12.2 Program Elements

A. An audit plan shall be prepared identifying the audits to be performed and their frequencies and schedule.

B. Audits shall include: a determination of the effectiveness of QA program elements; evaluation of work areas, activities, processes, and items; review of documents and records; review of audit results with responsible management; and follow-up on corrective action taken for deviations identified during the audit.

C. Audits shall be performed in accordance with written procedures or checklists by qualified, certified, and appropriately trained personnel not having direct responsibilities in the areas being audited.

D. Audited organizations shall provide access to facilities, documents, and personnel needed to perform the audits. They shall take necessary action to correct deviations identified by the audit in a timely manner.

E. Internal Audits

1. The scope of an audit shall be determined by considering such factors as work areas, activities, processes, or items and the specific organizations involved.

2. For BFN and SQN, auditing organizations shall ensure that audit procedures and instructions adequately cover applicable elements of the NQAP. Audit subjects are specified in plant technical specifications and regulatory commitments. Audit frequencies shall be biennially with the exception of fire protection related audits which shall be in accordance with the plant technical specifications. The audit frequencies for programs involving each site Radiological Emergency Plan and Physical Security/Contingency Plan are as required by the Code of Federal Regulations.

3. Audits of Design and Construction Phase units and the Fitness for Duty Program are in accordance with the Code of Federal Regulations.

4. Audits of WBN unit activities shall be performed with oversight by the NSRB. Except as noted in f, g, and h below, audit frequencies shall be in accordance with E.2 above. These audits shall encompass:

a. The conformance to provisions contained within the Technical Specifications and applicable license conditions.

b. The performance, training and qualifications of the plant staff.

c. The results of actions taken to correct deficiencies occurring in site equipment, structures, systems or method of operation that affect nuclear safety.

12.2.E.3 (continued)

d. The performance of activities required by the Nuclear Quality Assurance Program to meet the criteria of Appendix B, 10 CFR Part 50.

e. Any other area of site operation considered appropriate by the NSRB or the President, TVA Nuclear and Chief Nuclear Officer.

f. The fire protection programmatic controls including the implementing procedures at least once per 24 months.

g. An independent fire protection and loss prevention program inspection and audit shall be performed annually utilizing either qualified offsite license personnel or an outside fire protection firm.

h. An inspection and audit of the fire protection and loss prevention program shall be performed by an outside qualified fire consultant at intervals no greater than three years.

i. The Radiological Environmental Monitoring program and the results thereof.

j. The performance of activities required by the Nuclear Quality Assurance Program to meet the criteria of Regulatory Guide 4.15, December 1977, or Regulatory Guide 1.21, Rev. 1, 1974, and Regulatory Guide 4.1, 1975.

k. The Offsite Dose Calculation Manual and implementing procedures.

l. The Process Control Program and implementing procedures for solidification of wet radioactive wastes.

m. The site Radiological Emergency Plan and implementing procedures.

n. The site Physical Security/Contingency Plan and implementing procedures.

F. Contractor/Supplier Audits

1. Audits of selected suppliers shall be conducted to verify implementation and adequacy of specified QA requirements.

2. Contractors/suppliers to be audited shall be selected on the basis of the importance of their products or services to safety, status of contract activity, historical performance of the supplier, and potential QA problems that may be discovered during source surveillance inspection activities or earlier audits.

12.2 F (continued)

3. Audit schedules shall be prepared and audits shall be conducted in accordance with the schedules.

4. Audit reports shall be prepared and reviewed by the audit team, approved by management, and transmitted to the supplier and appropriate management within TVA.

12.3 Responsibilities

A. The Vice President, E&TS as delegated to the General Manager, NA&L is responsible for the development of the audit program. The program elements in Section 12.2 and the related source requirements contained within the documents listed in Section 12.4 shall be addressed.

B. NA&L is responsible to conduct audits, including audits of selected suppliers, to verify implementation and adequacy of specified QA requirements.

12.4 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 audits.

13.0 COMPUTER SOFTWARE AND DATA

13.1 General

The program elements in Section 13.2 of this plan apply to application software meeting the criteria of Appendix E of this plan, whether procured or developed at TVA. The controls established shall be commensurate with the importance of the application software to nuclear safety.

13.2 Program Elements

A. Controls shall be established for the development of application software and associated documentation, including requirements specification, design specifications, coding conventions, and user manuals.

B. Controls shall be established for changes to application software and associated documentation.

C. Controls shall be established for the issue, use, and distribution of application software and associated documentation in accordance with Section 6.2 of this plan.

13.2 (continued)

D. Controls shall be established for maintenance and retention of application software and associated documentation in accordance with Section 6.3 of this plan.

E. Documentation shall be provided for application software describing the correct usage.

F. A central list of application software which meets the criteria of Appendix E of this plan, with appropriate levels of classification shall be established and maintained. Involved personnel shall be trained on the intent and purpose of the list.

G. Prior to implementation, application software shall be verified to demonstrate that the system requirements are satisfied in the system design, implemented in the computer code, validated through documented tests, and the test results independently reviewed.

H. Controls shall be established to verify the accuracy and integrity of data input into automated computer databases.

I. For currently active application software developed or purchased prior to October 16, 1986, only the requirements of Section 13.2B, E, and F apply. In addition, this application software shall be validated through documented tests and test results independently reviewed.

13.3 Responsibilities

The Vice President, E&TS as delegated to the General Manager, Information Services Projects is responsible for the development of controls for computer software and data. The program elements in Section 13.2 and the criteria of Appendix E of this plan shall be addressed.

13.4 Source Requirement Documents

The applicable source requirements 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 computer software and data.

14.0 REFERENCES

14.1 Regulations

10 CFR 20, "Standards for Protection Against Radiation."

10 CFR 21, "Reporting of Defects and Noncompliance."

10 CFR 50, "Domestic Licensing of Production and Utilization Facilities."

14.1 (continued)

10 CFR 50.49, "Environmental Qualification of Electrical Equipment Important to Safety for Nuclear Power Plants."

10 CFR 50.54, "Conditions of Licenses."

10 CFR 50.55, "Conditions of Construction Permits."

10 CFR 50.55a, "Codes and Standards."

10 CFR 50.55(e), "Conditions of Construction Permits."

10 CFR 50.59, "Changes, Tests, and Experiments."

10 CFR 50, Appendix A, "General Design Criteria for Nuclear Power Plants."

10 CFR 50, Appendix B, "Quality Assurance Requirements for Nuclear Power Plants and Fuel Reprocessing Plants."

10 CFR 50, Appendix R, "Fire Protection Program for Nuclear Power Facilities Operating Prior to January 1, 1979."

10 CFR 50.62, "Requirements for Reduction of Risk From Anticipated Transients Without Scram (ATWS) Events for Light-Water-Cooled Nuclear Power Plants."

10 CFR 50.72, "Immediate Notification Requirements for Operating Nuclear Power Reactors."

10 CFR 50.73, "Licensee Event Report System."

10 CFR 50.120, "Training and Qualification of Nuclear Power Plant Personnel."

10 CFR 55, "Operators' Licenses."

10 CFR 70, "Domestic Licensing of Special Nuclear Material."

10 CFR 71, Subpart H, "Quality Assurance (Packaging and Transportation of Radioactive Material)."

10 CFR 73.55, " Requirements for Physical Protection of Licensed Activities in Nuclear Power Reactors Against Radiological Sabotage."

10 CFR 73.71, "Reporting of Safeguards Events."

10 CFR 74, "Material Control and Accounting of Special Nuclear Material."

10 CFR 75, "Safeguards on Nuclear Material - Implementation of US/IAEA Agreement."

10 CFR 100, "Reactor Site Criteria."

14.2 Regulatory Guidance

Refer to listing in Appendixes B and C of this plan.

14.3 TVA Licensing Submittal Documents

Browns Ferry Nuclear Plant Technical Specifications, Administrative Controls Section.

Sequoyah Nuclear Plant Technical Specifications, Administrative Controls Section.

Watts Bar Nuclear Plant Technical Specifications, Administrative Controls Section.

14.4 QA Manuals

ASME Section III Quality Assurance Manual (ASME III QAM).

14.5 Other

INPO 84-010, "Vendor Equipment Technical Information Program (VETIP)," March 1984.

NRC letter from H. J. Thompson, Jr., dated April 16, 1985, "Quality Assurance Guidance for ATWS Equipment That Is Not Safety Related," Generic Letter 85-06 (A02 850422 044).

NRC letter from D. G. Eisenhut dated April 24, 1986, "Implementation of Fire Protection Requirements," Generic Letter 86-10 (A02 860512 005).

NUREG 0800, Section 9.5.1, Branch Technical Position, CMEB 9.5-1 (formerly BTP ASB 9.5-1), Rev. 2, July 1981, "Fire Protection for Nuclear Power Plants."

Appendix A to Branch Technical Positions APCSB 9.5-1, August 23, 1976.

15.0 DEFINITIONS

The terms and definitions identified in this section are important in order to have a consistent understanding of requirements of the NQAP. Regulatory Guide 1.74, which endorses ANSI N45.2.10, contains terms and definitions applicable to the nuclear industry. This section identifies acceptable alternatives to these definitions with an asterisk(*).

Adverse Conditions

Deficiencies including nonconforming material, parts, or components; failures; malfunctions; deviations; hardware problems involving noncompliance with licensing commitments, specifications, or drawing requirements; abnormal occurrences; and nonhardware problems such as failure to comply with the operating license, technical specifications, licensing commitments, procedures, instructions, or regulations.

15.0 (continued)

Assessment

An evaluation of the adequacy and effectiveness of quality programs, processes, ongoing tasks or activities, or management controls to identify opportunities for improvement, performance problems, or verify resolution of problems.

*Audit

A documented activity performed in accordance with written procedures or checklists to verify, by examination and evaluation of objective evidence, that applicable elements of the NQAP have been developed, documented, and effectively implemented in accordance with specified requirements. An audit should not be confused with assessment or inspection for the sole purpose of process control or product acceptance.

Basic Component

A plant structure, system, component, or part thereof necessary to ensure: (1) the integrity of the reactor coolant pressure boundary, (2) the capability to shutdown the reactor and maintain it in a safe shutdown condition, or (3) the capability to prevent or mitigate the consequences of accidents which could result in potential offsite exposures comparable to those referred to in paragraph 100.11 of Title 10, Chapter 1, Code of Federal Regulations - Energy. In all cases, "basic component" includes safety related design, analysis, inspection, testing, fabrication, replacement parts, or consulting services that are associated with the component hardware whether these services are performed by the component supplier or others (10 CFR 21.3 and 10 CFR 50.2).

Commercial-Grade Items

Items that are: (1) not subject to design or specification requirements that are unique to nuclear facilities or activities, (2) used in applications other than nuclear facilities and activities, and (3) to be ordered from the manufacturer/supplier on the basis of specifications set forth in the manufacturer's published product description (for example, a catalog).

Construction Tests

Those tests which are performed on safety-related and other plant components and systems on nuclear units which may satisfy prerequisites to the preoperational test program. Construction tests include pressure and other integrity tests; component and piping system cleaning and flushing; and equipment checkout, initial operation, and adjustments.

15.0 (continued)

Critical Structures, Systems, and Components (CSSC)

See Safety-Related.

Corrective Action

The action taken to correct an adverse condition. Corrective action includes interim measures and corrective and preventive actions.

Dedication

The point in time after which a commercial grade item is accepted for safety-related application(s) and deficiency reporting becomes the responsibility of the party performing the acceptance.

Emergency Preparedness

A program which ensures the preparation and implementation of plans and procedures to provide, in the event of an emergency, protective measures for health and safety of TVA personnel and the public.

Environmental Protection

A program that provides controls, mainly in association with Environmental Protection Agency (EPA) requirements, for nonradiological environmental monitoring and compliance activities. These include hazardous and nonradiological waste material (solid, liquid, and gas) which could be released to the environment.

Features

Refers to either individual structures, systems, and components specifically called out by the scope of this plan (such as seismic Category 1 [L] items) or structures, systems, and components that may be integral to, or associated with, the programs identified in Section 5.1.B of this plan.

Fire Protection

A program that provides controls necessary for the protection of the life and health of TVA plant personnel and the public, to limit damage of property, and to minimize loss of generating capacity resulting from fire or explosion.

Functional Test

The manual operation or initiation of a system, subsystem, or component to verify that it functions within design tolerances (e.g., the manual start of a core spray pump to verify that it runs and that it pumps the required volume of water.)

15.0 (continued)

Graded Approach

A methodology of applying a grading criteria based on an item's impact on safety, quality history, and other factors such that determination can be made as to the type and degree of QA program requirements which need to be applied. Refer to Section 5.2.

Handling

The act of physically moving items by hand or by mechanical means but not including transport modes.

Hold Point

A designated stopping place during or following a specific activity at which inspection or examination is required before further work can be performed.

Independent Offsite Safety Review

Safety reviews performed by the Nuclear Safety Review Board (NSRB) which provide additional assurance that TVA licensed nuclear plants are operating without undue risk to the health and safety of plant personnel and the public.

*Inspection

A phase of quality control performed by certified inspection personnel or other qualified individuals approved by NA&L that, by means of examination, observation, and/or measurement determines the conformance of materials, supplies, components, parts, appurtenances, systems, processes, or structures to predetermined quality requirements.

Installed Compliance Instrumentation and Control (I&C) Devices

Process instruments which are used to determine or verify compliance with plant technical specification requirements for parameters such as flows, pressures, temperatures, levels, voltages, and currents.

Item

Any level of unit assembly, including structure, system, subsystem, subassembly, component, part, or material.

Line Verification

A routine verification by a qualified individual who is in the work-performing organization who did not perform the work to be verified. Examples: second-party verification where a participating craftsman verifies that work and/or testing has been accomplished; foreman signoff on a maintenance request to document that the craftsman has successfully completed his work.

15.0 (continued)

Measuring and Test Equipment (M&TE)

Equipment or devices used to calibrate, measure, gauge, examine, compare, test, inspect, monitor, or control in order to acquire data to determine compliance with design, specification, licensing, or other established requirements. M&TE includes both laboratory and portable instruments, gauges, tools, fixtures, test or analytical test stands, reference and transfer standards, nondestructive examination equipment, etc., where data obtained will be used to determine acceptability or be the basis for design or engineering evaluations.

Nonsafety-Related Anticipated Transient Without Scram (ATWS)

Special features that, as referenced in 10 CFR 50.62, fall into a category of items which could be related to an expected operational transient (such as loss of feedwater, loss of condenser vacuum, or loss of offsite power to the reactor) which is not accompanied by the reactor trip system shutting down the reactor.

Notification Point

A specific preestablished point within a selected activity where work may proceed after contacting and receiving concurrence from the organization responsible for the notification point.

Nuclear Plant Security

A program which provides controls to ensure continued operability of security equipment and the integrity of nuclear plant security. This includes prevention of sabotage, safeguard information and material, plant access, and physical security events.

Operational Phase

That period of time during which the principal activity is associated with normal operation of the plant. This phase of plant life is considered to begin formally with receipt of the operating license onsite and ends with commencement of plant decommissioning. In addition, there are certain preoperational activities (for example, testing, training, maintenance) proceduralized in accordance with operations NQAP requirements and initiated by the operations staff prior to receipt of the operating license which are considered to be operational phase activities at the time these activities begin.

Postmaintenance Tests

Testing performed after completion of maintenance to verify the operational/functional acceptability of components/systems upon completion of maintenance.

15.0 (continued)

Postmodification Tests

Tests performed after completion of a plant modification to demonstrate conformance with as-designed requirements and to determine the effect of the modification on the overall system.

Preoperational Tests

Tests identified in a facility's Safety Analysis Report and performed on any system or plant feature for the purpose of proving its ability to perform its designed function.

Procurement Documents

Contractually binding documents that identify and define the requirements that items or services must meet in order to be considered acceptable by the purchaser.

Programs

Programs which administer and control activities and associated features as identified in Section 5.1.B of this plan that require control based on regulatory requirements or TVA commitments.

Quality Assurance Records

Those records which furnish documentary evidence of the quality of items and of activities affecting quality. A document is considered to be a QA record when the document has been completed.

Quality-Related

Quality-related is a term which encompasses quality assurance program requirements that describe activities which affect structures, systems, and components. These requirements provide reasonable assurance that the facility can be operated without undue risk to the health and safety of the public. In addition to safety-related structures, systems, components, and activities, the term "quality-related" encompasses the broad class of plant features covered (not necessarily explicitly) in the General Design Criteria of 10 CFR 50, Appendix A, that contribute in an important way to the safe operation and protection of the public in all phases and aspects of facility operation (i.e., normal operation and transient control as well as accident mitigation).

Radioactive Material Shipment

A program that provides controls for handling and/or shipping of radioactive material (NRC-licensed packages only).

15.0 (continued)

Radwaste Management Systems, Structures, and Components

Special features containing radioactive materials (i.e., liquids, gases, or solids) that, by design or operating practice, provide a means of processing prior to final disposition.

Reference Standards

Standards (primary, secondary, and working standards where appropriate) used in a calibration program. These standards establish the basic accuracy limits for the calibration program.

Safety-Related Structures, Systems, and Components

Those items that are necessary to ensure:

1. The integrity of the reactor coolant pressure boundary.

2. The capability to shutdown the reactor and maintain it in a safe condition.

3. The capability to prevent or mitigate the consequences of an incident which could result in potential offsite exposures comparable to those specified in 10 CFR 100.

Seismic Category I(L)

Special features that apply to nonsafety-related systems, structures, and components which provide structural integrity in preventing damage to a safety-related system, structure, and component in case of a failure and/or damage during a safe shutdown earthquake (SSE).

Significant Adverse Condition

A documented adverse condition that is determined to be a QA programmatic deficiency. Criteria for significance are specified in the corrective action program.

Special Nuclear Material Management

A program which provides for special nuclear material (SNM) control and accountability as required by 10 CFR 70, 74, and 75. This program includes SNM inventories and system reviews, inspections, records management, and DOE/NRC inventory and transfer reports.

Special Tests

A test that is (a) an engineering test including qualification testing for design verification or evaluation of components, structures, or systems, (b) a general test that is not specifically

15.0 (continued)

related to plant systems or features, such as the material testing and product testing that is normally performed by a testing lab, or (c) tests or experiments not described in the facilities Safety Analysis Report which may affect the operation of systems described therein (reference 10 CFR 50.59).

Startup Tests

Those tests as identified in the Final Safety Analysis Report that commence after receipt of an operating license allowing fuel loading and testing at ranges through zero power, power escalation, and 100% warranty run. Startup tests prove that the unit has been properly designed and constructed and will meet all licensing requirements and specific contractual criteria.

*Storage

The act of holding items at the construction or operating Site in an area other than its permanent location in the plant.

Surveillance Tests

Periodic tests to verify that structures, systems, and components continue to function or are in a state of readiness to perform their functions.

Test Record Drawings

A set of as-constructed drawings which depict the configuration of a system as tested.

Test Scoping Documents

Documents which include descriptions of each test to be performed including safety precautions to be followed, specific identification of test objectives, the means of performing the test, prerequisites that must be completed, environmental conditions required for testing, justification for a proposed degree of simulation less than full simulation, and specific acceptance criteria or a description of the means of determining acceptance criteria from functional testing requirements.

Test Deficiency

Any condition during which the equipment or system being tested: (1) fails to operate (e.g., pump will not operate, no control room annunciation), (2) operates in a suspected adverse manner (e.g., motor operates but smokes, questionable vibration), or (3) operates outside limits of documented acceptance criteria (e.g., inadequate flow, slow valve closure time).

15.0 (continued)

Trend Analysis

Evaluation of data that has been compiled or grouped onto charts, diagrams, reports, or other formats such that the prevailing tendency of selected parameters can identify areas that need improving and areas of past successes.

*Verification

An act of confirming, substantiating, and ensuring that an activity or condition has been implemented and accomplished in conformance with specific requirements. This includes line verifications.

APPENDIX A

COMPARISON MATRIX OF QUALITY ASSURANCE PLAN REQUIREMENTS WITH THOSE OF 10 CFR 50, APPENDIX B, AND SELECTED ANSI STANDARDS

10 CFR 50, Appx B		ANSI N45.2 - 1971		ANSI N18.7 - 1976	
Criterion	NQA Plan	Section	NQA Plan	Section	NQA Plan
I	4.0;4.1	2.0	5.0	3.1	4.1;5.0
II	5.0	3.0	4.0;4.1	3.2	4.0;4.1
III	7.0	4.0	7.0	3.3	11.0
IV	8.1	5.0	8.1	3.4	4.0;11.0
V	6.0;7.0	6.0	6.0;7.0	4.0	5.3;6.0
VI	6.0;7.0	7.0	6.0;7.0		7.2;12.0
VII	8.2	8.0	8.2	5.1	5.0
VIII	8.3	9.0	8.3	5.2.1	4.0
IX	9.3	10.0	9.3	5.2.2	6.0
X	9.1	11.0	9.1	5.2.3	6.0
XI	9.4	12.0	9.4	5.2.4	6.0
XII	9.5	13.0	9.5	5.2.5	6.0
XIII	9.6	14.0	9.6	5.2.6	6.0;9.7
XIV	9.7	15.0	9.7	5.2.7	6.0;9.8
XV	10.0	16.0	10.0	5.2.8	6.0;9.1;9.4
XVI	10.0	17.0	10.0	5.2.9	5.1;6.0
XVII	6.3	18.0	6.3	5.2.10	4.1.2;6.0
XVIII	12.0	19.0	12.0	5.2.11	6.0;10.0
				5.2.12	6.0;6.3
				5.2.13	6.0;8.0;9.6
				5.2.14	6.0;10.0
				5.2.15	6.0
				5.2.16	6.0;9.5
				5.2.17	6.0;9.1
				5.2.18	6.0;9.3
				5.2.19	6.0;9.4
				5.3	6.0
				5.3.1	6.0
				5.3.2	6.0
				5.3.3	6.0
				5.3.4	6.0
				5.3.5	6.0;9.8
				5.3.6	6.0;5.1
				5.3.7	6.0;9.5
				5.3.8	6.0;5.1
				5.3.9	6.0;5.1
				5.3.10	6.0;9.1;9.4

APPENDIX B
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Table 1
REGULATORY GUIDE CONFORMANCE STATUS

Table 1 (pages 1 through 8) is a matrix of the source requirement documents (e.g. Regulatory Guides and ANSI Standards) which apply to applicable portions of the NQA Plan. Table 1 specifies the particular sections of the source documents (e.g. ANSI N18.7, Section 5.2.12) that establish mandatory controls which must be addressed in the development of the associated implemented programs and procedures.

Table 2 (pages 9 through 20) identifies alternatives to sections of the source requirement documents listed in table 1.

TABLE 1

SOURCE REQUIREMENT DOCUMENT / NQA PLAN SECTION	6.1.4 Procedures and Instructions	6.2.4 Document Control	6.3.4 QA Records	7.4 Design Control	8.1.4 Procurement Document Control	8.2.4 Control of Purchased Material, Equipment, and Services	8.3.4 Identification and Control of Materials, Parts, and Components	9.1.4 Inspection and Line Verification	9.3.4 Control of Special Processes	9.4.4 Test Control	9.5.4 Control of M&TE and Installed Safety-Related I&C Devices	9.6.4 Handling, Storage, and Shipping	9.7.4 Inspection, Test, and Operating Status	9.8.4 Control of Maintenance	10.4 Adverse Conditions	11.4 Indoctrination, Training, Qualification, and Certification	12.4 Auditing	13.4 Computer Software and Data	15.0 Definitions	
Reg. Guide 1.8 R/2 April 1987 ANSI N18.1 – 1971, and ANSI/ANS 3.1–1981, "Personnel Selection & Training"																X				
Reg. Guide 1.33 R/2 February 1978 ANSI N18.7 – 1976/ANS–3.2, "Administrative Controls and Quality Assurance for the Operational Phase of Nuclear Power Plants"	X Sect. 5	X Sect. 5.2.15	X Sect. 5.2.12	X Sect. 5.2.7.2	X Sects. 5.2.13 5.2.13.1	X Sect. 5.2.13.2	X Sect. 5.2.13.3	X Sects. 5.2.8 5.2.17	X Sects. 5.2.12 5.2.10	X Sects. 5.2.8 5.2.10	X Sect. 5.2.10	X Sect. 5.2.13.4	X Sects. 5.2.6 5.2.8 5.2.14	X Sects. 5.2.7 5.3.5	X Sects. 5.2.11 5.2.14	X Sect. 3.3	X Sect. 4.5			
Reg. Guide 1.28 R/3 August 1985 ANSI N45.2 – 1971, "Quality Assurance Program Requirements for Nuclear Power Plants"	X Sect. 6	X Sect. 7	X Sect. 18	X Sect. 4	X Sect. 5	X Sect. 8	X Sect. 9	X Sect. 11	X Sect. 10	X Sect. 12	X Sect. 13	X Sect. 14	X Sect. 15		X Sects. 16, 17	X Sect. 2	X Sect. 10			
Reg. Guide 1.37 R/0 March 16, 1973 ANSI N45.2.1 – 1973, "Cleaning of Fluid Systems and Associated Components During Construction Phase of Nucear Power Plants"	X Sects. 2.1, 2.2		X Sect. 9					X	X Sect. 2.5	X	X Sect. 2.5	X								

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Table 1
REGULATORY GUIDE CONFORMANCE STATUS

TABLE 1

SOURCE REQUIREMENT DOCUMENT / NQA PLAN SECTION	6.1.4 Procedures and Instructions	6.2.4 Document Control	6.3.4 QA Records	7.4 Design Control	8.1.4 Procurement Document Control	8.2.4 Control of Purchased Material, Equipment, and Services	8.3.4 Identification and Control of Materials, Parts, and Components	9.1.4 Inspection and Line Verification	9.3.4 Control of Special Processes	9.4.4 Test Control	9.5.4 Control of M&TE and Installed Safety-Related I&C Devices	9.8.4 Handling, Storage, and Shipping	9.7.4 Inspection, Test, and Operating Status	9.8.4 Control of Maintenance	10.4 Adverse Conditions	11.4 Indoctrination, Training, Qualification, and Certification	12.4 Auditing	13.4 Computer Software and Data	15.0 Deficiencies
Reg. Guide 1.38 R/2 May 1977 ANSI N45.2.2 – 1972, "Packaging, Shipping, Receiving, Storage, and Handling of Items for Nuclear Power Plants (During the Construction Phase)"	X Sects. 2.1, 2.2		X Sect. 6			X Sect. 5	X	X Sects. 5.2, 7.4		X Sects. 2.3, 2.5	X Sect. 2.5	X		X Sect. 6					
Reg. Guide 1.39 R/2 September 1977 ANSI N45.2.3 – 1973, "Housekeeping During the Construction Phase of Nuclear Power Plants"	X Sects. 2.1, 2.2		X Sect. 4					X				X Sect. 3.3							
Reg. Guide 1.30 R/0 August 11, 1972 ANSI N45.2.4 – 1972, "Installation, Inspection, and Testing Requirements for Instrumentation and Electric Equipment During the Construction of Nuclear Power Generating Stations"	X Sects. 2.1, 2.3	X Sect. 2.3	X Sect. 6			X Sect. 2.2	X	X Sects. 2.4, 5.1, 6.1, 7.0		X	X Sect. 2.5	X Sect. 2.3	X						

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Table 1
REGULATORY GUIDE CONFORMANCE STATUS

TABLE 1

SOURCE REQUIREMENT DOCUMENT / NQA PLAN SECTION	6.1.4 Procedures and Instructions	6.2.4 Document Control	6.5.4 QA Records	7.4 Design Control	8.1.4 Procurement Document Control	8.2.4 Control of Purchased Material, Equipment, and Services	8.3.4 Identification and Control of Materials, Parts, and Components	9.1.4 Inspection and Life Verification	9.3.4 Control of Special Processes	9.4.4 Test Control	9.5.4 Control of M&TE and Installed Safety-Related I&C Devices	9.8.4 Handling, Storage, and Shipping	9.7.4 Inspection, Test, and Operating Status	9.8.4 Control of Maintenance	10.4 Adverse Conditions	11.4 Indoctrination, Training, Qualification, and Certification	12.4 Auditing	13.4 Computer Software and Data	15.0 Deficiencies
Reg. Guide 1.94 R/1 April 1976 ANSI N45.2.5 – 1974, "Supplementary Quality Assurance Requirements for Installation, Inspection, and Testing of Structural Concrete and Structural Steel During the Construction Phase of Nuclear Power Plants"	X Sects. 2.1, 2.2	X Sect. 2.2	X Sect. 7			X Sect. 7		X Sects. 2.3, 4, 5, 6		X	X Sect. 2.5	X	X	Sects. 3, 4, 5					
Reg. Guide 1.58 R/1 September 1980 ANSI/ASME N45.2.6 – 1978, "Qualifications of Inspection, Examination, and Testing Personnel for Nuclear Power Plants"			X Sect. 6				X	X								X			
Reg. Guide 1.116 R/0 – R, June 1976 ANSI N45.2.8 – 1975, "Supplementary Quality Assurance Requirements for Installation, Inspection, and Testing of Mechanical Equipment and Systems for the Construction Phase of Nuclear Power Plants"	X Sects. 2.1, 2.2	X Sect. 2.2	X Sect. 7			X Sect. 7	X	X Sects. 2.3, 4, 5		X	X Sect. 2.6	X Sect. 2.5	X Sects. 4.2, 5.1	X Sects. 3.1, 3.5, 4.4, 4.5, 8.C					

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Reg. Guide 1.88 R/2 October 1976 ANSI N45.2.9 – 1974, "Requirements for Collection, Storage, and Maintenance of Quality Assurance Records for Nuclear Power Plants"	X		X		X Sects. 4.2, 6.2, 7.2														
Reg. Guide 1.74 February 1974 ANSI N45.2.10 – 1973, "Quality Assurance Terms and Definitions"																		X	
Reg. Guide 1.64 R/2 June 1976 ANSI N45.2.11 – 1974, "Quality Assurance Requirements for the Design of Nuclear Power Plants"	X Sects. 2.2, 7			X													X Sect. 11	X Sect. 6.1	
Reg. Guide 1.144 R/1 September 1980 ANSI N45.2.12 – 1977, "Requirements for Auditing of Quality Assurance Programs for Nuclear Power Plants"																	X		

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Reg Guide 1.123 R/1 July 1977 ANSI N45.2.13 – 1976, "Quality Requirements for Control of Procurement of Items and Services for Nuclear Power Plants"	X Sect 2		X Sect 11		X Sect 3.0	X		X Sects. 7, 10			X Sect. 7.4								
Reg Guide 1.146 R/0 August 1980 ANSI N45.2.23 – 1978, "Qualification of Quality Assurance Program Audit Personnel for Nuclear Power Plants"																X	X		
Reg Guide 1.152 November 1985 ANS/IEEE – ANS-7-4.3.2 – 1982, "Application Criteria for Programmable Digital Computer Systems in Safety Systems of Nuclear Power Generating Stations"			X Sects. 6, 7																

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10CFR21						X								X					
10CFR50 Appendix B	X Crit. V	X Crit. V	X Crit. XVII	X Crit. III	X Crit. IV	X Crit. VII	X Crit. VIII	X Crit. X	X Crit. IX	X Crit. XI	X Crit. XII	X Crit. XIII	X Crit. XIV		X Crit. XV,XVI	X Crit. II	X Crit. XVIII	X	
10CFR50.49				X	X									X					
10CFR50.55a				X															
10CFR50.55a															X				
10CFR50.59				37											X				
10CFR50.72															X				
10CFR50.73															X				
10CFR50.120																X			
10CFR73.71															X				

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ASME Sect III Div. 1, Art. NCA 4000, "Quality Assurance"	X	X	X	X	X	X	X	X	X		X	X	X	X	X	X	X		
ASME Sect V, "Nondestructive Examination"									X										
ASME Sect IX, "Welding and Brazing Qualifications"									X										
ASME Sect XI, "Rules for Inservice Inspection of Nuclear Power Plants"				X				X	X	X			X		X				
AWS, "Structural Welding Code D1.1"									X										
AISC, "Specification for the Design, Fabrication, and Erection of Structural Steel for Buildings"									X										

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ASNT SNT-TC-1A-1984, "Personnel Qualification and Certification in Nondestructive Testing"									X										
Plant Technical Specifications (Administrative Controls Section)	X																		
NUTAC Report on Generic Letter 83-28, "Required Actions Based on Generic Implications of Salem ATWS Events," Section 2.2.2 (letter from L.M. Mills to H.R. Denton dated September 17, 1984).			X										X		X		X		

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NRC Regulatory Guide 1.8 - "Personnel Selection and Training," Revision 2, 4/87, endorses ANSI N18.1-1971 and ANSI/ANS 3.1-1981.

The Nuclear Quality Assurance Program (NQAP) follows this Guide with the following alternatives:

1. TVA will meet the requirements of Regulatory Guide 1.8, Revision 2 (4/87) for all new personnel qualifying on positions identified in regulatory position C.1 after January 1, 1990. Personnel qualified on these positions prior to this date will still meet the requirements of Regulatory Guide 1.8, Revision 1-R (5/77). As specified in regulatory position C.2, all other positions will meet the requirements of ANSI/ANS N18.1-1971.

2. Section 4.3.2 - There may be occasions where TVA will utilize a composite crew (multidiscipline) during operations phase activities to efficiently perform a task. As such, a foreman may not have the experience required in one of the disciplines he supervises. In these instances, the foreman will meet the requirements of ANSI N18.1 in at least one of the disciplines, and additional technical support, procedure support, and/or discipline support will be available to the foreman for the task period.

3. In lieu of the training guidelines endorsed by Regulatory Guide 1.8, Revision 2, specified in Regulatory Position sections C.1.b and C.1.f, TVA shall comply with the requirements of 10 CFR 55.31(a) (4) and 10 CFR 55.59 as they apply to training programs based on a Systems Approach to Training (SAT) as defined in 10 CFR 55.4 and using a plant-referenced simulator as required by 10 CFR 55.45.

4. TVA uses the methodology for equating education and experience contained in ANSI 3.1-1987 for guidance to evaluate equivalent related experience for a degree.

5. In addition to the training guidelines in subsections 5.3.2, 5.3.3, 5.3.4, and 5.5 of ANSI N18.1-1971, TVA shall comply with the requirements of 10 CFR 50.120 as it applies to training programs based on a systems approach to training.

NRC Regulatory Guide 1.28 - "Quality Assurance Program Requirements (Design and Construction)," Revision 3, 8/85, allows continued implementation of ANSI N45.2-1971 as previously committed.

The NQAP follows this Guide.

NRC Regulatory Guide 1.30 - "Quality Assurance Requirements for the Installation, Inspection, and Testing of Instrumentation and Electric Equipment," 8/72, endorses ANSI N45.2.4-1972.

The NQAP follows this Guide with the following alternatives:

1. ANSI N45.2.4 states that the Appendixes are not a part of the standard, therefore, TVA does not consider the Appendixes to be mandatory.

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2. Section 2.1, "Planning" - The intent of this section shall be met in different forms depending on magnitude and scope of work.

3. During the operational phase, tests are performed as determined by the site engineering organization, modification, or maintenance engineers, as appropriate, based upon the equipment or system functions that could be impacted by the work performed.

4. TVA's alternative to the tagging of in-plant process instruments for calibration status (ANSI N45.2.4, Section 6.2.1) is that each item of process control instrumentation is uniquely identified with an instrument number. This number is utilized in an instrument maintenance record so that the current calibration status and data attesting to the status of each item are documented along with the identification of the person performing the calibration. In addition, this record system provides a mechanism for evaluating equipment performance and adjusting calibration frequencies to ensure quality performance.

5. Section 6.2.2 - For modifications, TVA interprets this section as not requiring that an entire system be retested after modifications. Testing will be performed on equipment that has or could be impacted by the modification in accordance with applicable design and testing requirements to verify that operability requirements are met and that interfacing components and equipment functions have not been degraded.

6. TVA implements the requirements of N45.2.4 Sections 5.1 and 6.1 with a performance-based graded QA verification program consisting of quality control inspection, line verification, and quality assessments.

NRC Regulatory Guide 1.33 - "Quality Assurance Program Requirements (Operations)," Revision 2, 2/78 endorses ANSI N18.7-1976/ANS 3.2.

The NQAP follows this Guide with the following alternatives:

1. ANSI N18.7-1976 references certain other standards to which TVA takes exception. TVA's exception and appropriate alternatives to the other standards are listed in this Appendix in the appropriate location.

2. Section 5.2.2 - The guidelines of this section are accepted with the following interpretations:

   a. Temporary changes which clearly do not change the intent of the approved procedure shall as a minimum be approved by two members of the plant management staff, at least one of whom holds a Senior Reactor Operator License on the unit affected or as defined in Technical Specifications, FSAR, or appropriate plant procedures.

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b. For facilities holding a construction permit where system(s) and/or components have been released to the operations organization, temporary changes to procedures, as described above, shall as a minimum be approved by two members of the plant management staff, at least one of whom shall be a designated member of the plant operations management staff.

3. Section 5.2.13.1 - The statement that changes made to procurement documents be subject to the same degree of control as was used in the preparation of the original documents is applied consistent with the requirements of ANSI N45.2.11, paragraph 7.2. Minor changes to documents, such as inconsequential editorial corrections or changes to commercial terms and conditions, may not require that the revised document receive the same review and approval as the original documents.

4. Section 5.2.15 - The guidelines of this section are accepted with the following alternatives:

   a. Minor changes to documents are processed as delineated in Section 6.1.2.F3 of this plan.

   b. TVA has programmatic controls in place that make a biennial review process unnecessarily duplicative. These programmatic controls ensure procedures are periodically reviewed and maintained current when pertinent source material is revised; the plant design changes; and/or any deficiencies occur. TVA has determined that this approach better addresses the purpose of the biennial review process and that, from a technical and practical standpoint, is better suited to ensure the validity of operational phase site procedures and instructions.

5. Section 5.2.17 - The statement that deviations, their cause, and any corrective action completed or planned shall be documented will apply to significant deviations. Other identified deviations will be documented and corrected. This interpretation is consistent with Appendix B to 10 CFR 50, Criterion XVI, "Corrective Action."

6. TVA will comply with regulatory position C.4 except that audit frequencies are specified in NQA Plan Section 12.2.E.2.

NRC Regulatory Guide 1.37 - "Quality Assurance Requirements for Cleaning of Fluid Systems and Associated Components of Water-Cooled Nuclear Power Plants," 3/73, endorses ANSI N45.2.1-1973.

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The NQAP follows this Guide with the following alternatives:

1. The phrase "when applicable" used in Regulatory Guide 1.37, paragraph C.2, leaves open to interpretations which specific requirements and recommendations contained in ANSI N45.2.1-1973 are applicable to and achievable during the construction or operation phase. The interpretation of "when applicable" will be made with appropriate concurrence in a written procedure before its application.

2. The second sentence of paragraph C.3 should be amended to read:

   "The water quality for final flushes of fluid systems and associated components during the operations phase shall be at least equivalent to the quality required for normal operation. This requirement does not apply to dissolved oxygen or nitrogen limits nor does it infer that other additives normally in the system water will be added to the flush water."

3. Temporary ink markings placed by the fabricator as mill marks may remain on components that operate at temperatures greater than 140°F (normal or accident) and have a 40-year integrated radiation dose less than 10^6 rads.

4. Control of halogen, sulfur, or low-melting metal contents is not required for abrasive tools such as grinding wheels, cutoff wheels, sanding paper, and flapper wheels. Use of abrasive tools on corrosion-resistant alloys shall be followed by cleaning with an approved solvent. Particulate residue shall be removed by vacuum, brush, dry wiping cloth, or air, with special attention to crevices.

5. Temporary tape and markings (ink and paint) may remain on components that operate at temperatures less than 140°F (normal or accident).

6. Section 2.1, "Planning - For operations phase activities, the required planning is frequently performed on a generic basis for application to many systems and component installations. This results in standard procedures for cleaning, inspection, and testing which meet the requirements of the standard. Individual plans for each item or system are not normally prepared unless the work operations are unique; however, standard procedures are reviewed for applicability in each case. Cleaning procedures are limited in scope to those actions or activities which are essential to maintain or achieve required quality. This is consistent with Section 5.2.17, paragraph 5, of ANSI N18.7-1976, which provides for examination, measurement, or testing to ensure quality or indirect control by monitoring of processing methods.

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7. TVA intends to conform to the cleanness requirements of Section 3.1 of ANSI N45.2.1-1973 with the exception of permissible particle sizes for cleanness Classes B and D. In these cases, TVA will conform to the requirements of ANSI N45.2.1-1980, Section 3.2.2.1(b), which states, "There shall be no particles larger than 1/32 inches by 1/16 inches long (0.8 mm by 1.6 mm)" for cleanness Class B, and Section 3.2.4.4 which states, "Particles no larger than 1/16 inch by 1/8 inch long (1.6 mm by 3.2 mm) on a 14-mesh (1.4 mm, ASTM E-11, "Specification for Wire Cloth Sieves for Testing Purposes) or finer filter, or the equivalent" for cleanness Class D.

NRC Regulatory Guide 1.38 - "Quality Assurance Requirements for Packaging, Shipping, Receiving, Storage, and Handling of Items for Water-Cooled Nuclear Power Plants," Revision 2, 5/77 endorses ANSI N45.2.2-1972.

The NQAP follows this Guide with the following alternatives:

1. Storage requirements at the site are determined by the responsible engineering unit. This determination involves an evaluation of the complexity of the item and its importance to safety. The various types of storage are provided (yard, warehouse, humidity controlled, etc.) but the classification levels of N45.2.2 are not necessarily employed.

2. In accordance with ASME QA Case 78-N45.2.2-01-0, welding electrodes hermetically sealed in metal containers may be stored under conditions described for level C items unless other storage requirements are specified by the manufacturer. Storage conditions for level C items may also apply to bare wire and consumable inserts unless specified otherwise by the manufacturer.

3. Austenitic stainless steel and nickel alloy items may have markings applied directly to the bare metal surfaces provided the requirements of TVA internal procedures, which control the chemical content of the marking materials, are met.

4. Tubing and piping materials shall have end caps or plugs while in storage unless specified otherwise by engineering specification. End caps or plugs are not mandatory on tube or pipe fittings provided the requirements of TVA internal procedures to store under cover with protection from the elements are met. These materials are required to be in a visually clean condition and free of visually detectable defects prior to installation.

5. Section 6.4.1 - TVA will meet this section through periodic inspection of randomly selected stored items by QC inspection personnel certified to ANSI N45.2.6. The criteria and factors regarding frequency and degree are established in Section 5.2A and B of this plan.

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6. TVA takes exception to ANSI N45.2.2, Section 5.2.1. TVA's alternative is that shipping damage inspection shall be done before unloading if evidence of possible shipping damage would be lost in unloading, such as when the item is secured to the carrier, covered by tarpaulin, accompanied by a visible impact recorder, or when the contract requires any of the above. Personnel performing preliminary visual observations (prior to unloading) per Section 5.2.1 need not be qualified to ANSI N45.2.6. Item inspections per Section 5.2.2 are performed by personnel qualified to ANSI N45.2.6. The item inspections also ensure that no damage has occurred during shipping.

7. Section 6.4.2(8) - TVA will follow either vendor recommendations for preventive maintenance, an engineering evaluation, or engineering requirements documents delineating appropriate maintenance requirements, for items in storage. Engineering evaluations and engineering requirement documents will consider vendor recommendations.

8. Section 6.5 (last sentence) - During a period of installed storage or extended layup after release of an item from permanent storage, vendor recommendations for preventive maintenance, or a [illegible]ng evaluation or an engineering requirements document delineat[illegible]ate maintenance requirements will be followed. Engineering evaluations and engineering requirement documents will consider vendor recommendations.

9. TVA's alternative to the requirements of Section 6.6 of ANSI N45.2.2 is that Site Materials and Procurement will maintain written records of pertinent information such as storage location and receipt inspection results and will take necessary action to provide packaging for items not suitably packaged for storage. Written records of personnel access to Nuclear Stores are kept for entry during times when Nuclear Stores personnel are not on duty. All other times, the storeroom is locked and admittance is controlled by stores personnel.

10. TVA does not utilize specific levels for classification of items (ANSI N45.2.2, Section 2.7); however, the specific requirements identified in the Standard are used as a guide with respect to protecting the equipment.

11. TVA does not utilize specific levels for packaging (ANSI N45.2.2, Section 3.2). All purchased items have been properly packaged. Additionally, periodic storage inspections are conducted to ensure protective measures specified in the Standard to prevent damage or deterioration are complied with and are imposed until the item or component is issued for use. Purchased items undergo receiving inspection using the graded approach. This inspection verifies that items have been properly packaged for shipment and will ensure that any special protective measures specified in the Standard to prevent damage, deterioration, or contamination will be imposed until the item or component is issued for use.

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12. TVA takes exception to the requirement (ANSI N45.2.2, Section 6.2.4) that salt-tablet dispensers in any storage area shall not be permitted. TVA Site Materials and Procurement stores salt-tablet dispensers in sealed containers for use outside of the storage area only.

13. Sections 7.3.2 and 7.4.2 - Use of hoisting equipment beyond its rated load is acceptable when specifically approved with technical justification by engineering.

14. Section 5.2.2(1) Physical Properties - QC Inspectors, Engineers, or other technically competent individuals assure that physical properties conform to specified requirements and that chemical and physical test reports meet the requirements.

NRC Regulatory Guide 1.39 - "Housekeeping Requirements for Water-Cooled Nuclear Power Plants," Revision 2, 9/77 endorses ANSI N45.2.3-1973.

The NQAP follows this Guide with the following alternative:

The zone designations of Section 2.1 of N45.2.3 and the requirements associated with each zone are not consistent with the requirements for an operating plant. Instead, TVAN procedures or instructions for housekeeping activities which include the applicable requirements outlined in Section 2.1 of N45.2.3 and which take into account radiation control considerations, security considerations, fire protection considerations, and personnel and equipment safety considerations are developed on a case basis.

NRC Regulatory Guide 1.58 - "Qualification of Nuclear Power Plant Inspection, Examination and Testing Personnel," Revision 1, 9/80 endorses ANSI N45.2.6-1978.

The NQAP follows this Guide with the following alternatives:

1. TVA complies with Regulatory Position C.1 of this Regulatory Guide, as follows:

   - Construction testing personnel are qualified to Regulatory Guide 1.28 (ANSI N45.2).

   - Operations, maintenance, and modification testing personnel are qualified to Regulatory Guide 1.8 (ANSI N18.1) as endorsed in Appendix B of this plan.

   - Quality control inspection personnel are qualified to ANSI N45.2.6.

2. Certifications may not correspond to the levels established in N45.2.6. Inspection, examination, and testing personnel may be classified by disciplines (mechanical, civil, electrical, instrumentation, hanger, etc.) and certified by procedure to perform the functions identified in N45.2.6, Tables I, L-I, and L-II.

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3. Medical eye examinations for inspection, testing, and examination personnel are made in accordance with TVA eye examination requirements.

4. ASNT recommended practice SNT-TC-1A-1984 will be used to qualify and certify nondestructive examination personnel after February 26, 1990. Personnel qualified prior to this date will still meet the requirements of SNT-TC-1A-1980. In ASME Section XI applications, SNT-TC-1A as modified by ASME Section XI will be used.

5. TVA complies with Regulatory Position C.2 as follows: For containment leak rate testing personnel, TVA as a minimum will meet the qualification requirements of ANSI N45.2.6.

NRC Regulatory Guide 1.64 - "Quality Assurance Requirements for the Design of Nuclear Power Plants," Revision 2, 6/76, endorses ANSI N45.2.11-1974.

The Nuclear Quality Assurance Plan follows this Guide with the following alternative to Regulatory Position C.2:

If in an exceptional circumstance, the engineer's supervisor is the only person technically qualified to perform the review, the design verification review will be conducted by the supervisor, provided that:

1. The other provisions of this Regulatory Guide and ANSI N45.2.11, Section 6.1 are satisfied.

2. The justification is individually documented and approved in advance by the supervisor's management.

3. NA&L will audit the use of supervisors as design verifiers to guard against abuse.

NRC Regulatory Guide 1.74 - "Quality Assurance Terms and Definitions," 2/74, endorses ANSI N45.2.10-1973.

The NQAP follows this Guide with applicable alternatives noted in Section 15 of this plan.

NRC Regulatory Guide 1.88 - "Collection, Storage, and Maintenance of Nuclear Power Plant Quality Assurance Records," Revision 2, 10/76, endorses ANSI N45.2.9-1974.

The NQAP follows this guide with the following alternatives:

Section 2.2.1 - TVA may also define lifetime QA records to be "life of the nuclear liability policy, plus the subsequent 10 years during which claims may be covered by the policy." This definition is consistent with ANI/MAELU Information Bulletin 80-1A, Revision 2, and the requirements of our nuclear insurer.

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Section 5.4.3 - In order to preclude deterioration, manufacturer's packaging and storage recommendations for special process records will be considered.

Section 5.6 - TVA will provide two-hour minimum fire-rated protection for QA records and utilize one of the following alternatives as single storage facilities:

1. A fire-resistive vault or file room that meets the applicable requirements of ANSI N45.2.9-1974 with the following exceptions:

   a. Records will be afforded the protection of a two-hour rated facility.

   b. Records will be stored in fully enclosed cabinets.

   c. Structure, doors, frames, and hardware shall be designed to fully comply with a minimum two-hour rating.

   d. Pipes or penetrations will be allowed for fire protection, lighting, temperature, humidity control, or communications.

   e. Work not directly associated with records storage or retrieval will be prohibited in the facility.

   f. Smoking and eating/drinking will be prohibited throughout the records facility.

2. One-hour fire-rated cabinets if the following conditions are met:

   a. The records are recreatable, OR

   b. Are contained within a facility of fire-resistive construction with adequate smoke detection or fire-suppression systems: OR

   c. Are within a facility with a fuel loading less than 25 pounds/square foot as defined by NFPA 232-1980.

QA records may be temporarily stored for 60 days or less in steel file cabinets or drawers if the following conditions are met:

1. The records are recreatable, OR

2. Are contained within a facility of fire-resistive construction with adequate smoke detection or fire-suppression systems: OR

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3. Are within a facility with a fuel loading less than 25 pounds/square foot as defined by NFPA 232-1980.

For storage of film and other processed records, humidity and temperature controls shall be provided to maintain a stable environment. Recommendations by the manufacturer will be considered in determining an acceptable range of tolerance.

NRC Regulatory Guide 1.94 - "Quality Assurance Requirements for Installation, Inspection, and Testing of Structural Concrete and Structural Steel During the Construction Phase of Nuclear Power Plants," Revision 1, 4/76, endorses ANSI N45.2.5-1974.

The NQAP follows this Guide with the following alternatives:

1. The qualification requirements for quality control (QC) inspectors are stated in our position on Regulatory Guide 1.58 in this table.

2. Testing frequency and QC acceptance criteria for concrete construction is described in the Safety Analysis Report for each plant.

3. Burning of bolt holes is acceptable when specifically approved by engineering.

4. The installation method for high strength bolting may be either the automatic cutoff impact wrench method, turn-of-nut method, or direct tension indicator method.

5. Torque wrench inspection of completed connections installed by the turn-of-nut method shall not be required but may serve to resolve disagreements concerning the results of inspection of bolt tension.

6. Torque wrench inspection of the load indicator washer type of direct tension indicator shall not be required.

7. Bolts shall be considered long enough if the bolt point is flush with or outside the face of the nut.

8. When specified by the design output document, TVA's alternative for visual welding acceptance criteria will be NCIG-01, May 7, 1985, Revision 2, "Visual Weld Acceptance Criteria for Structural Welding of Nuclear Power Plants."

9. For modifications or repairs to structures within the scope of N45.2.5-1974, plant management shall refer to the Site Engineering organization for any design analyses.

10. Verification of preweld activities, including fit-up, will be verified through a graded QC inspection program, unless 100 percent inspection is specified in design output documents.

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Table 2
REGULATORY GUIDE CONFORMANCE STATUS

11. Much of N45.2.5 applies to construction and preoperational testing. As a result, many of the listed tests are not appropriate in an operational plant. In lieu of this, TVA utilizes the appropriate engineering organizations to establish the need for specific tests or test procedures during the operational phase, and the guidance provided in ANSI N45.2.5-1974 is considered for applicability.

12. TVA implements the requirements of N45.2.5 Sections 3, 4, and 5 with a performance-based graded QA verification program consisting of quality control inspection, line verification, and quality assessments.

NRC Regulatory Guide 1.116 - "Quality Assurance Requirements for the Installation, Inspection, and Testing of Mechanical Equipment and Systems," 6/76, endorses ANSI N45.2.8-1975.

The NQAP follows this Guide with the following alternatives:

1. QA programmatic/administrative requirements included in the Regulatory Guide shall apply to construction, maintenance, and modification activities. Technical requirements associated with maintenance and modifications shall be the original requirements or better (e.g., code requirements, material properties, design margins, manufacturing processes, and types of inspection requirements).

2. Much of N45.2.8 applies to construction and preoperational testing. As a result, many of the listed tests are not appropriate in an operational plant. In lieu of this, TVA utilizes the appropriate engineering organizations to establish the need for specific tests or test procedures during the operational phase and the guidance provided in ANSI N45.2.8-1975 is considered for applicability.

3. TVA implements the requirements of N45.2.8 Sections 4.4 and 5.1 with a performance-based, graded QA verification program consisting of quality control inspection, line verification, and quality assessments.

NRC Regulatory Guide 1.123 - "Quality Assurance Requirements for Control of Procurement of Items and Services for Nuclear Power Plants," Revision 1, 7/77, endorses ANSI N45.2.13-1976.

The NQAP follows this Guide with the following alternative:

Section 4.2 - In the special case of "commercial grade items: the supplier may not be evaluated by one of the methods identified; however, the procurement documents shall contain acceptance requirements (special receipt inspection requirements, special tests, or functional tests) specific to the item being procured. The acceptance (dedication) of commercial grade items intended for safety-related applications meets the intent of EPRI NP-5652 as accepted by the NRC.

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Table 2
REGULATORY GUIDE CONFORMANCE STATUS

NRC Regulatory Guide 1.144 - "Auditing of Quality Assurance Programs for Nuclear Power Plants," Revision 1, 9/80, endorses ANSI N45.2.12-1977.

The NQAP follows this Guide with the following alternatives:

1. Paragraph 2.3 - Technical specialists who assist in performing audits in their area of special expertise will perform their audit duties under the supervision of a certified lead auditor.

2. TVA implements the requirements of Regulatory Guide paragraph C.3.a and Sections 3.4 and 3.5 of ANSI N45.2.12 with a performance-based, graded QA audit program. Real time adjustments are made to the audit scope, depth, and frequency based on an item's or subject's importance to safety and performance history. Real-time adjustments allow emphasis to be placed in areas where performance is weak and decrease emphasis where performance is evaluated to be good.

3. Section 4.5.2 - NA&L will have a certified lead auditor or a manager of the auditor either conduct the required follow-up or attest to the acceptability of the follow-up conducted by audit personnel.

NRC Regulatory Guide 1.146 - "Qualification of Quality Assurance Program Audit Personnel for Nuclear Power Plants," 8/80, endorses ANSI N45.2.23-1978.

The NQAP follows this Guide with the following alternative:

In addition to the State agencies and technical societies recognized by ANSI N45.2.23, Section 2.3.1.3, TVA may grant two points for professional competency to those individuals licensed as either a Reactor Operator (RO) or Senior Reactor Operator (SRO) by the NRC.

NRC Regulatory Guide 1.152 - "Criteria For Programmable Digital Computer System Software in Safety-Related Systems of Nuclear Power Plants," November 1985, endorses ANSI/IEEE-ANS-7-4.3.2-1982.

The NQAP follows this Guide consistent with Section D of the Guide, with the following alternative:

> For programmable digital computer system software installed in safety-related protection systems, TVA will follow this guide for the verification and validation of program elements specified in Sections 13.2G and 13.2H of the Nuclear Quality Assurance Plan.

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GUIDELINES FOR DETERMINATION OF TVA IDENTIFIED QUALITY-RELATED CLASSIFICATIONS

1.0 INTRODUCTION

The guidelines for classifying components, systems, and activities as quality-related depend on the relationship of the terms quality-related and safety-related as discussed in 2.0 and 3.0 below. The guidelines are contained in Section 4.0 of this Appendix.

2.0 QUALITY-RELATED

Quality-related (QR) is a term which encompasses quality assurance program requirements that describe activities which affect structures, systems, and components. These requirements provide reasonable assurance that the facility can be operated without undue risk to the health and safety of the public. In addition to safety-related structures, systems, components, and activities, the term "quality-related" encompasses the broad class of plant features covered (not necessarily explicitly) in the General Design Criteria of 10 CFR 50, Appendix A, that contribute in an important way to the safe operation and protection of the public in all phases and aspects of facility operation (i.e., normal operation and transient control as well as accident mitigation).

Quality-related is more encompassing than the term safety-related. Appendix D shows the scope of the NQAP. All quality-related items and activities are not necessarily safety-related. Appendix D illustrates the programmatic relationships.

3.0 SAFETY-RELATED

Use of the term safety-related (or variations thereof) and the methodology for classifying items and activities as safety-related has been established in the General Design Criteria and Safety Analysis Report for TVA's Browns Ferry, Sequoyah, Watts Bar, and Bellefonte Nuclear Plants. The term safety-related as used in this Appendix, this plan and in NQAP documents is generic in nature.

Items and activities classified as safety-related are subject, without exception, to the requirements of 10 CFR 50, Appendix B. All safety-related items and activities are also quality-related.

4.0 GUIDELINES

Some items and activities are classified as quality-related but not safety-related. However, because some items and activities classified as quality-related are considered important to the continued reliable operation of TVA's nuclear facilities, TVA shall apply the requirements of all or selected parts of the NQAP to such items and activities.

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Page 2 of 3

4.1 Structures, systems, and components shall be classified as quality-related but not safety-related if they fit one or more of the following categories:

A. Contain radioactive material and have not been identified as safety-related.

B. Are required by ANS 3.2/ANSI N18.7-1976, "Administrative Controls and Quality Assurance for the Operational Phase of Nuclear Power Plants," and are not identified as safety-related (e.g., plant security system).

C. Are fire protection features that provide protection for safety-related structures, systems, or components.

D. Are structures, systems, and components that have environmental or operability requirements important to the safe operation of the unit (as specified in the Plant Technical Specifications).

E. Are structures, systems, and components that could impact reliability and operability goals recommended by TVAN management and approved by the President, TVA Nuclear and Chief Nuclear Officer.

4.2 Some components and systems have been identified as "non-nuclear safety" (NNS) in TVA nuclear plant FSARs. Those components and systems identified as NNS in the FSARs shall be classified as quality-related.

4.3 Those components or systems designated as Seismic Category I(L) (Class II for BFN) in nuclear plant FSARs shall be classified as quality-related. Seismic Category I(L) is the nonsafety-related portion of Seismic Category I. (Refer to Appendix D.)

4.4 Additional components or systems, not identified in the FSARs as NNS or Seismic Category I(L,) can be designated as quality-related but not safety-related. Such additional components or systems could include the following:

A. Plant security system.

B. Plant radiological controls and radwaste systems.

C. Other structures, systems, and components which have special environmental or operability requirements.

D. Structures, systems, or equipment designated by TVAN management as requiring some level of quality control because of their importance to plant reliability or operability.

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4.5 Items to which one or more of the following regulatory documents are applicable should be considered for classification as quality-related.

A. Regulatory Guide 1.143, "Design Guidance for Radioactive Waste Management Systems, Structures, and Components Installed in Light-Water-Cooled Nuclear Power Plants."

B 10 CFR 71, Subpart H, "Quality Assurance (Packaging and Transportation of Radioactive Material)."

C. Regulatory Guide 1.29, "Seismic Design Classification."

D. 10 CFR 73.55, "Requirements for Physical Protection of Licensed Activities in Nuclear Power Reactors Against Radiological Sabotage."

E. 10 CFR 50.62, "Requirements for Reduction of Risk From Anticipated Transients Without Scram (ATWS) Events for Light-Water-Cooled Nuclear Power Plants."

F. 10 CFR 50, Appendix R, "Fire Protection Program for Nuclear Power Facilities Operating Prior to January 1, 1979."

G. ANS 3.2/ANSI N18.7-1976, "Administrative Controls and Quality Assurance for the Operational Phase of Nuclear Power Plants."

H. Regulatory Guide 1.33, Revision 2, February 1978, "Quality Assurance Program Requirements (Operation)."

I. NRC letter from H. J. Thompson, Jr., dated April 16, 1985, "Quality Assurance Guidance for ATWS Equipment That is Not Safety Related," Generic Letter 85-06, (A02 850422 044).

J. NRC letter from D. G. Eisenhut dated April 24, 1986, "Implementation of Fire Protection Requirements," Generic Letter 86-10 (A02 860512 005).

K. NUREG 0737, "Clarification of TMI Action Plan Requirements."

L. NUREG 0800, Section 9.5.1, Branch Technical Position, CMEB 9.5-1 (formerly BTP ASB 9.5-1), Revision 2, July 1981, "Fire Protection for Nuclear Power Plants."

4.6 New systems (or items being added as a result of approved modifications) shall be classified on the same basis as the existing components or systems.

4.7 Classification of components or systems as quality-related but not safety-related shall be performed in accordance with approved corporate or site engineering procedures or at TVAN management direction.

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SCOPE OF NUCLEAR QUALITY ASSURANCE PROGRAM

This diagram displays the relationship of safety-related to quality-related items and activities. Examples of these items and activities are shown. It is not intended to show each specific item and activity within the scope of the Nuclear QA Program.

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COMPUTER SOFTWARE

The requirements of Section 13.0 apply to application software which performs any of the following:

1. Directly operate safety-related plant equipment.

2. Generates design output affecting safety-related or quality-related functions, structures, systems, or components.

3. Used by control room personnel, without further verification, to make plant operating decisions affecting:

   a. The integrity of the reactor coolant pressure boundary.

   b. The capability to shutdown the reactor and maintain it in a safe condition.

   c. The capability to prevent or mitigate the consequences of accidents that could result in potential offsite exposure comparable to the 10 CFR 100 guidelines.

4. Perform calculations, the results of which are used, without further verification to operate, maintain, inspect, or test safety-related or quality-related structures, systems, and components.

5. Performs engineering calculations, the results of which are used, without further verification to support the design of safety-related and quality-related structures, systems, and components.

6. Generates output used to procure safety- or quality- related items.

7. Maintains, controls, or distributes information to be used without further verification in the procurement, design, operation, and maintenance of safety-related or quality-related structures, systems, and components.

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DEFERRED PLANT QUALITY ASSURANCE PROGRAM

During the period of plant deferral, a QA program will be implemented which concentrates on the activities being performed and ensuring that the quality and licensability of the deferred plant are maintained.

The program which will be implemented is based on the guidance provided in NRC Generic Letter 87-15 dated November 4, 1987, and the NRC Policy Statement on "Deferred Plants" published in the Federal Register, Volume 52, No. 198, dated October 14, 1987. This program does not reduce 10 CFR 50, Appendix B requirements but focuses efforts where they are deemed necessary. A description of this program was submitted to the NRC on July 29, 1988.

Program Implementation

During the period of plant deferral, implementation of the following QA programmatic elements will be accomplished through written, reviewed, and approved procedures. These procedures will include as a minimum:

1. A description of the organizational structure for the plant showing functional relationships of personnel.

2. An indoctrination and training program, including the qualifications, responsibilities, and duties of personnel performing quality-related activities. The range of training will be structured to that needed for ongoing activities during deferral.

3. A construction status when work was suspended, including control of deviations from the established status which occur during the deferral period.

4. Control of Measuring and Test Equipment (M&TE) used during deferral, including identification, calibration, and evaluation of out-of-calibration equipment.

5. Control of work, including verification by the line organizations.

6. Program for inspection by Quality Control/Quality Assurance personnel using a graded approach.

7. Program for operation of equipment and systems which continue in operation or must be operated periodically.

8. Program for maintenance and lay-up of systems including:

   a. Establishment of acceptable conditions, periodic testing, and restoration of acceptable conditions during lay-up.

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b. A listing identifying the location, storage level, and/or preventive maintenance requirement for all permanent plant equipment and materials important to safety.

9. Identification, reporting, and correction of adverse conditions, including 10 CFR 21 and 10 CFR 50.55(e) items.

10. Collection, retention, and protection of records, including procedures, drawings, and controlled documents.

11. Scheduling and performance of audits and assessments, concentrating on activities being performed and programs in place.

12. Program for plant security and access control.

13. Identification of the program for activities during the deferral that are associated with reactivation.

NA&L is responsible to ensure that the methods utilized by each organization responsible for the deferred QA program meet applicable QA program requirements.

Existing site procedures which are not being utilized during the period of deferral will be placed in an inactive status. Should an activity be required during deferral, the applicable procedure will be activated, reissued, and reviewed prior to the conduct of the activity.

At the end of the deferral period, the respective plant will be subject to the QA program described in this plan.

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TYPES OF CONTROLLED DOCUMENTS AND MANUALS

1. Design Specifications and Drawings
2. Safety Analysis Reports
3. Program Manuals
4. Plant Instructions
5. Nuclear Fuel Procedures Manual
6. Radiological Protection Plan
7. Nuclear Engineering Procedures Manual
8. Site Engineering Project Manuals
9. ASME Section III Quality Assurance Manual
10. Nuclear Procedures System Manuals
11. As-built Documents
12. Computer Programs
13. Nonconformance Reports
14. Nuclear Quality Assurance Plan
15. System Descriptions
16. Topical Report

APPENDIX H
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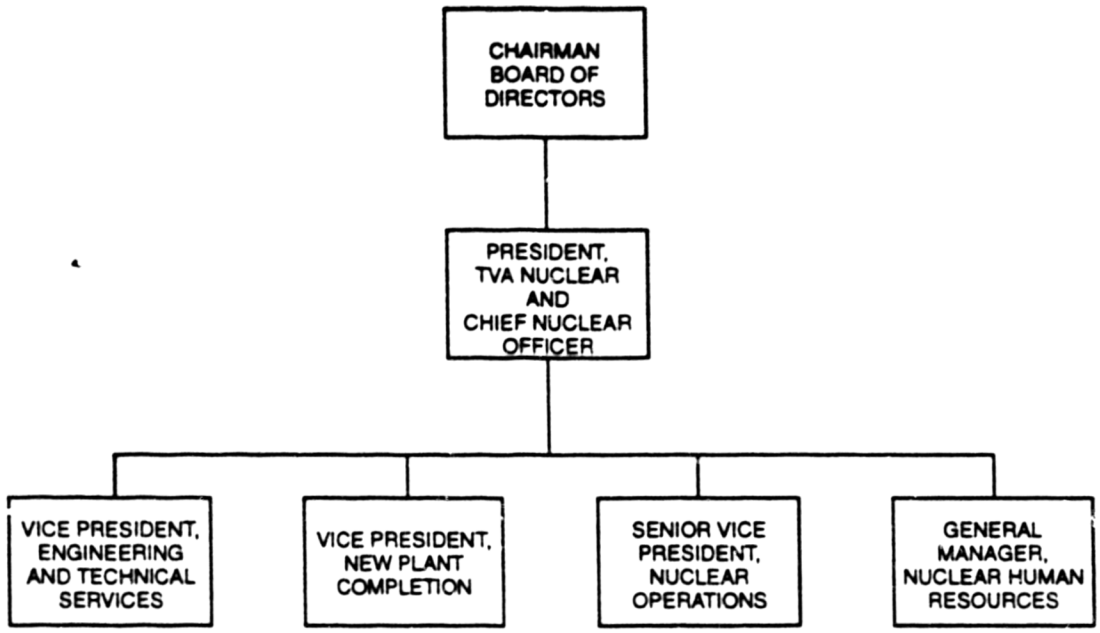
TVA NQAP
ORGANIZATION CHARTS



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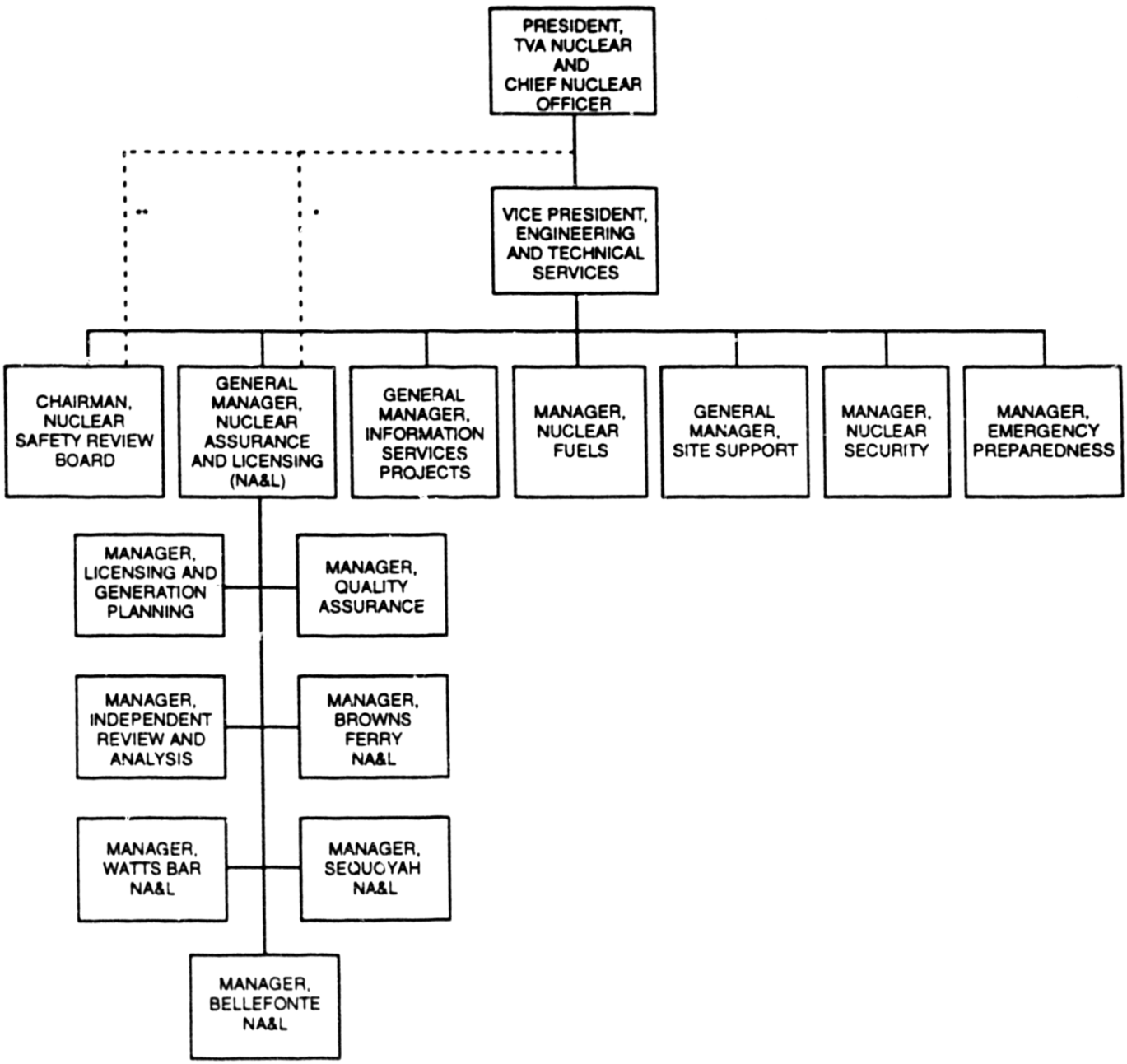
TVA NQAP
ORGANIZATION CHARTS



* INDEPENDENT REPORTING TO THE PRESIDENT TVA NUCLEAR AND CHIEF NUCLEAR OFFICER ON QUALITY STATUS AND ISSUES

** INDEPENDENT REPORTING TO THE PRESIDENT TVA NUCLEAR AND CHIEF NUCLEAR OFFICER ON SAFETY MATTERS

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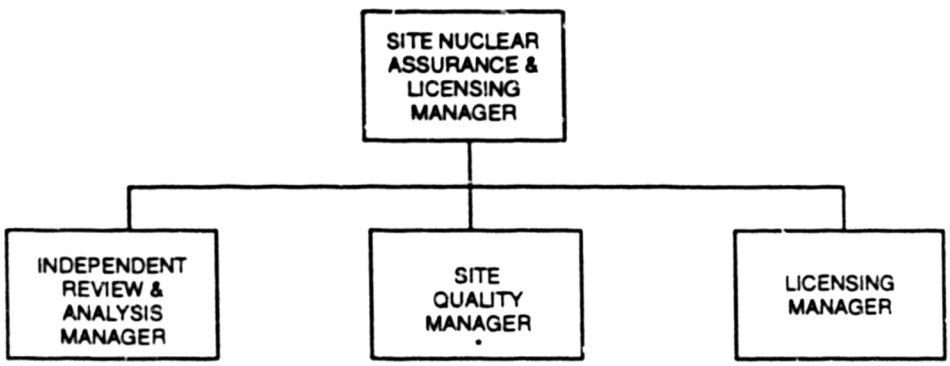
TVA NQAP
ORGANIZATION CHARTS

SITE NUCLEAR ASSURANCE AND LICENSING



* SYNONYMOUS WITH NUCLEAR ASSURANCE MANAGER

APPENDIX H
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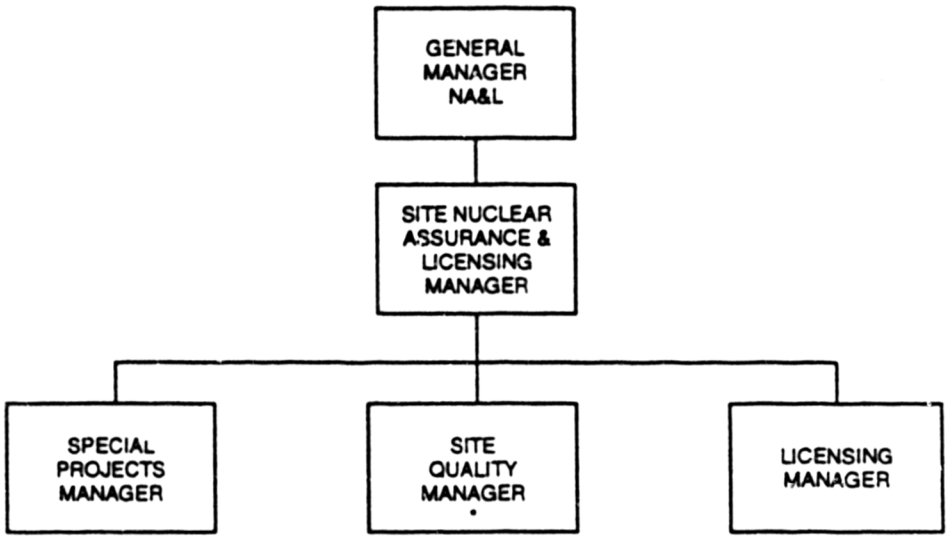
TVA NQAP
ORGANIZATION CHARTS

WATTS BAR
SITE NUCLEAR ASSURANCE AND LICENSING
PRIOR TO UNIT 1 FUEL LOAD



* SYNONYMOUS WITH NUCLEAR ASSURANCE MANAGER

ENCLOSURE 2

TENNESSEE VALLEY AUTHORITY
NUCLEAR QUALITY ASSURANCE PLAN (TVA-NQA-PLN89-A), REVISION 5
DESCRIPTION OF CHANGES AND THEIR JUSTIFICATION

Note: Some changes and justifications were previously submitted to the NRC in the following correspondence:

1. B. S. Schofield's letter to the NRC dated February 25, 1994, "TVA Nuclear Quality Assurance (NQA) Plan (TVA-NQA-PLN89-A) - Annual Update - Revision 4 - Addenda."

2. Charles R. Davis' letter to the NRC dated November 15, 1994, "Browns Ferry Nuclear Plant (BFN) - Units 1, 2, and 3 - Technical Specification (TS) No. 350 - Sequoyah Nuclear Plant (SQN) Units 1 and 2 - Technical Specification (TS) No. 94-12 - Nuclear Quality Assurance (NQA) Plan - TVA-NQA-PLN 89."
3. Patrick P. Carier's letter to the NRC dated March 7, 1995, "Revision to Submittal for Browns Ferry Nuclear Plant (BFN) - Units 1, 2, and 3 - Technical Specification (TS) No. 350 - Sequoyah Nuclear Plant (SQN) Units 1 and 2 - Technical Specification (TS) No. 94-12 - Nuclear Quality Assurance (NQA) Plan - TVA- NQA-PLN 89."

SECTION NO. IN REVISION 4	CHANGE REFLECTED IN REVISION 5	JUSTIFICATION
Policy (page 2)	Second and fifth paragraph, changed "Senior Vice President, Nuclear Power" to "President, TVA Nuclear and Chief Nuclear Officer."	Renamed the Nuclear Power organization as TVA Nuclear (TVAN). Renamed the Senior Vice President position as President, TVA Nuclear and Chief Nuclear Officer. NOTE: This change has been made throughout the NQA Plan.
	Third paragraph, fifth paragraph, and the signature line at the bottom of the page; changed "Nuclear Assurance" to "Nuclear Assurance and Licensing" or "NA&L."	Reorganized and consolidated the Nuclear Assurance and Licensing functions under one manager. NOTE: Changed the organization Nuclear Assurance to Nuclear Assurance and Licensing or NA&L throughout the NQA Plan.
	Signature line at the bottom of the page, changed "Vice President , Technical Support" to "Vice President, Engineering and Technical Services."	Reorganized and consolidated Corporate Engineering and Technical Services functions under one Vice President. NOTE: Changed the organization Technical Support to Engineering and Technical Services or E&TS throughout the NQA Plan.

SECTION NO. IN REVISION 4	CHANGE REFLECTED IN REVISION 5	JUSTIFICATION
Table of Contents (pages 3-5)	Revised page numbers as necessary	Changed page numbers due to NQA Plan revisions.
List of Abbreviations (page 6)	Added "E&TS - Engineering and Technical Services."	Supports the change to consolidate Corporate Engineering and Technical Services functions under one Vice President. Refer to Policy Section justification.
	Changed "NA&LM - Nuclear Assurance and Licensing Manager" to "NA&L - Nuclear Assurance and Licensing."	Supports the change to consolidate Nuclear Assurance and Licensing functions under one manager. Refer to Policy Section justification.
	Deleted "NLRA - Nuclear Licensing and Regulatory Affairs."	Supports the change to consolidate Nuclear Assurance and Licensing functions under one manager. Refer to Policy Section justification.
	Deleted "NP-Nuclear Power."	Supports the change of organization name to TVA Nuclear. Refer to Policy Section justification..
	Added "TVAN - Tennessee Valley Authority Nuclear."	Supports the change of organization name to TVA Nuclear. Refer to Policy Section justification.
Sections 1.0 (page 7), 2.0 (page 7), 3.1 (page 7), 3.3.1 (page 8), 3.3.3 (page 9), 3.3.5 (page 9), 4.0 (pages 9&10), 4.1 (page 10), 4.1.1 (page 10), 4.1.2 (page 10), 4.1.3.B.4 (page 14), 4.1.3.B.5 (page 15), 5.0 (page 23), 5.1 (page 24), 5.3 (page 25), 5.4.A (page 26), 6.1.3.C (page 30), 8.1.2.A (page 37), 10.2.2.A (page 59), 11.3.B (page 64), 12.1 (page 64)	Changed "Nuclear Power (NP)" to "Tennessee Valley Authority Nuclear (TVAN)", and changed "Senior Vice President, Nuclear Power" to "President, TVA Nuclear and Chief Nuclear Officer."	Supports the change of organization name to TVA Nuclear. Refer to Policy Section justification.

SECTION NO. IN REVISION 4	CHANGE REFLECTED IN REVISION 5	JUSTIFICATION
Section 1.0 (page 7)	First sentence, deleted the words "and methods necessary."	Changed to clarify that the NQA Plan does not establish methodologies.
Section 3.3.1 (page 8)	First sentence, deleted "Intergroup Agreements."	Intergroup Agreements are "contracts" between various TVA organizations and as such, are not implementing documents.
	Third sentence, edited and deleted "rules, orders, policies, directives."	Deleted industry terms that are not consistent with TVAN Quality Assurance Program documents.
Sections 3.3.3 (page 9), 3.3.5 (page 9), 4.0 (page 10), 4.1.3.C (page 15), 4.1.3.C.1 (page 15), 4.1.3.C.3 (page 15), 5.0 (page 23), 5.1.B (page 23), 5.4.D (page 27), 6.1.2.B.3 (page 28), 6.1.3.B (page 29), 8.2.3.D (page 42), 9.1.2.B.2 (page 44), 9.1.2.C (page 45), 9.1.2.C.2 (page 45), 9.1.3.A (page 46), 9.1.3.D (page 46), 9.2.1 (page 46), 9.2.3 (page 47), 9.4.3.E (page 51), 10.3.A (page 62), 10.3.C (page 62), 10.3.D (page 62), 12.3.A (page 66), 12.3.B (page 66)	Changed "General Manager, Nuclear Assurance" to "General Manager, NA&L,", and changed "Nuclear Assurance" and "NA" to "NA&L"	Supports the change to consolidate Nuclear Assurance and Licensing functions under one manager. Refer to Policy Section justification.
Sections 3.3.3 (page 9), 4.0 (page 10), 4.1.1 (page 10), 4.1.3 (page 11) 4.1.3.A (page 11), 4.1.3.B (page 12), 4.1.3.B.1 (page 13), 4.1.3.B.2 (page 13), 4.1.3.B.3 (page 14), 4.1.3.B.4 (page 14), 4.1.3.B.5 (page 15), 4.1.3.B.6 (page 15), 5.0 (page 23), 5.1.B (page 23), 6.1.3.B (page 29), 9.1.3.A (page 46), 9.1.3.D (page 46), 9.2.3 (page 47), 9.3.3.A (page 48), 9.4.3.E (page 51), 10.3.A (page 62), 12.3.A (page 66), 13.3 (page 67)	Changed "Vice President, Technical Support" to "Vice President, Engineering and Technical Services (E&TS)."	Supports the change to consolidate Corporate Engineering and Technical Services functions under one Vice President. Refer to Policy Section justification.

SECTION NO. IN REVISION 4	CHANGE REFLECTED IN REVISION 5	JUSTIFICATION
Section 3.3.3 (page 9)	Second paragraph, first sentence, deleted the words "site and". Second paragraph, added second sentence.	Changed responsibility for assessment of site QA organizations' performance to Corporate NA&L.
Section 4.0 (page 9)	Third sentence, changed "Employee Relations and Development" to "TVAN Human Resources."	Organization name change. Functions remain the same.
Section 4.0 (page 10)	Third paragraph, deleted "Chapter 13 of."	Removed specificity.
Sections 4.1.1 (page 10), 5.1.C (page 24), 7.3.B (page 36), 8.1.3.B (page 39), 8.2.3.B (page 42), 8.3.3.B (page 43), 9.1.3.B (page 46), 9.4.3.B (page 51), 9.4.3.C (page 51), 9.5.3.B (page 54), 9.6.3.C (page 56), 9.6.3.D (page 56), 9.7.3.B (page 57), 9.7.3.C (page 57), 9.8.3.B (page 59)	Changed "Vice President, Nuclear Projects" to "Vice President, New Plant Completion."	Position title change. Functions remain the same.
Section 4.1.1 (page 10)	Changed "Manager, Nuclear Employee Relations and Development (matrix reporting relationship)" to "General Manager, Nuclear Human Resources.".	Position title change and organization reporting relationship change. Functions remain the same..
	Deleted "Manager, Materials Management (matrix reporting relationship)."	Organization changes. Functions previously performed by the Manager, Materials Management, under a matrix reporting relationship to the Senior Vice President, Nuclear Power are now the responsibility of the General Manager, Site Support (see Section 4.1.3.B.1).

SECTION NO. IN REVISION 4	CHANGE REFLECTED IN REVISION 5	JUSTIFICATION
Section 4.1.3.A (page 11)	Deleted "Nuclear Support, Nuclear Licensing and Regulatory Affairs, Operations Services, Nuclear Assurance, and Corporate Engineering and Modifications" and added "Nuclear Fuels, Nuclear Security, Emergency Preparedness, NA&L, Information Services, and Site Support."	Organization changes. Nuclear Support functions are now under the General Manager, Information Services Projects (Section 4.1.3.B.7). Nuclear Licensing and Regulatory Affairs and Nuclear Assurance functions are now under the General Manager, NA&L (Section 4.1.3.C). Operations Services functions are now under Nuclear Operations (Section 4.1.6), Manager, Nuclear Security (Section 4.1.3.B.3), and Manager, Emergency Preparedness (Section 4.1.3.B.6). Corporate Engineering and Modifications functions are now under the General Manager, Site Support (Section 4.1.3.B.1). Nuclear Fuels functions were previously under the General Manager, Nuclear Support. Site Support functions were previously under Corporate Engineering and Modifications and Materials Management.
Section 4.1.3.A (page 12)	Deleted items 11, 12, 14, 15, and 19. Renumbered other items accordingly.	Organization change Transfer of functions between organizations. See corresponding change to Sections 4.1.4.A and 4.1.6.A.

SECTION NO. IN REVISION 4	CHANGE REFLECTED IN REVISION 5	JUSTIFICATION
Section 4.1.3.B (page 12)	Deleted "General Manager, Nuclear Support; Manager, Licensing and Regulatory Affairs; General Manager, Operations Services; General Manager, Nuclear Assurance; and Chief Engineer, Corporate Engineering and Modifications" and added "General Manager, Site Support; Manager, Nuclear Fuels; Manager, Nuclear Security; General Manager, Nuclear Assurance and Licensing; Manager, Emergency Preparedness; and General Manager, Information Services Projects."	Organization changes. Refer to Section 4.1.3.A justification.
Section 4.1.3.B.1 (page 13)	Deleted "General Manager, Nuclear Support" and responsibilities. Added "General Manager, Site Support" and responsibilities.	Organization changes. Nuclear Support responsibilities are now under the General Manager, Information Services Projects (Section 4.1.3.B.7). Site Support responsibilities were previously under Corporate Engineering and Modifications and Materials Management.
Section 4.1.3.B.2 (page 13)	Deleted "Manager, Nuclear Licensing and Regulatory Affairs (NLRA)" and responsibilities. Added "Manager, Nuclear Fuels" and responsibilities.	Organization changes. Nuclear Licensing and Regulatory Affairs responsibilities are now under Licensing and Generation Planning Manager (Section 4.1.3.C.7.d). Nuclear Fuels responsibilities were previously under the General Manager, Nuclear Support.
Section 4.1.3.B.3 (page 14)	Deleted "General Manager, Operations Services" and responsibilities. Added "Manager, Nuclear Security."	Organization changes. Operations Services responsibilities are now under Nuclear Operations (Section 4.1.6), Manager Nuclear Security (Section 4.1.3.B.3), and Manager, Emergency Preparedness (Section 4.1.3.B.6).

SECTION NO. IN REVISION 4	CHANGE REFLECTED IN REVISION 5	JUSTIFICATION
Section 4.1.3.B.4 (page 14)	Changed "General Manager, Nuclear Assurance" to "General Manager, Nuclear Assurance and Licensing (NA&L)." Changed "Nuclear Experience Review/Independent Safety Engineering" to "Independent Review and Analysis." Changed "Quality Programs" to "Quality Assurance." Changed "Site Quality Managers (SQN and WBN); Site Nuclear Assurance and Licensing Manager (BFN and BLN)" to "Site NA&L Managers." Added "Licensing and Generation Planning." Deleted "Senior Consultant."	Supports the change to consolidate Nuclear Assurance and Licensing functions under one manager. Refer to Policy Section justification.
Section 4.1.3.B.5 (page 15)	Updated position titles and added new second and third sentences.	Changed to clarify that the Chairman, Nuclear Safety Review Board, is responsible for complying with the Independent Review requirements of ANSI N18.7-1976/ANS 3.2.
Section 4.1.3.B.6 (page 15)	Deleted "Chief Engineer, Corporate Engineering and Modifications" and responsibilities. Added "Manager, Emergency Preparedness" and responsibilities.	Organization changes. Corporate Engineering and Modifications responsibilities are now under the General Manager, Site Support (Section 4.1.3.B.1). Emergency Preparedness responsibilities were previously under the General Manager, Operations Services.

SECTION NO. IN REVISION 4	CHANGE REFLECTED IN REVISION 5	JUSTIFICATION
Not applicable	Added Section 4.1.3.B.7, "General Manager, Information Services Projects."	Organization change. This position reports to the Vice President, Engineering and Technical Services. Responsibilities of this position were previously under the General Manager, Nuclear Support.
Section 4.1.3.C.4 (page 16)	Deleted	Redundant to Section 3.3.3.
Sections 4.1.3.C.5 and .6 (page 16)	Renumbered as Sections 4.1.3.C.4 and .5	Section number change only.
Not applicable	Added a new Section 4.1.3.C.6.	Organization change. Addresses the licensing function. Refer to Policy Section justification.
Section 4.1.3.C.7 and subsections .a through .d (Pages 16-20)	Changed as follows: Changed "Quality Programs Manager" to "Quality Assurance Manager (corporate)." Changed "Site Quality Managers (SQN and WBN)"and "Site Nuclear Assurance and Licensing Manager (BFN and BLN)." to "Site NA&L Manager." Changed "Nuclear Experience Review/Independent Safety Engineering Manager" to "Independent Review and Analysis Manager (corporate)." Deleted "Senior Consultant" added "Licensing and Generation Planning Manager (corporate)."	Supports the change to consolidate Nuclear Assurance and Licensing functions under one manager. Refer to Policy Section justification.

SECTION NO. IN REVISION 4	CHANGE REFLECTED IN REVISION 5	JUSTIFICATION
	Subsection a.1 - Changed "materials and procurement QA program" to "vendor audit and services program."	Terminology change. Program remains the same.
	Subsection a.3 - Changed "NP" to "TVAN"	Supports the change of organization name to TVA Nuclear. Refer to Policy Section justification.
	Subsection a.4 - Changed "Review and approve" to "Review and/or audit".	Changed to clarify that QA programs outside of TVAN are not "approved" by TVAN.

SECTION NO. IN REVISION 4	CHANGE REFLECTED IN REVISION 5	JUSTIFICATION
Section 4.1.3.C.7.a.6 (page 17)	Moved and renumbered as Section 4.1.3.C.7.c.2. Renumbered succeeding sections as follows:	Transfer of function to another work group within NA&L.
.a.8 (page 17)	Renumbered as Subsection a.7.	Subsection number change only.
.a.9 (page 17)	Renumbered as subsection a.8.	Subsection number change only.
.a.10 (page 17)	Renumbered as Subsection a.9 and added "(Corporate and site)."	Changed to clarify that auditing of corporate and site activities is now the responsibility of the Quality Assurance Manager, Corporate.
.a.11 (page 17)	Renumbered as Subsection a.10 and deleted "directives."	Corporate directives no longer exist. Quality related requirements have been incorporated in corporate standards.
.a.12 (page 17)	Deleted.	Redundant to Section 3.3.3.
.a.13 (page 17)	Renumbered as Subsection a.11 and added "and site."	Changed to clarify that auditing of corporate and site activities is now the responsibility of the Quality Assurance Manager, Corporate.
.a.14, .a.15, .a.16 (pages 17 and 18)	Renumbered as Subsections .a.12, .a.13, .a.14	Subsection number changes only.
.a.17 (page 18)	Deleted and combined with Section 4.1.3.C.7.b.14.	Transfer of functions to another work group within NA&L.
.a.18 (page 18)	Moved and renumbered as Section 4.1.3.C.7.c.3.	Transfer of function to another work group within NA&L.
.b (page 18)	Changed the title to "Site NA&L Manager" and addressed the consolidation of functions for all sites.	Position title change and organization change that consolidates NA&L functions on site.
.b.1 (page 18)	Changed "auditing" to "assessing."	Transfer of auditing function from site NA&L to Corporate NA&L. Refer to Section 4.1.3.C.7.a.10 justification.

SECTION NO. IN REVISION 4	CHANGE REFLECTED IN REVISION 5	JUSTIFICATION
.b.3 (page 18)	Deleted "auditing."	Transfer of auditing function from site NA&L to Corporate NA&L. Refer to Section 4.1.3.C.7.a.10 justification.
.b.12, b.13, and .b.14 (page 19).	Deleted "audits and."	Transfer of auditing function from site NA&L to Corporate NA&L. Refer to Section 4.1.3.C.7.a.10 justification.
.b.15 (page 19)	Deleted (BFN and BLN)" and changed "Nuclear Experience Review activities (BLN and WBN)" to "Independent Review and Analysis activities."	Position title change and organization change that consolidates Nuclear Assurance and Licensing functions on site.
.b.16 (page 19)	Combined with Subsection b.15.	Consolidation of NA&L functions at each site makes Subsection .b.16 redundant to .b.15.
.b.17 (page 19)	Moved and renumbered as Subsection b.16.	Subsection number change only.
	Changed the titles to "Site NA&L Managers" and "NA&L organizations."	Organization name and position title changes.
.c (page 20)	Changed the title to "Independent Review and Analysis Manager (corporate)."	Position title change.
Not applicable	Numbered as Section 4.1.3.C.7.c.1 and changed to read "Manage..."	Editorial change.
Not applicable	Added Section 4.1.3.C.7.c.2 from former Section 4.1.3.C.7.a.6.	Transfer of function from another work group within NA&L.
Not applicable	Added Section 4.1.3.C.7.c.3 from former Section 4.1.3.C.7.a.18.	Transfer of function from another work group within NA&L.

SECTION NO. IN REVISION 4	CHANGE REFLECTED IN REVISION 5	JUSTIFICATION
d (page 20)	Deleted and replaced with new Subsection .d entitled "Licensing and Generation Planning Manager (corporate)."	Organization change to consolidate NA&L functions under one manager. Licensing responsibilities were previously with the Manager, Licensing and Regulatory Affairs reporting directly to the Vice President, Technical Support. The senior consultant position is eliminated.
Sections 4.1.4 (page 20), 5.0 (page 23), 5.1.C (page 24)	Changed "Nuclear Projects" to "New Plant Completion."	Organization name and position title change. Functions remain the same.
Section 4.1.4.A (pages 20 & 21)	Deleted items 1-6, 8, 10-12. Renumbered other items accordingly.	Organization change. Transfer of functions between organizations. See corresponding change to sections 4.1.3.A and 4.1.6.A.
Section 4.1.5 (page 21)	Changed "Nuclear Employee Relations and Development" to "Nuclear Human Resources."	Organization name and position title change. Functions remain the same.
Section 4.1.6.A.1.b (page 21)	Changed to read "Fire Protection."	Organization change. Moved responsibility for Nuclear Security to Section 4.1.3.B.3.
Section 4.1.6.A.1.c (page 21)	Moved and renumbered as Section 4.1.3.B.6. Renumbered other items accordingly.	Organization change. Moved responsibility for Emergency Preparedness to Section 4.1.3.B.6.
Section 4.1.6.A.2 (page 22)	Deleted items a, b, c, d, and f. Renumbered other items accordingly.	Organization change. Transfer of functions between organizations. See corresponding change to Sections 4.1.3.A and 4.1.4.A.

SECTION NO. IN REVISION 4	CHANGE REFLECTED IN REVISION 5	JUSTIFICATION
Section 4.1.7 (page 22)	Deleted	Organization change. Responsibility for Materials Management was moved to Section 4.1.3.B.1 under the General Manager, Site Support.
Section 5.0 (page 23)	Third paragraph, changed "reviewed and approved" to "reviewed and/or audited."	Changed to clarify that non-TVAN programs are not "approved" by TVAN.
Section 5.1.B.6 (page 24)	Deleted. Renumbered other items accordingly.	The Chairman, Nuclear Safety Review Board is responsible for the Independent Offsite Safety Review function. Requirements for this function are specified in Section 4.1.3.B.5 of the NQA Plan.
Section 5.4.D (page 27)	Fourth sentence, deleted "directives and."	Changed to reflect the incorporation of corporate directives into corporate standards.
Section 6.1.2.E.2 (page 29)	Changed "NA" to "NA&L" and "Nuclear Experience Review" to "Independent Review and Analysis."	Organization name changes.
Sections 6.1.3.A (page 29), 6.2.3 (page 31), 6.3.3 (page 32)	Changed "Vice President, Technical Support as delegated to the General Manager, Nuclear Support" to Vice President, E&TS, as delegated to the General Manager, Information Services Projects."	Organization change. Transfer of function between organizations.
Section 7.2.7.C (page 36)	Third line changed, "implemented or considered approved" to "returned to operation."	Changed to clarify that equipment is not returned to operation until procurement requirements have been satisfied.

SECTION NO. IN REVISION 4	CHANGE REFLECTED IN REVISION 5	JUSTIFICATION
Section 7.3.A (page 36)	Changed "The Vice President, Technical Support" to "The Vice President, E&TS" and changed "Chief Engineer, Corporate Engineering and Modifications" to "General Manager, Site Support."	Organization change. Transfer of function between organizations.
Sections 8.1.3.A (page 39), 8.3.3.A (page 43), 9.6.3.A (page 56), 9.6.3.B (page 56).	Deleted "Manager, Materials Management" and "General Manager, Nuclear Support." Changed "Vice President, Technical Support" to "Vice President, E&TS." Added "Manager, Nuclear Fuels" and "General Manager, Site Support."	Organization changes. Refer to Sections 4.1.1 and 4.1.3.A justifications.
Section 8.2.3.A (page 42)	Deleted "Manager, Materials Management" and "General Manager, Nuclear Support." Changed "Vice President, Technical Support" to "Vice President, E&TS" and changed "General Manager, Nuclear Assurance" to "General Manager, NA&L." Added "Manager, Nuclear Fuels" and General Manager, Site Support."	Organization changes. Refer to Policy and Sections 4.1.1 and 4.1.3.A justifications.
Sections 9.1.3.A (page 46), 9.1.3.D (page 46), 9.3.3.A (page 48)	Changed "Chief Engineer, Corporate Engineering and Modifications" to "General Manager, Site Support."	Organization change. Refer to Section 4.1.3.A justification.

SECTION NO. IN REVISION 4	CHANGE REFLECTED IN REVISION 5	JUSTIFICATION
Section 9.1.3.D (page 46)	Added "TVAN."	Clarification of requirements applicable to certifications of TVAN inspectors versus contractors.
Section 9.3.3.B (page 49)	Renumbered as Section 9.3.3.C and changed "Vice President, Nuclear Projects" to "Vice President, New Plant Completion."	Position title change. Functions remain the same.
Not applicable	Added Section 9.3.3.B.	Added for consistency with Section 9.1.3.A, last sentence.
Section 9.3.3.C (page 49)	Renumbered as Section 9.3.3.D and changed "Vice Presidents, Nuclear Projects and Technical Support" to "Vice Presidents, New Plant Completion and E&TS."	Position title changes.
	Added "The General Manager, NA&L is responsible for concurring with TVAN inspector certifications."	Added for consistency with Section 9.1.3.D.
Sections 9.4.3.A (page 51), 9.5.3.A (page 54), 11.3.A (page 64), 11.3.B (page 64)	Changed "Vice President, Technical Support" to "Senior Vice President, NO".	Organization change. Transfer of function between organizations.
Sections 9.7.3.A (page 56), 9.8.3.A (page 59).	Changed "Vice President, Technical Support" to "Senior Vice President, NO." Deleted "General Manager, Operations Services."	Organization change. Transfer of function between organizations.
Section 10.2.2.D (page 60)	Changed "Nuclear Support" to "Nuclear Fuels."	Organization change. Refer to Section 4.1.3.A justification.

SECTION NO. IN REVISION 4	CHANGE REFLECTED IN REVISION 5	JUSTIFICATION
Section 11.3.C (page 64)	Changed "Manager, Nuclear Employee Relations and Development" to "General Manager, Nuclear Human Resources."	Position title change. Functions remain the same.
Section 12.2.E.2 (page 64)	Incorporated change submitted to the NRC on March 7, 1995, and clarified its applicability to BFN and SQN. Added new paragraphs E.3 and E.4 for audits of BLN and WBN as well as the Fitness for Duty Program.	Refer to the March 7, 1995, letter to the NRC. Paragraph E.3 is added to clarify audit requirements applicable to Design and Contruction Phase units and the Fitness for Duty Program. Audit subjects are added for WBN since they will not be included in Watts Bar Nuclear Technical Specifications.
Section 13.3 (page 67)	Changed "General Manager, Nuclear Support" to "General Manager, Information Services Projects."	Organization change. Refer to Section 4.1.3.A justification.
Section 15.0 (page 72)	Changed Inspection definition by changing "Nuclear Assurance" to "NA&L."	Organization name change. Refer to Policy Section justification.
Section 15.0 (page 75)	Changed "Significant Adverse Condition" definition by deleting from the first sentence "or reportable to the NRC," and by adding the second sentence.	Clarification to eliminate duplication of reporting requirements within TVAN programs.
Appendix B, Regulatory Guide 1.33 (page 87)	Alternative 2.a, added "FSAR, or appropriate plant procedures."	Changed to be consistent with WBN Licensing documents.
Appendix B, Regulatory Guide 1.33 (page 88)	Incorporated change to Alternative 6 submitted to the NRC on March 7, 1995.	Refer to the March 7, 1995, letter to the NRC.

SECTION NO. IN REVISION 4	CHANGE REFLECTED IN REVISION 5	JUSTIFICATION
Appendix B, Regulatory Guide 1.38 (page 91)	Alternative 9, second line changed "Site Materials" to "Site Materials and Procurement." Alternative 9, sixth line changed "Power Stores" to "Nuclear Stores."	Organization name changes. Functions remain the same.
Appendix B, Regulatory Guide 1.38 (page 92)	Alternative 12, third line changed "Site Materials" to "Site Materials and Procurement."	Organization name change. Function remains the same.
Appendix B, Regulatory Guide 1.39 (page 92)	Third line of alternative changed "NP" to "TVAN."	Organization name change. Refer to Policy Section justification.
Appendix B, Regulatory Guide 1.58 (page 93)	Deleted Alternative 3 regarding use of qualified instructors or responsible supervisors. Renumbered succeeding alternatives accordingly.	Refer to the 2/25/94 letter to the NRC.
Appendix B, Regulatory Guide 1.64 (page 93)	Item 3 changed "Nuclear Assurance" to "NA&L."	Organization name change. Refer to Policy Section justification.
Appendix B, Regulatory Guide 1.144 (page 97)	Alternative 3, first line changed "Nuclear Assurance" to "NA&L."	Organization name change. Refer to Policy Section justification.
Appendix C, Section 4.1.E (page 99)	Changed "NP" to "TVAN" and changed "Senior Vice President of Nuclear Power" to "President, TVA Nuclear and Chief Nuclear Officer."	Organization name change and position title change. Refer to Policy Section justification.
Appendix C, Section 4.4.D (page 99)	Changed "NP" to "TVAN."	Organization name change. Refer to Policy Section justification.
Appendix C, Section 4.7 (page 100)	Changed "NP" to "TVAN."	Organization name change. Refer to Policy Section justification.

SECTION NO. IN REVISION 4	CHANGE REFLECTED IN REVISION 5	JUSTIFICATION
Appendix F (page 104)	Third from last paragraph changed "Nuclear Assurance" to "NA&L."	Organization name change. Refer to Policy Section justification.
Appendix H (pages 106-109)	Changed charts to reflect organization changes.	Organization update.