2.2 and the related source requirements contained within the documents listed in Section 8.2.4 shall be addressed.

B. The Vice President, Nuclear Projects is responsible for implementation of programs for maintaining control of purchased material, equipment, and services at unlicensed units.

C. The Senior Vice President, NO is responsible for implementation of programs for maintaining control of purchased material, equipment, and services at licensed units.

D. The General Manager, Nuclear Assurance is responsible for evaluation and selection of suppliers, acceptance of procured items, periodic assessments of suppliers utilizing graded approach criteria, and maintenance of an approved suppliers list.

8.2.4 Source Requirement Documents

The applicable source requirement documents and their exceptions are noted in Appendix B of this plan. These establish mandatory controls which must be addressed in the development of programs and procedures for the control of purchased material, equipment, and services.

8.3 Identification and Control of Materials, Parts, and Components

8.3.1 General

The QA program shall ensure that only correct and accepted items are installed and used, and that an item can be related to applicable drawings, specifications, or technical documents at any stage of construction, maintenance, or modification as required.

8.3.2 Program Elements

A. Identification

Identification of quality-related items shall be verified and documented prior to release for fabrication, assembly, shipping, and installation. Identification requirements shall be specified in applicable design and procurement documents. Determination of identification requirements shall be based on the item importance to safety, quality, or potential hazards.

B. Traceability

Traceability of materials, parts, or components to specific manufacturing, installation, maintenance, and/or test records shall be provided as required by codes, standards, or specifications; and shall be accomplished through the recording of heat, batch, lot, part, or serial numbers, or other appropriate identification, either on the item or on records traceable to the item.

8.3.3 Responsibilities

A. The Manager, Materials Management and the Vice President, Technical Support as delegated to the General Manager, Nuclear Support are responsible for the development of the material management program for identification and control of materials, parts, and components. The program elements in Section 8.3.2 and the related source requirements contained within the documents listed in Section 8.3.4 shall be addressed.

B. The Vice President, Nuclear Projects is responsible for implementation of programs for maintaining identification and control of materials, parts, and components at unlicensed units.

C. The Senior Vice President, NO is responsible for implementation of programs for maintaining identification and control of materials, parts, and components at licensed units.

8.3.4 Source Requirement Documents

The applicable source requirement documents and their exceptions are noted in Appendix B of this plan. These establish mandatory controls which must be addressed in the development of programs and procedures for the identification and control of items.

9.0 CONTROL OF PLANT ACTIVITIES

9.1 Inspection and Line Verification

9.1.1 General

The QA program requires that inspection and line verification procedures and instructions include provisions for inspections and line verifications to ensure quality.

9.1.2 Program Elements

A. Line Verification

1. Line verifications shall be performed and documented to substantiate and ensure that an activity or condition has been implemented and accomplished in conformance with specific requirements.

2. Requirements for line verification identified by design output documents shall be included in implementing documents.

3. Qualification of personnel performing line verifications shall be contained in procedures and instructions developed by the organization performing the line verification.

B. Inspection Plans and Instructions

Inspections shall be controlled by plans or instructions which implement requirements, assign responsibilities, and identify acceptance criteria derived from design output documents as appropriate.

1. Inspections to verify conformance to codes, standards, and design output shall be required for each operation. Factors used to determine the extent of inspections to be performed are listed in Section 5.2 of this plan.

2. Inspection hold points, witness points, and notification points shall be used as required or needed to verify in-process or final achievement of quality. When graded approach criteria are applied to inspection activities, line verification will be required. The NA organization shall independently verify line organization performance to ensure adequacy of line verifications.

3. Indirect control by assessment of processing methods, equipment, and personnel shall be specified when direct inspection is impossible or disadvantageous.

4. Instructions for activities such as sampling, assessments, and independent inspections shall be included.

9.1.2.B (continued)

5. Persons responsible for performing sampling, assessments, and independent inspections shall be specified.

C. Inspection Performance

Inspections shall be performed by Nuclear Assurance or other qualified individuals approved by Nuclear Assurance, utilizing graded approach criteria in accordance with controlled plans or instructions which specify attributes to be verified in accordance with requirements and acceptance criteria.

1. Inspections shall be performed by individuals delineated above other than those who performed or directly supervised the activity being inspected.

2. Personnel performing inspections shall be trained, qualified, and certified, as required, within their discipline in accordance with established requirements. The requirements criteria shall be approved by Nuclear Assurance.

3. M&TE used to perform inspections shall be controlled, calibrated, and maintained as required in Section 9.5 of this plan. The identification of M&TE shall be documented.

4. Work shall not proceed beyond designated hold points prior to release by authorized personnel.

D. Results

Records of inspection results and personnel performing the inspection shall be retained as required in Section 6.3 of this plan.

1. Inspection records shall be identified as such and shall be retrievable.

2. Inspection records shall contain a description of the type of inspection, the date performed, inspection or verification of corrective action results, and identification of the inspector and data recorder as well as the person approving the inspection results including the date of approval.

3. Inspection records and/or data sheets shall include a statement attesting to the acceptability of results and provide for identifying the individual who performed the evaluation.

4. Periodic trending of inspection results shall be performed and reported to appropriate management.

5. Records shall be kept in sufficient detail to permit adequate evaluation of inspection activities.

9.1.3 Responsibilities

A. The Vice President, Technical Support as delegated to the General Manager, Nuclear Assurance and the Chief Engineer, Corporate Engineering and Modifications is responsible for including the applicable QA program elements in Section 9.1.2 and the related source requirements found in the documents listed in Section 9.1.4, within the inspection program. The General Manager, Nuclear Assurance reviews and approves the inspection program to ensure inclusion of QA requirements.

B. The Vice President, Nuclear Projects and the Senior Vice President, NO are responsible for including the program elements in Section 9.1.2 and the related source requirements contained within the documents listed in Section 9.1.4, as applicable, within the line verification program.

C. The Vice President, Nuclear Projects and the Senior Vice President, NO are responsible for providing qualitative/quantitative criteria in design output documents which are incorporated in implementing procedures.

D. The Vice President, Technical Support as delegated to the Chief Engineer, Corporate Engineering and Modifications is responsible for establishing and implementing programs for training and certification of personnel performing QC activities. The General Manager, Nuclear Assurance is responsible for concurring with inspector certifications.

9.1.4 Source Requirement Documents

The applicable source requirement documents and their exceptions are noted in Appendix B of this plan. These establish mandatory controls which must be addressed in the development of programs and procedures for inspection.

9.2 Quality Assurance Assessments

9.2.1 General

Assessments by Nuclear Assurance are performed as a type of verification to ensure that observed quality-related activities are performed in accordance with requirements and desired results are achieved.

9.2.2 Program Elements

A. Assessment procedures and instructions shall address assessment techniques.

B. Assessment frequencies shall be based on such factors as the status and safety significance of the activity or process, frequency of occurrence, degree and acceptability of previous experience, adverse trends, and testing or operation sequences.

9.2.2 (continued)

C. The results of assessments shall be documented and reported to appropriate levels of management.

D. Records shall be maintained in sufficient detail to provide adequate documentation of assessed activities.

E. Follow-up verifications or additional assessments shall be conducted as necessary to ensure that required corrective action has been taken.

F. Assessments shall be performed in accordance with written procedures and instructions by qualified and appropriately trained personnel not having direct responsibility in the areas being assessed.

9.2.3 Responsibilities

The Vice President, Technical Support as delegated to the General Manager, Nuclear Assurance is responsible for the development and implementation of the QA assessment program.

9.2.4 Source Requirement Documents

None applicable.

9.3 Control of Special Processes

9.3.1 General

Those processes, as determined by the Site Engineering organizations, which by their nature make a direct inspection either impossible or disadvantageous are controlled as special processes.

Special processes shall be controlled and accomplished in accordance with approved process control documents by qualified personnel using qualified written procedures.

9.3.2 Program Elements

A. Processes which are to be controlled as special processes shall be documented in design output documents and maintained current. These processes shall include, but not be limited to: welding, forming and bending, heat treating, chemical cleaning, protective coatings, and NDE.

B. Measures shall be established, documented, and implemented, as appropriate, using specifications, procedures, and instructions to ensure that special processes are accomplished under controlled conditions and in accordance with applicable codes, standards, specifications, manufacturer instructions, or other special requirements.

9.3.2.B (continued)

These measures shall include requirements for procedures, equipment, personnel, specifications, and control of consumable materials.

C. When a special process is not covered by existing codes or standards, or when an item's quality requirements exceed the requirements of existing codes or standards, any special requirements necessary for controlling, implementing, and documenting the special process shall be defined as appropriate.

D. Procedure, Equipment, and Personnel Qualification and Certification

1. Personnel performing special processes shall be qualified and, when required, certified in accordance with the applicable codes, standards, and any special requirements.

2. Qualification or certification of procedures, equipment, and personnel required by codes, standards, or any special requirements shall be performed.

3. Documentation shall be maintained for these qualifications and certifications. M&TE used in special processes shall be controlled in accordance with Section 9.5 of this plan.

E. Results

Results of examinations associated with special processes shall be documented and evaluated for acceptability. Documentation shall provide for identifying the individual who performed the evaluation.

9.3.3 Responsibilities

A. The Vice President, Technical Support as delegated to the Chief Engineer, Corporate Engineering and Modifications is responsible for:

1. Development of programs for control of special processes. The program elements in Section 9.3.2 and the related source requirements contained within the documents listed in Section 9.3.4 shall be addressed.

2. Development of upper-tier QA requirements for the NDE program and interpretation of NDE results when not achievable at the site level.

3. Development and implementation of NDE methods and procedures. He is also responsible for the qualification or certification of procedures, equipment, and personnel.

9.3.3 (continued)

B. The Vice President, Nuclear Projects and the Senior Vice President, NO are responsible for coordinating with appropriate organizations and determining which processes are to be controlled as special processes and for developing engineering requirements for NDE.

C. The Vice Presidents, Nuclear Projects and Technical Support, and the Senior Vice President, NO are responsible for the qualification or certification of special process procedures, equipment, and personnel for all areas other than NDE.

9.3.4 Source Requirement Documents

The applicable source requirement documents and their exceptions are noted in Appendix B of this plan. These establish mandatory controls which must be addressed in the development of programs and procedures for the control of special processes.

9.4 Test Control

9.4.1 General

The QA program requires that controls shall be established to ensure that required testing is identified and performed in accordance with procedures which incorporate engineering requirements.

9.4.2 Program Elements

A. The following types of tests, as a minimum, shall be included:

1. Design qualification tests.

2. Product acceptance (proof) tests prior to installation.

3. Preoperational tests.

4. Construction tests.

5. Start-up tests.

6. Surveillance tests.

7. Functional tests.

8. Postmaintenance tests.

9. Postmodification tests.

10. Special tests.

9.4.2 (continued)

B. Test Performance

1. Tests shall be accomplished in accordance with written and approved test procedures which include the requirements and acceptance criteria of technical specifications, drawings, specifications, codes, standards, regulatory requirements, and scoping documents as applicable.

2. Tests performed following plant repairs, replacements, maintenance, or modifications shall be conducted in accordance with the original design and testing requirements or approved documented alternatives. Tests shall be sufficient to confirm that the changes produce expected results and do not reduce safety of operations.

3. Test procedures or instructions include the following, as applicable:

   a. Description of test objective.

   b. Instructions for performing the test.

   c. Test prerequisites such as calibrated instrumentation, adequate test equipment and instrumentation including their accuracy requirements, completeness of the item to be tested, suitable and controlled environmental conditions, provisions for data collection and storage, and qualified personnel.

   d. Provisions to assure test prerequisites have been met.

   e. Mandatory inspection hold points.

   f. Acceptance or rejection criteria.

   g. Methods of recording, documenting, and reviewing test data and results.

   h. Provisions for assuring that adverse conditions are corrected, or are evaluated and determined not to adversely impact testing, prior to the initiation of preoperational testing of the affected item.

C. Test Results

Test results shall be documented in a suitable test results package that contains:

1. The identification of the item to which it applies.

2. The identification of instructions followed in performing the test.

3. Pertinent inspection and test data.

9.4.2.C (continued)

4. Significant dates and times.

5. Signature of inspector or tester.

6. Conditions encountered which were not anticipated, including identification of deviations or adverse conditions, and actions taken to resolve the condition.

D. Results Evaluation

The technical acceptability of the results shall be evaluated by an appropriate authority to ensure that the test requirements have been satisfied.

E. Records of test results shall be retained in accordance with Section 6.3 of this plan.

9.4.3 Responsibilities

A. The Vice President, Technical Support as delegated to the General Manager, Operations Services is responsible for the development of test control programs. The program elements in Section 9.4.2 and the related source requirements contained within the documents listed in Section 9.4.4 shall be addressed.

B. The Vice President, Nuclear Projects and the Senior Vice President, NO are responsible for reviewing test results and specifying through design output documents the acceptance criteria for tests necessary to demonstrate an item's compliance with design parameters for initial acceptance and major modifications.

C. The Vice President, Nuclear Projects is responsible for the development and conduct of installation tests (construction phase) which incorporate engineering requirements.

D. The Senior Vice President, NO is responsible for the development of tests (operations phase) which incorporate engineering requirements and for the conduct of tests, including leak tests (operations phase).

E. The Vice President, Technical Support as delegated to the General Manager, Nuclear Assurance is responsible for assessing tests and test results, utilizing graded approach criteria, and attesting to the acceptability of inspection and tests.

9.4.4 Source Requirement Documents

The applicable source requirement documents and their exceptions are noted in Appendix B of this plan. These establish mandatory controls which must be addressed in the development of programs and procedures for the control of tests.

9.5 Control of M&TE and Installed Safety-Related I&C Devices

9.5.1 General

Measures shall be established to control equipment which is used to conduct measurements or tests related to determining the functionality or quality of structures, systems, and components within the scope of the QA program.

9.5.2 Program Elements

A. Requirements Common to M&TE and Installed Safety-Related I&C Devices

1. Procedures or instructions for administrative controls shall establish:

   a. Controls for calibration, selection, identification, and utilization of M&TE and installed safety-related I&C devices.

   b. The scope of the various safety-related calibration and control programs.

   c. The types of equipment to be controlled.

2. Calibration procedures and instructions, as a minimum, shall include:

   a. The identity of the item to be calibrated.

   b. Calibration equipment and reference standards to be used.

   c. Checks, tests, measurements, and acceptance tolerances.

   d. Sequence of operations.

   e. Special instructions when necessary.

   f. Recording of performer and applicable procedure or instruction.

   g. Recording of as-found and as-left data.

3. Intervals shall be established for calibration and adjustments of M&TE and installed safety-related I&C devices. These intervals shall be based on required accuracy, purpose, degree of usage, stability characteristics, and other conditions which may affect the measurement or output data.

4. An index, listing, or log shall be procedurally maintained; and shall identify each piece of M&TE and installed safety-related I&C device within the calibration program.

9.5.2.A (continued)

5. Reference standards shall be traceable to nationally recognized standards or physical constants. When national standards do not exist, the basis for calibration shall be documented and approved by designated responsible management.

6. Prior to use, M&TE and installed safety-related I&C devices shall be identifiable and traceable to applicable calibration records.

B. Unique Requirements for M&TE

Controls for M&TE shall include the following requirements. These requirements are in addition to those noted in Section 9.5.2.A.

1. M&TE shall be stored, calibrated, and used in environments that will not adversely affect its accuracy.

2. M&TE shall be identified to indicate the date of the last calibration, by whom it was calibrated, and when the next calibration is due.

3. Methods shall be established to identify previous usage of M&TE when found to be out of calibration. These methods shall require that inspections or tests be repeated or a documented evaluation be performed when the integrity of past measurements obtained with the suspect equipment or device cannot be demonstrated.

4. Calibration standards, including test stands, that are used as a standard (i.e., multiple M&TE) shall have an accuracy of at least four times the required accuracy of the equipment being calibrated. When this is not possible, standards shall have an accuracy that ensures the equipment being calibrated will be within required tolerances. The basis of acceptance shall be documented and authorized by identified responsible management.

5. M&TE shall be conspicuously labeled, tagged, or otherwise controlled to ensure performance of required calibrations on or before the established due date.

6. M&TE which are consistently found out of calibration shall be identified as nonconforming, removed from service, and repaired or replaced.

C. Unique Requirements for Installed Safety-Related I&C Devices

Controls for installed safety-related I&C devices shall include the following requirements. These requirements are in addition to those noted in Section 9.5.2.A.

9.5.2.C (continued)

1. The calibration of installed safety-related I&C devices that provide final measurements data or controls shall be against M&TE that have an accuracy equal to or better than the required accuracy of the devices being calibrated.

2. Installed safety-related I&C devices shall be controlled to ensure performance of required periodic calibrations.

3. Environmental qualification controls for 10 CFR 50.49 installed safety-related I&C devices shall be established in applicable design documents. These controls shall be maintained when installed safety-related I&C devices are opened in place or removed for calibration in a laboratory.

4. Installed safety-related I&C devices which are consistently found to be out of calibration shall be identified and repaired or replaced.

D. Unique Requirements for Installed Compliance I&C Devices

Controls for installed compliance I&C devices shall include the following requirements. These requirements are in addition to those noted in Sections 9.5.2.A and 9.5.2.C.

1. Methods shall be established to identify previous usage of installed compliance I&C devices when found to be out of calibration. These methods shall require that inspections or tests be repeated or a documented evaluation be performed when the integrity of past measurements obtained with the suspect equipment or device cannot be demonstrated.

9.5.3 Responsibilities

A. The Vice President, Technical Support as delegated to the General Manager, Operations Services is responsible for the development of controls for M&TE and installed safety related I&C devices. The program elements in Section 9.5.2 and the related source requirements contained within the documents listed in Section 9.5.4 shall be addressed.

B. The Senior Vice President, NO and the Vice President, Nuclear Projects are responsible for providing qualitative/quantitative criteria in design output documents.

9.5.4 Source Requirement Documents

The applicable source requirement documents and their exceptions are noted in Appendix B of this plan. These establish mandatory controls which must be addressed in the development of programs and procedures for the control of M&TE and installed safety-related I&C devices.

9.6 Handling, Storage, and Shipping

9.6.1 General

Measures shall be established such that items, including consumables, under the scope of the QA program are handled, stored, and shipped by qualified individuals in a manner to prevent deterioration, contamination, damage, or loss of identification in accordance with approved engineering and procurement documents.

9.6.2 Program Elements

A. Marking

Items and/or their containers shall be adequately marked so that the items may be properly identified, maintained, and preserved during shipping, receiving, and storage. Marking shall also indicate the presence of special environments or the need for special controls.

B. Packaging and Cleaning

1. Packaging shall be adequate to provide protection against effects such as corrosion and contamination which would lower the quality of items or cause deterioration beyond specified limits.

2. Special coverings, special equipment, and special protective environments shall be provided and maintained, as required, by procurement documents and vendor instructions determined to be applicable by the responsible engineer.

3. Cleaning operations shall be performed, as required, prior to coating, packaging, storing, or installing items.

C. Shipping and Handling

Special protection required for shipping shall be provided and maintained, as specified, by procurement documents or vendor instructions. Specified instructions and precautions for handling shall be followed.

D. Storage

1. Methods of controlling stored items, including shelf life, shall be established to minimize the potential for damage or deterioration during storage.

2. Appropriate facilities shall be provided for storage of items requiring special environmental conditions.

3. Periodic assessments of storage areas and stored items shall be performed and documented to verify compliance with storage requirements.

9.6.2.D (continued)

4. Proper maintenance shall be provided for stored items, where necessary to prevent deterioration.

9.6.3 Responsibilities

A. The Manager, Materials Management and the Vice President, Technical Support as delegated to the General Manager, Nuclear Support are responsible for the development of program controls for handling, storing, and shipping. The program elements in Section 9.6.2 and the related source requirements contained within the documents listed in Section 9.6.4 shall be addressed.

B. The Manager, Materials Management and the Vice President, Technical Support as delegated to the General Manager, Nuclear Support are responsible for developing and defining implementation responsibilities to control the receipt, storage, shipping, and issuance of materials.

C. The Vice President, Nuclear Projects is responsible for developing programs for controlling material in support of construction phase activities.

D. The Vice President, Nuclear Projects and the Senior Vice President, NO are responsible for establishing storage, handling, and shipping requirements and preventive maintenance requirements during storage.

9.6.4 Source Requirement Documents

The applicable source requirement documents and their exceptions are noted in Appendix B of this plan. These establish mandatory controls which must be addressed in the development of programs and procedures for the control of handling, storage, shipping, cleaning, and preservation of items.

9.7 Inspection, Test, and Operating Status

9.7.1 General

Measures shall be established and documented to ensure that the operating status is current and the acceptability of items is known throughout fabrication, storage, construction, installation, operation, maintenance, and modification.

9.7.2 Program Elements

A. Inspection and Test Status

1. The status of inspections and tests shall be identified either on the items or in documents traceable to the items to ensure that required inspections and tests are performed and to preclude inadvertent bypassing.

2. The status of inspections and tests shall be maintained through the use of indicators such as tags, markings, shop travelers, routing cards, stamps, inspection records, or other suitable means.

3. The authority for application and removal of tags, markings, labels, and stamps shall be specified.

4. Deletions or alterations of required inspections, tests, and other critical operations shall be controlled through appropriate changes to applicable procedures. These changes shall be handled in accordance with Section 6.1.2.F of this plan.

B. Operating Status

1. The operating status of items (including temporary alterations) shall be indicated by status indicators such as tags on valves and switches to prevent inadvertent operation.

2. Plant instructions that require items to be removed from service for maintenance, testing, or modification shall require designated personnel permission and the completion of the appropriate clearance (hold order or approved plant procedures) before commencement of the activity.

9.7.3 Responsibilities

A. The Vice President, Technical Support as delegated to the General Manager, Operations Services, is responsible for the development of controls to maintain inspection, test, and operating status. The program elements in Section 9.7.2 and the related source requirements contained within the documents listed in Section 9.7.4 shall be addressed.

B. The Vice President, Nuclear Projects and the Senior Vice President, NO are responsible for establishing applicable inspection and test acceptance criteria to ensure the acceptability of items is maintained.

C. The Vice President, Nuclear Projects is responsible for the implementation of programs for maintaining inspection, test, and operating status at unlicensed units.

D. The Senior Vice President, NO is responsible for implementation of the programs for maintaining inspection, test, and operating status at licensed units.

9.7.4 Source Requirement Documents

The applicable source requirement documents and their exceptions are noted in Appendix B of this plan. These establish mandatory controls which must be addressed in the development of programs and procedures for the control of inspection, test, and operating status.

9.8 Control of Maintenance

9.8.1 General

The nuclear maintenance program, including corrective and preventive maintenance, shall ensure that quality-related structures, systems, and components are maintained (including appropriate equipment qualification maintenance) at a level sufficient to perform their intended functions.

9.8.2 Program Elements

A. Preventive Maintenance

A preventive maintenance program prescribing the frequency and type of maintenance activities to be performed shall be established and maintained.

B. Procedures and Instructions

Maintenance shall be carried out in accordance with procedures or instructions to ensure quality at least equivalent to that specified in the approved design basis or approved alternatives. Procedures or instructions shall be written to the level of detail that is normally expected of the user group. Training, experience, and the technical complexity of the work are factors which should be considered in determining the level of detail the procedure or instruction should contain. Guidelines shall be established for the use of these procedures or instructions.

C. Maintenance Preplanning

Maintenance shall be preplanned to include as appropriate:

1. Review of work-initiating documents to ensure quality requirements have been addressed.

2. Evaluation of the use of special processes, equipment, and materials including potential hazards to personnel and equipment and ALARA considerations.

9.8.2.C (continued)

3. The potential for common-mode failures when working on similar multiple or redundant systems and components.

4. Documented approval by designated personnel to release equipment or systems for maintenance.

5. Inspection and testing, as appropriate, to ensure a suitable level of confidence. This includes postmaintenance testing commensurate with the maintenance performed to ensure that the equipment is capable of being returned to service, that the original deficiency (if any exists) has been corrected, and that no new deficiency has been created.

D. Malfunctions

The cause of malfunctions shall be evaluated and documented in accordance with TVA's nuclear corrective action program.

E. Trending

The Maintenance Program shall establish the parameters for trending maintenance activities and describe the methods for evaluating and documenting adverse trends.

9.8.3 Responsibilities

A. The Vice President, Technical Support as delegated to the General Manager, Operations Services is responsible for the development of the nuclear maintenance program. The program elements in Section 9.8.2 and the related source requirements contained within the documents listed in Section 9.8.4 shall be addressed.

B. The Vice President, Nuclear Projects is responsible for the implementation of the nuclear maintenance program during construction phase activities.

C. The Senior Vice President, NO is responsible for the implementation of the nuclear maintenance program during operations phase activities.

9.8.4 Source Requirement Documents

The applicable source requirement documents and their exceptions are noted in Appendix B of this plan. These establish mandatory controls which must be addressed in the development of programs and procedures for the Nuclear Maintenance Program.

10.0 ADVERSE CONDITIONS

10.1 General

Measures shall be established to ensure that items that do not conform to requirements are controlled to prevent their inadvertent installation or use. Adverse conditions, including nonconforming items or nonhardware problems such as failure to comply with operating license, technical specifications, or procedures, shall be identified, evaluated, corrected, tracked, trended, and when required, reported to appropriate levels of management. Procedures or instructions implementing the corrective action program shall establish the criteria for documenting and tracking adverse conditions.

10.2 Program Elements

10.2.1 Control of Nonconforming Items

A. Organizations responsible for items determined to be nonconforming during receipt inspection, construction, maintenance, modifications, or operations shall identify (physical identification) and segregate the nonconforming items from acceptable items to prevent further processing, delivery, installation, or inadvertent use. When segregation is not practical, tagging, marking, or other means of identification is acceptable.

B. In cases where a nonconforming item is needed for use prior to correcting the nonconformance, a conditional release request document is required. The conditional release request document requires appropriate reviews and approvals. In addition, for equipment to be energized, operated, or pressurized an evaluation and justification is required.

10.2.2 Corrective Action For Adverse Conditions

A. NP organizations and onsite non-NP service organizations performing quality-related activities at nuclear facilities shall promptly identify and resolve adverse conditions.

B. Minor deficiencies which may be brought into compliance within an acceptable timeframe shall be corrected on the spot in accordance with established instructions.

C. Adverse conditions shall be dispositioned by organizations with defined responsibility and authority and shall be corrected in accordance with documented plans.

D. Disposition actions for nonconforming items may be accept-as-is, repair, rework, scrap, or return to vendor. Dispositions of accept-as-is or repair shall be reviewed and approved by Corporate or Site Engineering or, for Nuclear Fuel-related items, Nuclear Support. Reworked or

10.2.2.D (continued)

repaired, and replaced items shall satisfy the original inspection and test requirements or acceptable alternatives.

E. The cause of significant adverse conditions shall be determined and corrective action taken to preclude recurrence.

F. Significant adverse conditions shall be reported to appropriate levels of management.

G. The satisfactory completion of corrective actions shall be verified and documented by the appropriate organization.

H. Independent verification of corrective action implementation is performed as specified within the corrective action program.

10.2.3 Escalation of Adverse Conditions

Commensurate with their importance to quality or safety, adverse conditions which are not being effectively or timely resolved shall be escalated to appropriate levels of management in a timely manner.

10.2.4 Tracking

Procedures describing the corrective action program shall establish the requirements for those adverse conditions which shall be tracked.

10.2.5 QA Trending

Trend analysis shall be performed on adverse conditions and quality indicators associated with QA verification activities. Trend results shall be used to advise management of the quality status, identify adverse trends that need increased management attention, and compare quality of performance among organizations. The trend analysis program shall be described in procedures or instructions and shall include the following items as a minimum.

A. Identify the quality indicators associated with QA verification activities to be trended.

B. Specify the process of data handling such as gathering, collecting, sorting, grouping, and coding.

C. Specify the process to be used in analyzing data and trend determination.

D. Describe the actions to be taken when an adverse trend is identified.

E. Describe the type, distribution, and frequency of issue of trend results reporting.

10.2.6 Stop Work

Work shall be stopped under any of the following conditions:

A. Work is proceeding in violation of approved and controlling documents.

B. A condition which clearly indicates that cessation of an activity is the only means available to protect the health and safety of the public and/or plant personnel.

C. An activity, which if continued, will require extensive rework or repair for corrective action.

D. An activity, which if continued, may jeopardize nuclear safety.

E. A condition that represents continual failure to comply with technical or administrative controls.

10.3 Responsibilities

A. The Vice President, Technical Support as delegated to the General Manager, Nuclear Assurance is responsible for the development of the corrective action program. The program elements in Section 10.2 and the related source requirements contained within the documents listed in Section 10.4 shall be addressed.

B. Line managers are responsible to stop any work within their areas of responsibility when a continuation of activities could meet the criteria of Section 10.2.6.

C. Nuclear Assurance is responsible to issue a formal Stop Work Order, as required, if a line manager fails to act on a stop work condition. Stop Work Orders shall remain in effect until proper evaluation can be made and adequate corrective action can be applied.

D. Nuclear Assurance is responsible to establish and maintain trend analysis procedures for adverse conditions and the quality indicators generated by QA verification activities such as audits, assessments, inspection, and vendor audits and surveillances.

10.4 Source Requirement Documents

The applicable source requirement documents and their exceptions are noted in Appendix B of this plan. These establish mandatory controls which must be addressed in the development of programs and procedures for the corrective action program.