DUKE POWER COMPANY

TOPICAL REPORT

QUALITY ASSURANCE PROGRAM

DUKE-1-A

ABSTRACT

This topical report describes the Duke Power Company quality assurance program for the operation phase of its nuclear power plants. The report is organized like and is generally used for Chapter 17 - Quality Assurance of Duke's Safety Analysis Reports.

The Duke Quality Assurance Program conforms to applicable regulatory requirements such as 10CFR50, Appendix B and to approved industry standards such as ANSI N45.2-1971 and ANSI N18.7-1976 and corresponding daughter standards, or to equivalent alternatives. The Duke Power Quality Assurance Program also conforms to the regulatory position of the NRC Regulatory Guides listed in Table 17.0-1 of this report with the exception of the clarifications, modifications, and alternatives stated therein.

The Duke Power Company Quality Assurance Program Policy Statement (Figure 17.3-1), issued by the Chairman and Chief Executive Officer, describes the corporate policy and assigns responsibility for implementation of the Quality Assurance Program.

Section 17.0 describes the purpose of this report, provides definitions, and shows conformance to regulations, standards, and guides.

Section 17.3 describes the quality assurance program and organization for station operation.

Section 17.3 follows the format of NUREG-0800, "Standard Review Plan For The Review of Safety Analysis Reports for Nuclear Power Plants", Section 17.3, ***except that the Duke Power Company Quality Assurance Program is based on ANSI N18.7-1976 in lieu of ANSI/ASME NQA-1 and NQA-2.***

The topical is intended to be a comprehensive up-to-date description of Duke's Quality Assurance Program for nuclear power plants.

Duke Power Company
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WILLIAM S. LEE
Chairman and President

DUKE POWER

November 1, 1991

DUKE POWER COMPANY
QUALITY ASSURANCE PROGRAM
POLICY STATEMENT

Duke Power Company has developed a comprehensive quality assurance program, described in the Topical Report, to answer our own needs and the regulatory requirements established by the Nuclear Regulatory Commission and other jurisdictional authorities for the safe and effective design, construction, operation, and modification of nuclear stations. This program has my unqualified support and is to be followed at all times.

The authority and responsibility to administer the quality assurance program is assigned to the Executive Vice President, Power Generation Group.

This quality assurance program is documented in quality and administrative manuals prepared by the involved departments and approved by the responsible department heads. These manuals delineate the action taken by Duke Power Company personnel during the design, construction, operation, testing, refueling, maintenance, repair and modification of its nuclear stations.

The department heads of all company departments engaged in nuclear activities are responsible for implementing procedures required by the program.

Power Generation Group personnel are given authority commensurate with their responsibility including the authority to stop work which does not conform to established requirements. This stop-work authority must be exercised in accordance with approved procedures.

All matters concerning quality which cannot be resolved at the normal interfaces among departments shall be referred to the Executive Vice President, Power Generation. Matters that cannot be resolved at this level will be referred to me for final resolution.

W S Lee

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3	November 22, 1976
4	June 29, 1978
5	July 14, 1981
6	February 3, 1983
7	June 22, 1984
8	May 20, 1985
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12	March 30, 1989
13	April 18, 1990
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17 QUALITY ASSURANCE

17.0 INTRODUCTION

Duke Power Company maintains full responsibility for assuring that its nuclear power plants are designed, constructed, tested and operated in conformance with good engineering practices, applicable regulatory requirements and specified design bases and in a manner to protect the public health and safety. To this end Duke has established and implemented a quality assurance program which conforms to the criteria established in Appendix B to 10CFR, Part 50, "Quality Assurance Criteria for Nuclear Power Plants and Fuel Reprocessing Plants" published June 27, 1970 (35 F. R. 10499) and amended September 17, 1971 (36 F. R. 18301) and amended January 20, 1975 (40 F. R. 3210D).

This topical report is written in the format of a Safety Analysis Report (SAR) Chapter 17, "Quality Assurance", in accordance with Revision 2 of the NRC's Regulatory Guide 1.70, "Standard Format and Content of Safety Analysis Reports for Nuclear Power Plants - LWR Edition" and subsequent NRC guidelines. The quality assurance program described herein is applicable to all Duke nuclear power plants as referenced by Chapter 17 of the plants' SAR's.

This Topical Report describes the Quality Assurance Program for those systems, components, items, and services which have been determined to be ***nuclear*** safety related ***(QA Condition 1)***. In addition, Duke's Quality Assurance Program provides a method of applying a graded Quality Assurance Program to certain non-safety related systems, components, items, and services. ***These are classified as QA Conditions 2, 3, or 4.*** This method involves defining a Quality Assurance "Condition" for each level of quality assurance required. These will be designated as "QA Condition_____". ***The quality of systems, components, items, and services within the scope of QA Conditions 1, 2, 3, and 4 is assured commensurate with the system's, component's, item's, or service's importance to safety.*** The following conditions have been defined.

QA Condition 1 covers those systems and their attendant components, items, and services which have been determined to be ***nuclear*** safety related. These systems are detailed in the Safety Analysis Report applicable to each nuclear station. The Topical Report applies in its entirety to systems, components, items, and services identified as QA Condition 1.

QA Condition 2 covers those systems and their attendant components, items, and structures important to the management and containment of liquid, gaseous, and solid radioactive waste.

QA Condition 3 covers those systems, components, items, and services which are important to fire protection as defined in the Hazards Analysis for each station. The Hazards Analysis is in response to Appendix A of NRC Branch Technical Position APCSB 9.5-1.

QA Condition 4 covers those seismically designed/restrained systems, components, and structures whose continued functions are not required during and after the seismic event. The general scope of these systems, components, and structures, identified as Seismic Category II (SCII) are defined in Regulatory Guide 1.29, Seismic Design Classification.

Subsequent changes to Duke's Quality Assurance Program shall be incorporated in this topical report. The topical report is intended to be a comprehensive up-to-date description of Duke's Quality Assurance Program for nuclear power plants.

Any programmatic changes to the Quality Assurance Program will be submitted for review and acceptance prior to implementation. Significant organizational changes will be submitted no later than thirty (30) days after announcement.

17.0.1 DEFINITIONS

The following definitions are applicable to terms used in this report. Terms used in this report which are not defined in this section are defined in ANSI N45.2.10, "Quality Assurance Terms and Definitions."

Approver - An individual who reviews an activity for concept and conformity with codes and standards; the approver is a person other than the originator or checker.

Audit (Internal) - An activity to determine through investigation the adequacy of, and adherence to, established procedures, instructions, specifications, codes, and other applicable contractual and licensing requirements, and the effectiveness of implementation.

Checker - An individual, other than the originator or approver, who is qualified in the area being checked and who has the responsibility to check the activity and/or all revisions for completeness, clarity, and accuracy.

Designer - The individual who performed the design.

Deficiency - Any condition considered to be adverse to quality including inadequacies of personnel, procedures, systems, methods, or items.

Documents - Any written or pictorial information describing, defining, specifying, reporting, or certifying activities, requirements, procedures, or results. Examples of documents are drawings, specifications, instructions

and procedures significant to the design, construction, testing, maintenance and operation of ***QA Condition 1*** equipment and systems.

Hold Point - That point in the manufacturing, preparation, development, installation and construction, inspection, or testing process that requires witnessing or review by Duke Power surveillance personnel.

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

Nonconforming Item Report - A report of a deficiency in characteristics, documentation or procedure which renders the quality of an item unacceptable or indeterminate.

Nuclear Station Modification - A planned change in plant design accomplished in accordance with the requirements and limitations of applicable codes, standards, specifications, licenses and predetermined safety restrictions.

Problem Investigation Report - A report used during the operation phase of nuclear stations that documents an occurrence, situation, or nonconformance that resulted in other than expected equipment performance, personnel action, or failure to operate within established limits.

Quality Assurance - The planned and systematic actions necessary to provide adequate confidence that a material, component, system or facility will perform satisfactorily in service. (Note: See 17.0.1.1 below for further explanation.)

Quality Assurance Records - Those records which furnish documentary evidence of the quality of items and of activities affecting quality.

Quality Assurance Requirements - Those inspection, test, examination, certification and documentation requirements which are imposed to provide objective evidence of the conformance of an item or activity to established design, engineering, standards, and code requirements.

Quality Control - Those quality assurance actions which provide a means to control and measure the physical characteristics of an item, process or facility to established requirements.

Quality Control Inspector (Inspector) - Any individual certified to the requirements of ANSI N45.2.6 or SNT-TC-1A who performs required inspections, tests or examinations.

Responsible Engineer - The engineer assigned responsibility for an item or service.

Revisions - Any addition, correction, deletion or change.

Services - The performance by a supplier of activities such as design, investigation, inspection, nondestructive examination, and installation.

Preaward Survey - A documented activity performed in accordance with written procedures or checklists to verify, by examination and evaluation of objective evidence, that the quality assurance program has been developed, documented, and implemented in accordance with specified requirements.

Variation Notice - A notice to provide a process by which field variations from Design Engineering drawings and specifications are evaluated and permitted.

Vendor 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 quality assurance program have been developed, documented and implemented in accordance with specified requirements.

17.0.1.1 Explanation of "Quality Assurance"

Quality Assurance as used in this document includes: 1) the independent assurance activities associated with items and tasks critical to the safety and integrity of the facility and 2) quality verifications performed by the Quality Verification Department. The Quality Assurance program as defined above is not an alternative to good technical work. Rather, it is a system of controls to verify that quality is achieved. The Quality Assurance program places the responsibility on line management of achieving and assuring quality in all areas of their operation. As defined, the Executive Vice President, Power Generation Group has been given the responsibility to develop and manage a Quality Assurance Program for the Company.

17.0.2 QUALITY ASSURANCE STANDARDS AND GUIDES

The Duke Quality Assurance Program conforms to Appendix B of 10CFR50, as discussed in Section 17.0. The Quality Assurance Program also conforms to applicable NRC Regulatory Guides and approved ANSI Standards, or applicable alternatives. Table 17.0-1 addresses quality assurance program conformance to the ***referenced regulatory and program guidance contained in NUREG-0800.***

Quality Assurance Program conformance with the documents identified in Table 17.0-1 may, however, be modified contingent upon future NRC or ANSI action. For example, if a draft document is subsequently approved and issued or if an approved document is revised, provisions of the more recent issue of such a document may be complied with in lieu of those contained in the version listed in Table

17.0-1, provided the more recent issue has been endorsed by the NRC. Also, formal regulatory actions of the NRC (e.g., issuance or amendment of a station's Facility Operating License) are considered to supersede the contents of 17.0-1, as applicable.

TABLE 17.0-1
CONFORMANCE OF DUKE POWER PROGRAM TO QUALITY ASSURANCE STANDARDS, REQUIREMENTS, AND GUIDES

Standard, Requirement or Guide	Conformance Status	Remarks
Regulatory Guide 1.8 Rev (1-R) - Personnel Selection and Training	Alternative	RG 1.8 Rev (1-R) incorporates ANSI N18.1. Duke program conforms to ANSI N18.1-1971 except Radiation Protection Manager qualifications are contained in the Technical Specifications.
Regulatory Guide 1.26 Rev (3) - Quality Group Classifications& Standards for Water, Steam, and Radioactive-Waste Containing Components of Nuclear Power Plants	Alternative	**Duke Program conforms to this Regulatory Guide except for additional details and directions noted in Station FSAR's.**
Regulatory Guide 1.28 Rev (2) - Quality Assurance Program Requirements (Design and Construction)	Conforms	-----
Regulatory Guide 1.29 Rev (3) - Seismic Design Classification	**Alternative**	**Duke Program conforms to this Regulatory Guide except for additional details and directions noted in Station FSAR's.**
Regulatory Guide 1.30 Rev (0) - Quality Assurance Requirements for the Installation, Inspection and Testing of Instrumentation and Electric Equipment	Conforms	RG 1.30 Rev (0) incorporates ANSI N45.2.4-1972 for both construction and operation
Regulatory Guide 1.33 Rev (2) - Quality Assurance Program Requirements (Operations)	Alternative	RG 1.33 Rev (2) incorporates ANSI N18.7-1976/ANS-3.2. Duke program conforms to ANSI N18.7-1976 except the frequency of audits of selected aspects of operational phase activities is defined in Section 17.3.3 and the frequency for procedure review, as described in Section 17.3.2.14, is based on ANSI N18.7/ANS-3.2 (1988) with appropriate review frequencies established not to exceed 6 years.
Regulatory Guide 1.36 Rev. (0) - Nonmetallic Thermal Insulation for Austenitic Stainless Steel	**Adopted**	**Regulatory Guide is adopted for all Austenitic Stainless Steel piping and components located outside containment. Inside containment, reflective Thermal Insulation is used.**
Regulatory Guide 1.37 Rev (0) - Quality Assurance Requirements for Cleaning of Fluid Systems and Associated Components of Water-Cooled Nuclear Power Plants	Conforms	RG 1.37 Rev (0) incorporates ANSI N45.2.1-1973 for both construction and operation

Standard, Requirement or Guide	Conformance Status	Remarks
Regulatory Guide 1.38 Rev (2) - Quality Assurance Requirements for Packaging, Shipping, Receiving, Storage and Handling of Items for Water-Cooled Nuclear Power Plants	Alternative	RG 1.38 Rev (2) incorporates ANSI N45.2.2-1972. Duke program conforms to ANSI N45.2.2-1972 except container markings shall be marked on at least one side (A.3.9(1)) and shall be applied with waterproof ink or paint in characters of a legible size, and caps and plugs for pipe and fittings are required unless specified by Engineering, and off-site inspection, examination, and testing is monitored by personnel qualified to ANSI N45.2.12 in lieu of ANSI N45.2.6.
Regulatory Guide 1.39 Rev (2) - Housekeeping Requirements for Water-Cooled Nuclear Power Plants	Conforms	RG 1.39 Rev (2) incorporated ANSI N45.2.3-1973 for both construction and operation
Regulatory Guide 1.54 Rev (0) - Quality Assurance Requirements for Protective Coatings Applied to Water-Cooled Nuclear Power Plants	Alternative	**Catawba has adopted the Regulatory Guide. McGuire and Oconee adopt portions of the Regulatory Guide and address alternatives which meet the intent of this Guide, in each respective Station FSAR.**
Regulatory Guide 1.58 Rev (1) - Qualification of Nuclear Power Plant Inspection, Examination and Testing Personnel	Alternative	RG 1.58 Rev (1) incorporates ANSI N45.2.6-1978 for both construction and operation. Duke nondestructive examination personnel will meet the qualification requirements of SNT-TC-1A-1980. Duke operational/functional testing personnel will meet the requirements of ANSI N18.1-1971 rather than ANSI N45.2.6. Also, Duke's Level I inspectors receive a minimum of 4 months experience as Level I before being certified as Level II, in lieu of one year experience recommended by ANSI N45.2.6. **Inspectors are only assigned tasks for which they have been qualified.**
Regulatory Guide 1.64 Rev (2) - Quality Assurance Requirements for Design of Nuclear Power Plants	Adopted with Clarification	RG 1.64 Rev (2) Incorporates ANSI N45.2.11-1974. The use of the originator's immediate supervisor for design verification shall be restricted to special situations where the immediate supervisor is the only individual capable of performing the verification. Advance justification for such use shall be documented and signed by the supervisor's management. And the frequency and effectiveness of the supervisor's use as design verifier are independently verified to guard against abuse. **The supervisor will not be the design verifier on work for which he is the actual performer / originator.**
Regulatory Guide 1.74 Rev (0) - Quality Assurance Terms and Definitions	Conforms	RG 1.74 Rev (0) Incorporates ANSI N45.2.10-1973. Some definitions used by Duke are worded differently than those in this standard; however, the general meanings are the same.

Standard, Requirement or Guide	Conformance Status	Remarks
Regulatory Guide 1.88 Rev (2) - Collection, Storage, and Maintenance of Nuclear Power Plant Quality Assurance Records	Alternative	RG 1.88 Rev (2) Incorporates ANSI N45.2.9-1974. The Duke Program conforms to RG 1.88 except the records storage facilities have a minimum 3-hour rating. A qualified Fire Protection Engineer will evaluate record storage areas (including satellite files) to assure records are adequately protected from damage. The Fire Protection Engineer shall be a registered Professional Engineer qualified for membership grade status in the Society of Fire Protection Engineers.
Regulatory Guide 1.94 Rev (1) - Quality Assurance Requirements for Installation, Inspection, and Testing of Structural Concrete and Structural Steel During the Construction Phase of Nuclear Power Plants	Alternative	RG 1.94 Rev (1) Incorporates ANSI N45.2.5-1974. Duke program for McGuire and Catawba conforms to ANSI N45.2.5-1974 except the length of bolts shall be flush with the outside face of the nut.
Regulatory Guide 1.116 Rev (0-R) - Quality Assurance Requirements for Installation, Inspections, and Testing of Mechanical Equipment and Systems	Conforms	RG 1.116 Rev (0-R) Incorporates ANSI N45.2.8-1975
Regulatory Guide 1.123 Rev (1) - Quality Assurance Requirements for control of Procurement of Items and Services for Nuclear Plants	Conforms	RG 1.123 Rev (1) Incorporates ANSI N45.2.13-1976
Regulatory Guide 1.143 Rev (1) - Design Guidance For Radioactive Waste Management Systems, Structures, and Components Installed in Light-Water-Cooled Nuclear Power Plants	**Conforms**	-----
Regulatory Guide 1.144 Rev (1) - Auditing of Quality Assurance Programs for Nuclear Power Plants	Alternative	RG 1.144 Rev (1) incorporates ANSI N45.2-12, (1977). Duke Program conforms to ANSI N45.2.12-1977 for internal/external audits except Section 4.4.6. In lieu of making recommendations for correcting program deficiencies we will identify the deficiencies to the audited organization. For external audits, the results of the audit will be provided to the audited organization in lieu of the audit report. Also, the re-evaluation may be extended to 15 months as described in Section 17.3.2.4. Self Initiated Technical Audits (Section 17.3.3.2.7) shall require a response describing corrective action and implementation schedule as requested by the audit report but not to exceed sixty days of receipt of the audit report.

Standard, Requirement or Guide	Conformance Status	Remarks
Regulatory Guide 1.146 Rev (0) - Qualification of QA Program Audit Personnel for Nuclear Power Plants	Conforms	RG 1.146 Rev (0) Incorporates ANSI/ASME N45.2.23-1978
Regulatory Guide 1.152 Rev (0) - Criteria For Programmatic Digital Computer System Software In safety - Related Systems of Nuclear Power Plants	Not applicable	Regulatory Guide does not apply to plants prior to 11/85
Regulatory Guide 4.15 Rev (1) - Quality Assurance For Radiological Monitoring Program (Normal Operations) - Effluent Streams and the Environment	Adopted	Adopted at Oconee, McGuire, and Catawba via various site procedures that meet the intent of the Regulatory Guide.
Regulatory Guide 7.10 Rev (1) - Establishing Quality Assurance Programs For Packaging Used In The Transport of Radioactive Material	Alternative	Duke Program conforms to the intent of this Regulatory Guide as addressed in each Station's FSAR
Criteria 1 of Appendix A to 10CFR50	Conforms	-----
10CFR50, Appendix B - Quality Assurance Criteria for Nuclear Power Plants	Conforms	-----
10CFR50.55a - Licensing of Production and Utilization Facilities (ASME Boiler and Pressure Vessel Code, Section XI - Rules for Inservice Inspection of Nuclear Reactor Coolant Systems)	Conforms	10CFR50.55a Specifies ASME Section XI code dates. The Duke program conforms to 10CFR50.55a with the specific editions and addenda of Section XI specified in the Duke Power Inservice Inspection Plan for each station.
10CFR55 - Operators Licenses	Conforms	-----
10CFR55, Appendix A - Requalification Programs for Licensed Operators of Production and Utilization Facilities	Conforms	-----
10CFR50.55(e) - Conditions of Construction Permits	Conforms	-----

Standard, Requirement or Guide	Conformance Status	Remarks
10CFR21	Conforms	------
Regulatory Positions 2 & 4 of Branch Technical Position CMEB 9.5-1	Conforms	Fire protection controls are in accordance with the intent of regulatory positions 2 & 4 of Branch Technical Position CMEB 9.5-1 as stated in the Safety Evaluation Reports for the respective nuclear stations.
Generic Letter 89-02, NCIG-07.	Conforms	------

17.3 QUALITY ASSURANCE PROGRAM DESCRIPTION

17.3.1 MANAGEMENT

17.3.1.1 Methodology

The Executive Vice President, Power Generation Group is the corporate executive responsible for quality assurance and is the highest level of management responsible for establishing Duke's quality assurance policies, goals, and objectives. ***The Duke Power Company Quality Assurance Program Policy Statement, Figure 17.3-1,*** issued by the Chief Executive Officer, ***assigns this responsibility and requires*** development of and compliance with procedures in all ***QA Condition 1*** matters. ***All organizations performing quality affecting activities are bound by this Policy Statement. The Quality Assurance Program has been developed in accordance with this Policy Statement.***

The individuals who constitute Duke Power Company have full personal and corporate responsibility to assure that nuclear power plants are designed, constructed, tested and operated in a manner to protect the public health and safety. The comprehensive program to assure this begins with initial design and continues throughout the life of the station. The Duke Power Quality Assurance Program must assure that the necessary quality requirements for ***QA Condition 1*** structures, systems, components and materials are achieved. All special equipment, environmental conditions, skills and processes that are determined to be ***QA Condition 1*** will be provided within the scope of the Quality Assurance Program.

A controlled listing of QA Condition structures, systems, and components is approved, issued, and periodically updated. Each Nuclear Site Vice President is responsible for approval and issuance after issuance of the operating license.

This program applies to the ***QA Condition 1*** portions of the plant but may also be optionally applied, in whole or in part, to other selected items necessary for reliable operation. Section 17.0 identifies those items currently included under Duke Power's Quality Assurance Program.

17.3.1.2 Organization

17.3.1.2.1 Corporate Organization

The Duke Power Company corporate organization is shown in Figure 17.3-1. The Chief Executive Officer has overall responsibility for Design, Construction, and Operation of generation and transmission facilities. Reporting to the Chief Executive Officer is the Executive Vice President, Power Generation Group, who has the overall authority and responsibility for the quality assurance program, and who directs several activities including the Nuclear Generation, Generation Services, Quality Verification, and Generation Human Resources Departments. Also reporting to the Chief Executive Officer are the Vice Chairman and the Executive Vice President, Customer Group. The Vice Chairman directs several activities including the Information Systems and Procurement, Services and

Materials Departments. The Executive Vice President, Customer Group directs several activities including the Power Delivery Department.

Duke's organization reflects the concept of quality assurance as an interdisciplinary function involving various groups. As such the attainment of quality rests with those assigned the responsibility of performing the activity. The verification of quality is assigned to qualified personnel independent of the responsibility for performance or ***direct*** supervision of the activity. The degree of independence varies commensurate with the activity's importance to safety.

The policies described in this document are implemented through departmental program manuals and procedures, and are, therefore, transmitted to all levels of management.

Organization charts for the various departments / locations are contained in Chapter 13 of the respective Station Final Safety Analysis Report.

17.3.1.2.2 Nuclear Generation Department

The Nuclear Generation Department has direct line responsibility for all Duke Power Company nuclear station operations. The Nuclear Generation Department is responsible for achieving quality results during engineering, preoperational testing, operation, testing, maintenance and modification of the Company's nuclear stations and with complying with applicable codes, standards and NRC regulations. The functions of Nuclear Generation are directed by the Senior Vice President, Nuclear Generation.

The Senior Vice President, Nuclear Generation formulates, recommends, and carries out plans, policies, and programs related to the nuclear generation of electric power; and reports to the Executive Vice President, Power Generation Group. The Senior Vice President, Nuclear Generation is informed of significant problems or occurrences relating to safety and quality assurance through established administrative procedures, and participates directly in their resolution, where necessary.

a) Nuclear Site Organization

The Nuclear Site Vice Presidents (Site Officer) report to the Senior Vice President, Nuclear Generation. The Site Officer is also responsible for the administration, implementation, and assessment of the quality assurance program as it applies to station operation. In the discharge of their responsibilities, the Site Officers direct the activities of the station organizations.

Reporting to the Site Officer for each nuclear station, is a Manager, Nuclear Station who is assigned the direct responsibility for the safe operation of the facility. The qualification requirements for the Manager, Nuclear Station are in accordance with the provision of ANSI N18.1-1971 and are presented in each station's FSAR.

b) Nuclear Generation Department, Nuclear Services

The Nuclear Generation Department, Nuclear Services Division, is divided into various groups. The activities of each group are directed by a manager who reports to the General Manager, Nuclear Services. The General Manager, Nuclear Services reports to the Senior Vice President, Nuclear Generation. The groups within Nuclear Services include: Engineering Maintenance Support, which provides technical support to the stations in procurement, maintenance and engineering. Nuclear Engineering, which provides support to the stations in severe accident analysis, safety analysis, nuclear design, and fuels / core management. Operations, Performance, and Automation Services, which provides support in generation scheduling, thermal analysis, automation, generation reliability, and performance. Nuclear Technical Services, which provides support for dosimetry, radiation protection, radwaste processing, and nuclear chemistry. Safety Assurance which provides support in nuclear licensing, operational event analysis, emergency planning, ISI plans / reports, and quality assurance program and procedure development and maintenance.

17.3.1.2.3 Generation Services Department

The Generation Services Department provides centralized services to the Power Generation Group in areas such as environmental engineering, NDE, measuring and test equipment calibration, craft support, and others. The Generation Services Department is directed by the Vice President, Generation Services who reports to the Executive Vice President, Power Generation Group.

17.3.1.2.4 Generation Human Resources Department

The Generation Human Resources Department provides services to the Power Generation Group in such ***areas as fire protection and Fitness For Duty.*** The Generation Human Resources Department is directed by the Director, Generation Human Resources who reports to the Executive Vice President, Power Generation Group.

17.3.1.2.5 Quality Verification Department

The Quality Verification Department is responsible ***for performing self-assessment functions,*** including the Nuclear Safety Review Board (NSRB), audits, and qualifying suppliers. The activities of the Quality Verification Department are directed by the Manager, Quality Verification who reports to the Executive Vice President, Power Generation Group. The Quality Verification Department has the authority and organizational freedom to:

(a) Identify quality problems.

(b) Initiate, recommend or provide solutions to quality problems through designated channels.

(c) Verify the implementation of solutions to quality problems.

(d) Ensure cost and schedule do not unduly influence decision making involving quality.

If significant quality problems are identified by Quality Verification Department personnel, the Manager, Quality Verification or designee, has the responsibility and authority to notify Management to direct the affected work activity to cease pending satisfactory resolution of the identified problem.

17.3.1.2.6 Procurement, Services and Materials (PSM) Department

PSM is responsible for the Materials and Equipment Database (MEDB), which is the computer database containing necessary attributes for purchase of a commodity; and the purchasing function. These activities in PSM are directed by the Manager-Technical Services and the General Manager-Purchasing respectively who report to the Vice President, Procurement Services and Materials.

17.3.1.2.7 Information Systems (IS) Department

IS is responsible for the development and maintenance of mainframe computer software and data which supports QA Condition activities. These activities in IS are directed by managers and directors reporting to the Vice President, Information Systems.

17.3.1.2.8 Power Delivery Department

The Power Delivery Department is responsible for providing maintenance and testing services to the nuclear station for selected ***electrical*** equipment. These activities are directed by the Vice President, Power Delivery.

17.3.1.2.9 Department Interfaces

Quality related activities are performed by the Nuclear Generation, Generation Services, Generation Human Resources, Quality Verification, Procurement Services and Materials, Information Systems and Power Delivery Departments. Departmental interfaces are identified in the quality assurance program manuals associated with these areas.

Organization charts for these departments are maintained in appropriate manuals for the respective departments.

17.3.1.3 Responsibility

The individuals who constitute Duke Power Company have full personal and corporate responsibility to assure nuclear power plants are designed, constructed, maintained, tested and operated in a manner to protect the public health and safety; and to assure the effectiveness of the Quality Assurance Program.

Corporate audits are initiated and directed by the Executive Vice President, Power Generation Group. This audit is performed annually to assess the adequacy of the Quality Verification Department Quality Program. This audit is discussed in greater detail in Section 17.3.3.2.4.

Applicable procedures are developed, approved by the responsible implementing manager, issued for use, with sufficient personnel available and trained with necessary resources prior to performing quality affecting activities.

17.3.1.4 Authority

Anyone involved in quality activities in the Duke organization has the authority and responsibility to stop work if they discover deficiencies in quality. Personnel performing quality assurance and quality control functions have the authority and responsibility to stop unsatisfactory work and to assure the item/activity is controlled to prevent further processing, delivery, installation, or use until authorized by appropriate management. If a member of the group performing the work disagrees, they are instructed to take the matter to their management. The disagreement may either be resolved at this level or at any level up to and including the Chief Executive Officer.

17.3.1.5 Personnel Training and Qualification

A training program is established for each nuclear station and support organization to develop and maintain an organization qualified to be responsible for operation, engineering, testing, inspection, maintenance, modification and other technical aspects of the nuclear station involved. The program is formulated to provide the required training based on individual employee experience and intended position. The program is in compliance with Nuclear Regulatory Commission licensing requirements, where applicable. The training program is such that trained and qualified operating, maintenance, engineering, inspection, testing, technical support and supervisory personnel are available in necessary numbers at the times required. In all cases, the objectives of the training program shall be to assure safe and reliable operation of the station.

The training program is kept current to reflect station modifications and changes in procedures. A continuing effort is used after a station goes into commercial operation for training of replacement personnel and for periodic retraining, reexamining, and/or recertifying as required to assure that personnel remain proficient. Personnel receive formal orientation training in basic quality assurance policies and practices.

Personnel receive additional formal training, as appropriate, which addresses specific topics such as NRC regulations and guides, quality assurance procedures, auditing and applicable codes and standards. Special training of personnel in quality assurance related matters, particularly new or revised requirements, is conducted as necessary. Training and qualification records are maintained for each employee. Documentation of formal training includes the objectives, content of the program, attendees, and date of attendance.

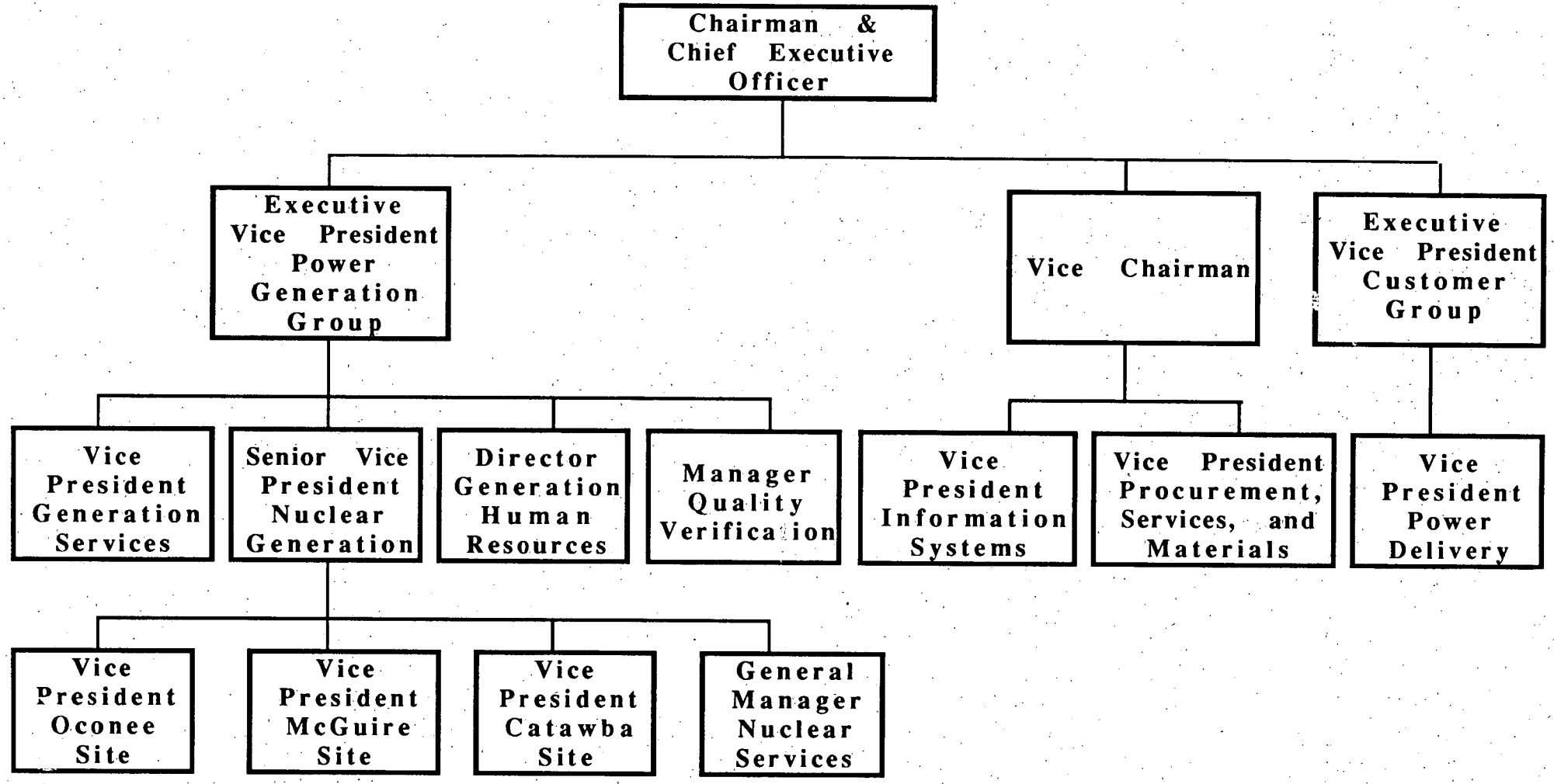
17.3.1.6 Corrective Action

Duke Power has established a corrective action process whereby all personnel are to assure conditions adverse to quality are promptly identified, controlled, and corrected. This process is administered to correct the problem and its cause rather than establish blame or fault. This process also provides for trending of problems to detect adverse trends in quality performance, ***including reporting of results to appropriate levels of management***. This process is discussed in Section 17.3.2.13.

17.3.1.7 Regulatory Commitments

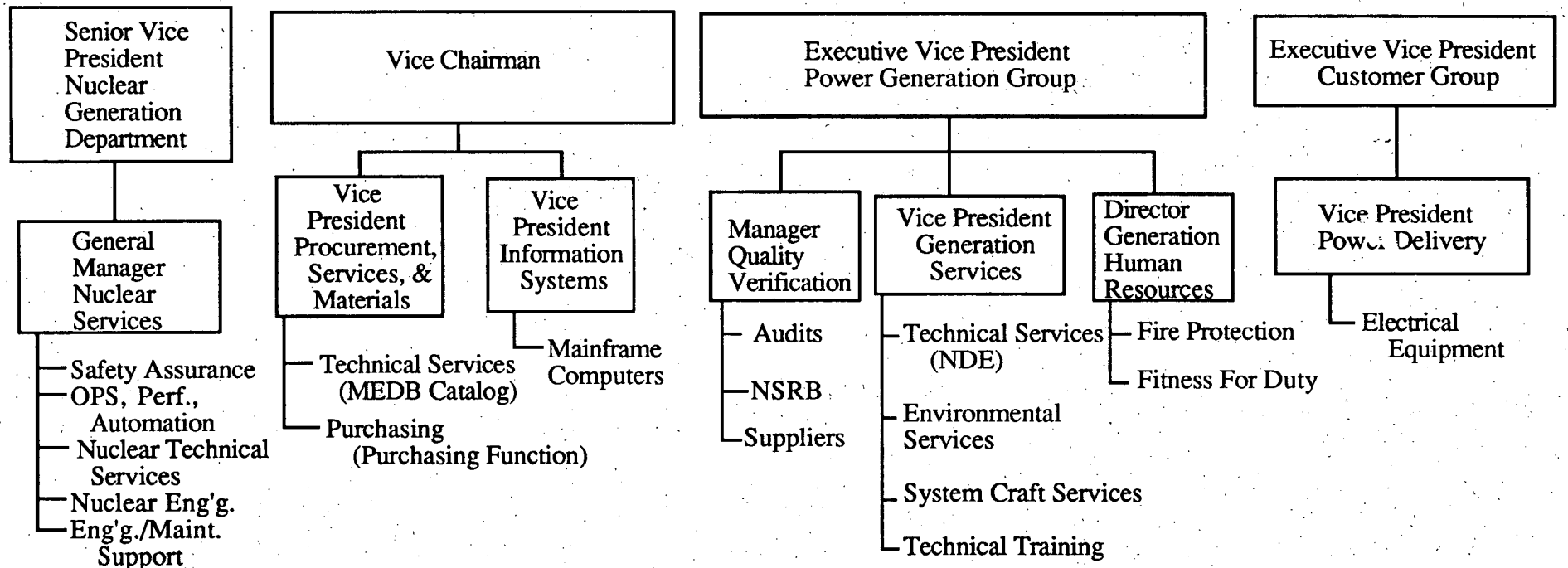
Duke management is committed to applicable quality assurance regulations, codes, and standards as identified in 17.0.2 of this report.

DUKE POWER COMPANY
CORPORATE ORGANIZATION



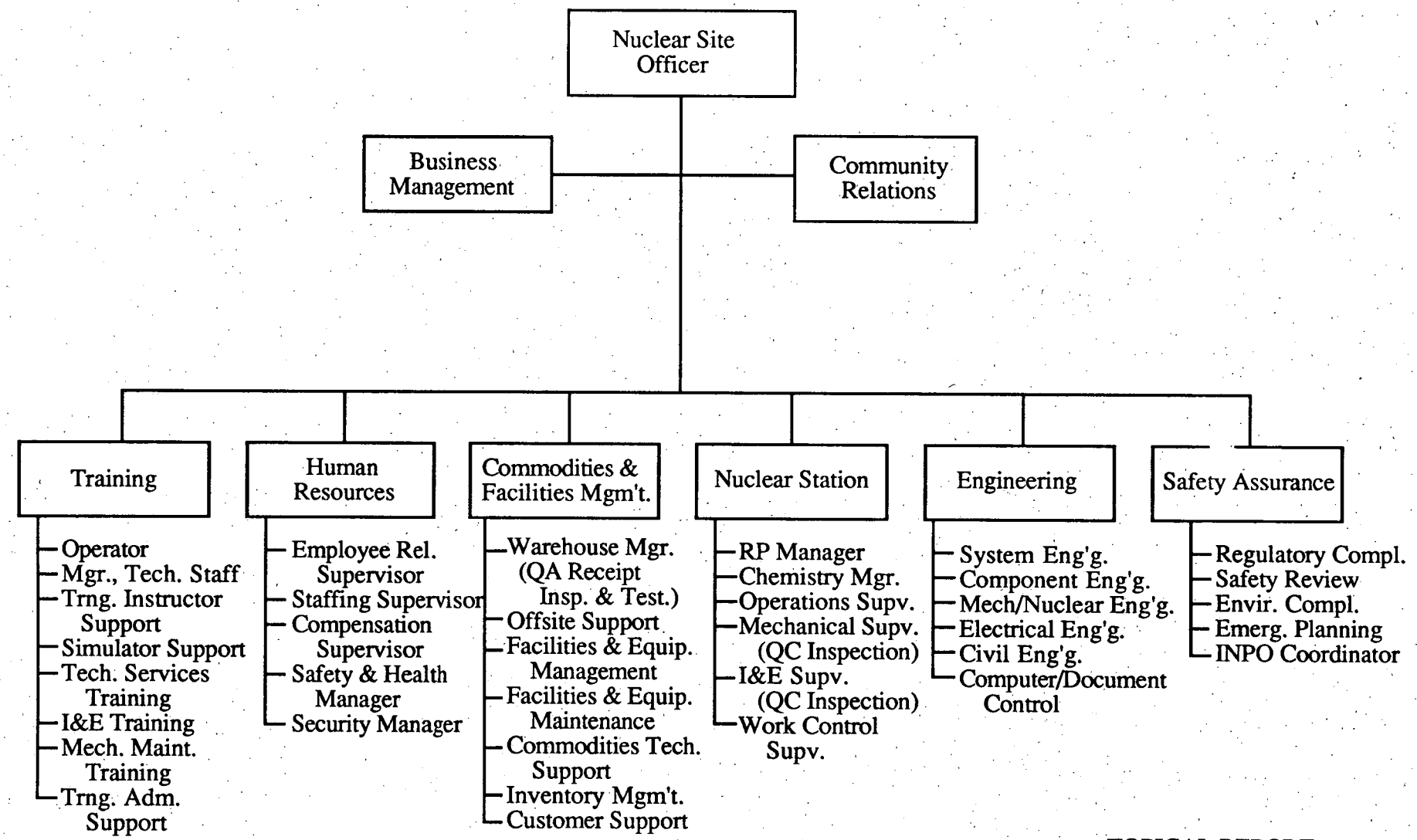
TOPICAL REPORT
QUALITY ASSURANCE PROGRAM
FIGURE 17.3-2
AMENDMENT 15

Off-Site Organization



TOPICAL REPORT
QUALITY ASSURANCE PROGRAM
FIGURE 17.3-3
AMENDMENT 15

Nuclear Site Organization



TOPICAL REPORT
QUALITY ASSURANCE PROGRAM
FIGURE 17.3-4
AMENDMENT 15

17.3.2 PERFORMANCE / VERIFICATION

17.3.2.1 Methodology

The Duke Power Company operational quality assurance program is described in various Company manuals. Procedures and work instructions necessary to implement the requirements of the operational quality assurance program are developed and approved by the organization responsible for the activity. These procedures and instructions may be contained in manuals, station procedures and directives, administrative instructions and/or other documents. These documents identify the criteria to determine acceptable quality for the activity being performed. On-site implementation of procedures and work instructions is the responsibility of the Site Officer. Verification of quality against these documents is performed by means of inspections, tests, audits, and reviews. Procedures for such inspections, audits and reviews are developed and approved by the responsible implementing manager.

The program receives on-going review and is revised as necessary to assure its continued effectiveness.

17.3.2.2 Design Control

In order to provide for the continued safe and reliable operation of a nuclear station's ***QA Condition 1*** structures, systems and components, design control measures commensurate with those applied to the original design are implemented during the operational phase to assure that the quality of such structures, systems and components is not compromised by modifications.

Duke has assigned the responsibility for design activities during the operational phase of nuclear stations to the Nuclear Generation Department.

The operational quality assurance program establishes procedures and instructions for implementation and assurance of design control during the operational phases for ***QA Condition 1*** items. These procedures and instructions assure the design is performed in accordance with approved criteria, and that deviations and nonconformances are controlled.

Each ***QA Condition 1*** design document, such as a calculation, specification, or drawing, is prepared by a qualified individual who specifies and includes the appropriate codes, standards, SAR commitments, and other design input within the design documents. The preparer notes any deviations or changes from such standards within the design documentation package. Each design document is then checked by another individual qualified in the same discipline and is reviewed for concept and conformity with applicable codes standards, and other design inputs (as specified within the design documentation package). The document is approved by the individual having overall responsibility for the design function. A review of each specification is made to assure incorporation of necessary quality assurance information. The entire review process is documented.

Prior to the release of any ***QA Condition 1*** design document, it is reviewed to assure coordination of disciplines. If the document clearly involves no coordination with the other disciplines, this review may be waived by the sponsor, with documented concurrence by the other disciplines.

In order to assure proper interface control, the responsibilities of the various individuals/organizations involved in modifications are formally identified. The assignment of responsibility for the evaluation and design of a particular modification to a specific individual/organization is documented. Also, the written instructions addressing the control of modifications address the communication of information between involved individuals/organizations and, where appropriate, require documentation of such communications.

For each proposed modification, the individual/organization assigned responsibility for evaluation and design of the modification considers the following in the design of the modification:

(a) Necessary design analyses, e.g., physics, stress, thermal, hydraulic, accident, etc.

(b) Compatibility of materials.

(c) Accessibility for operation, testing, maintenance, inservice inspection, etc.

(d) Necessary installation and periodic inspections and tests, and acceptance criteria therefor.

(e) The suitability of application of materials, parts, components, and processes that are essential to the function of the structure(s), system(s) and/or component(s) to be modified.

Final approval of each station modification is the responsibility of the applicable Site Officer or designee. Modifications are then executed in accordance with approved checklists, instructions, procedures, drawings, etc., appropriate to the nature of the work to be performed. These checklists, instructions, procedures, drawings, etc. include criteria for determining the acceptability of the modification.

Errors and deficiencies noted in the design of a modification are corrected by means of a variation notice or a revision to the modification. The control measures applied to each such modification revision or variation notice are equivalent to the control measures applied to the modification originally. Each modification revision or variation notice and the review and approval thereof, is documented.

Prior to a modification being declared operable and returned to service, all procedures governing the operation of the modification are reviewed and revised as necessary. If the modification significantly alters the function, operating procedure, or operating equipment, then additional training is administered as necessary.

Adequate identification and retrievable documentation of station modifications is retained for the life of the station.

Computer programs are controlled in accordance with appropriate department ***procedures***, whereby programs are certified to demonstrate their applicability and validity.

17.3.2.3 Design Verification

During the check and review, of design documents, particular emphasis is placed on assuring conformance with applicable codes, standards, SAR design commitments, and other design input. The individuals assigned to perform the check and review of a ***QA Condition 1*** document have full authority to withhold approval of the document until every question concerning the work has been resolved. If required, the matter can be carried up to the Senior Vice President, Nuclear Generation Department by individuals in Nuclear Services or to the Site Officer by individuals in Site Engineering for resolution. The checker verifies calculations by checking or by alternate computations. Analytical models, theories, examples, tables, codes, computer programs, etc., used as bases for design must be referenced in the design document and their application verified during check and review. Model tests, when required, to prove the adequacy of concept or design are reviewed and approved by the responsible engineer. The tests used for design verification must meet all the requirements of the designing activity. Computer programs are controlled in accordance with the applicable Quality Assurance Manual whereby programs are certified to demonstrate their applicability and validity.

Design verification may consist of reviews, alternate calculations, and/or qualification testing. Design reviews are intended to verify the correctness of design inputs, logic, calculations, and analyses. Calculations by alternate methods provide assurance that, for instance, computer codes are performing as expected, and that no systematic error in calculational procedure exists. Qualification testing, when suitable, is guided by Duke Power's adoption of various regulatory guides which deal with qualification testing. Qualification testing will simulate the most adverse design conditions that are expected to be encountered. Design verification is performed by qualified individuals in accordance with approved procedures which identify the responsibilities, features and pertinent considerations to be verified such as verification method, design parameters, acceptance criteria, and documentation requirements. Design verification is required to be completed before relying on the item to perform its function and before its installation becomes irreversible. The use of the originator's immediate supervisor for verification is: 1) restricted and justified to special situations where the immediate supervisor is the only individual capable of performing the verification 2) the need is individually documented and approved in advance by the supervisor's management and 3) the frequency and effectiveness of the supervisor's use as design verifier are independently verified to guard against abuse.

The individual/organization assigned responsibility for evaluation and design of a modification performs a safety evaluation of the proposed modification. This evaluation provides the bases for the determination that the modification does or does not involve an unreviewed safety question. This evaluation is reviewed by an individual/group other than the individual/group performing the safety evaluation, but who may be from the same organization as the individual/group which

performed the safety evaluation. This evaluation and the review thereof are documented.

Following completion of design and evaluation of a modification, the responsible individual/organization summarizes the modification design and identifies the design documents and information required for modification implementation. This addresses such items as:

(a) A description of the modification.

(b) References utilized in the evaluation and design of the modification, and necessary for the implementation of the modification.

(c) Special installation instructions.

(d) Operational, test, maintenance and inspection requirements.

(e) Materials, parts and components required in order to implement the modification.

(f) Drawings revised and/or requiring revision.

(g) FSAR revision(s) and/or Technical Specifications amendment(s) necessary.

(h) Whether or not the modification involves an unreviewed safety question.

The reviews of the proposed modification, including applicable implementing procedures associated therewith, certifies that quality assurance requirements have been met and determines inspection requirements prior to implementation of the modification. Modifications which are determined to involve an unreviewed safety question are reviewed by the Nuclear Safety Review Board and must be authorized by the Nuclear Regulatory Commission prior to implementation.

17.3.2.4 Procurement Control

Duke's Quality Assurance Program requires the control of ***QA Condition 1*** items or services purchased from a vendor, subvendor or consultant.

Nuclear Generation or Generation Services is responsible for the technical qualification of vendors and control of the initial procurement of all ***QA Condition 1*** items and services. Specifications are prepared, checked, and approved by appropriate personnel and forwarded to the PSM Department, who prepares an inquiry and forwards it to approved vendors. The Quality Verification Department is responsible for qualification of vendor's quality assurance programs.

QA Condition 1 material, equipment and services may be procured only from qualified vendors. Vendor qualification is accomplished by a Quality Verification Department evaluation of the vendor's quality assurance program. The responsible engineer initiates a request for an evaluation of a potential vendor. The request lists applicable codes, standards, regulations and items or services to be supplied.

When required, an audit or preaward survey is performed by the Quality Verification Department. The audit or preaward survey is carried out in accordance with a comprehensive vendor audit checklist to determine the ability of the vendor's quality assurance program and manual(s) to meet applicable criteria of 10CFR50, Appendix B. The audit team prepares a formal audit report which states whether or not the vendor is qualified to supply the specific items or services. This includes a review of the vendor's quality assurance manuals. The audit report is reviewed and approved or disapproved by the Verification Manager, Suppliers. An approved vendor may then be included on the Approved Vendor's List. This approval is a prerequisite for vendor acceptance by the responsible engineer. Technical and commercial qualifications are determined by the responsible engineer and the PSM Department. Vendor selection is based on bid evaluations by the responsible engineer, PSM Department, and Quality Verification Department. The evaluation includes conformance to specifications, quality assurance requirements, and technical and commercial qualifications of the vendor.

When the nature of an item is such that there is adequate experience and/or historical evidence to verify vendor capability, a vendor may be determined to be acceptable by the Manager, Quality Verification Department without performance of a formal audit. ***This provision for vendor qualification based on historical evidence shall not form the sole basis for procurement of commercial grade items unless:***

a. *The established historical record is based on industry-wide performance data that is directly applicable to the item's critical characteristics and the intended QA Condition 1 application; and*

b. *The manufacturer's measures for the control of design, process, and material changes have been adequately implemented as verified by audit (multi-licensee team audits are acceptable).*

When QA Condition 1 products are procured from a vendor whose quality performance has not been verified by audit, additional assurance of product quality shall be obtained by vendor surveillance, inspection, or test.

The Quality Verification Department shall complete a satisfactory reevaluation of a vendor no later than 12 months since the previous evaluation in order to keep the vendor on the Approved Vendors List. When annual reevaluations are performed by audit, the reevaluation may be extended by 3 months from 12 to 15 months with written approval of the Verification Manager, Suppliers. ***Additionally, vendors shall be re-evaluated at least triennially by means of an audit.***

Materials, parts and components shall be procured to specifications and codes at least equivalent to those applicable to the original equipment or those specified by a properly reviewed and approved revision. As required by the applicable purchase documents, vendors furnish documentation which identifies the material and equipment purchased and the specific procurement requirements met by the items.

Also, as required by the applicable purchase documents, vendors provide documentation which identifies any procurement requirements which have not been complied with, together with a description of any deviations and repair records. Vendor evaluation and reevaluation are done in accordance with procedures to assure their certificates of conformance are valid.

When an item being qualified is: (a) not subject to design or specification requirements which are unique to nuclear plants, (b) used in applications other than nuclear plants, and (c) can be ordered from the manufacturer/supplier on the basis of specifications set forth in the manufacturer's published product description, the item may be procured without the performance of a supplier qualification audit or the existence of a documented supplier Quality Assurance Program. These commercial grade items used in ***QA Condition 1*** designs require evaluation and approval by Nuclear Generation Department personnel. Vendor qualification for commercial grade items is the responsibility of the responsible engineer. These items are subject to the same verification and checking process for suitability of application as other ***QA Condition 1*** items.

Procurement of materials, parts, components and services associated with a station's ***QA Condition 1*** structures, systems, and components is controlled during the operational life of the station so as to assure the suitability for their intended service and that the safety and reliability of the station are not compromised.

Each requisitioning document for materials, parts, and components associated with ***QA Condition 1*** structures, systems and components is identifiably designated as such. The procurement requirements applicable to each item is determined by a cognizant individual. This determination is reviewed by an individual other than the individual which determined the applicable procurement requirements, but which may be from the same organization as the individual/group making the determination. Requisitioning documents must include on the document or reference other documents to assure sufficient information is fully identified to specify the items being procured. Subsequent to preparation, purchasing information is approved by the Manager, Commodities & Facilities Management, or his designee, or by a manager in the General Office.

Purchasing information for ***QA Condition 1*** materials, parts and components are reviewed to assure that quality assurance, technical and regulatory requirements including vendor documentation requirements are adequately incorporated into the purchase document(s). Significant changes to the content of such purchasing information are reviewed and approved by qualified individuals. Review of procurement documents and changes thereto assures the documents are prepared, reviewed, and approved in accordance with approved procedures.

Where necessary, procurement documents require that ***QA Condition 1*** materials, parts, and components be acquired from vendors determined to be acceptable by the Quality Verification Department - see Section 17.3.3.2.7. Determination of acceptability requires that a vendor provide Duke the right of access to the vendor's facilities and records for inspection and audit.

Except for some "commercial grade" items each shipment of items procured from a vendor must be accompanied by a certificate of conformance (or equivalent) which identifies the applicable procurement documents and item(s). The certificate specifies that the item meets the procurement requirements and lists the documentation transmitted, including repair records and a description of any deviations. This documentary evidence must be on site and all procurement, inspection, and testing requirements satisfied before the item is placed in service or used.

Commodities & Facilities Management reviews and approves this documentary evidence of item conformance with procurement requirements.

Consultant services are utilized by Duke to provide technical assistance and are controlled by similar procedures and documents as are vendors of ***QA Condition 1*** materials and equipment except the using department may handle the purchase administration rather than the PSM Department. Documentation of such services is controlled by the Quality Assurance Program. Results of consultant services are documented, reviewed, and incorporated, as required, by the responsible organization.

17.3.2.5 Procurement Verification

After vendor selection is made, Nuclear Generation Department or Generation Services Department personnel prepare a requisitioning document. Reviews include a check for applicable quality assurance requirements. The requisitioning document is checked and approved. The approved requisitioning document is forwarded to the PSM Department who prepares a purchase order including quality assurance requirements for forwarding to the successful vendor.

As required by procurement criteria, in order to assure that material and equipment are fabricated in accordance with applicable requirements, vendor review, audit and surveillance are performed by the Quality Verification Department. This review, audit and surveillance includes witnessing of tests and fabrication checkpoints, and evaluation of overall vendor performance ***is performed at intervals and to a depth consistent with the item or service's importance to safety, complexity, and the quantity and frequency of procurement.***

Procedures outlined in the Quality Assurance Program have been established which implement the surveillance program for vendors. This assures that items and services procured for use in nuclear ***QA Condition 1*** applications are in compliance with applicable procurement specifications.

These procedures provide for surveillance of those characteristics or processes to be witnessed, inspected or verified. Surveillance activities assure that the vendor complies with all quality requirements outlined on the purchase specification and purchase document. The surveillance report becomes a part of the quality verification file for the item or service. The surveillance representative has the authority and responsibility to stop work when the required quality standards are not met.

Upon receipt at a ***nuclear site***, the Manager, Commodities & Facilities Management is responsible for the control of ***QA Condition 1*** materials, parts and components. Such items are placed in a controlled, designated area and are subjected to a receipt inspection by ***site*** Commodities & Facilities Management Personnel. This inspection is intended to determine whether or not each item received conforms with applicable procurement requirements. Such inspections and the subsequent determination of conformance or nonconformance are documented by means of reports, which are retained on file by the Commodities & Facilities Management Personnel, and, as appropriate, by tags attached to the items. Until a determination of conformance is made by the Commodities & Facilities Management Personnel, a ***QA Condition 1*** material, part or component cannot be issued and installed.

17.3.2.6 Identification and Control of Items

Control of materials, parts, and components at nuclear ***sites*** is the ultimate responsibility of the Senior Vice President, Nuclear Generation Department with responsibilities delegated to each ***nuclear Site Officer.***

Identification requirements for materials, parts and components important to nuclear safety are stated in specifications, drawings and purchase documents. Specific identification requirements are as follows:

(a) Materials, parts, components, assemblies, and subassemblies shall be identified either on the item or records traceable to the item to show that only correct and accepted items are used and installed.

(b) Some components, such as pressure vessels are identifiable by nameplates as required by applicable codes, or Duke specifications. Materials, parts, and components are traceable from such identification to a specific purchase order to manufacturer's records and to quality assurance records and documentation.

(c) When required by procurement documents, materials are identified by heat, batch or lot numbers which are traceable to the original material. Care is exercised to prevent the duplication of serial numbers. When several parts are assembled, a list of parts and corresponding numbers is included in the documentation.

(d) When required by specifications or codes and standards, identification of material or equipment with the corresponding mill test reports, certifications and other required documentation is maintained throughout the operating life of the material or equipment.

(e) Sufficient precautions will be taken to preclude identifying materials in a manner that will affect the function or quality of the item being identified.

Control of material, parts and components is governed by approved procedures. Specific control requirements include:

(a) Nonconforming or rejected materials, parts, or components are identified to assure that they will not be inadvertently used.

(b) The verification of correct identification of material, parts, and components is required prior to release for assembling, shipping and installation.

(c) Upon receipt, procedures require that materials, parts or components undergo a receipt inspection to assure they are properly identified and that the supporting documentation is available as required by the procurement specifications. Items having limited shelf or use life are identified and controlled.

(d) Each organization which performs an operation that results in a change in the material, part or component is required to make corresponding revisions and/or additions to the documentation record as applicable.

Following receipt inspection, materials, parts and components which are determined to be acceptable are assigned an identifying designation (such as a serial number), as appropriate, in order to provide traceability of each item. In the event that the identification of an item becomes lost or illegible, the item is considered nonconforming and not utilized until proper resolution of the nonconformance. When a designated item is subdivided, each subdivision is identified in accordance with the above requirements. Where physical identification of an item is impractical or insufficient, physical separation, administrative controls or other appropriate means are utilized.

17.3.2.7 Handling, Storage, and Shipping

The quality assurance program requires that ***QA Condition 1*** materials, parts and components be handled, stored and shipped in such a manner that the serviceability and quality assurance traceability of an item is not impaired. Handling, storage and shipping of an item is in accordance with any special requirements identified in documents pertaining to the item. Such requirements may include special handling tools and equipment, special protective coverings and/or special protective environments. Items are to be marked or labeled to preserve the item's integrity and indicate the need for any special controls. Procedures identify predetermined requirements for handling, preservation, storage, cleaning, packaging, and shipping and are utilized by suitably trained individuals.

Conforming ***QA Condition 1*** materials, parts and components are stored in controlled, segregated areas designated for the storage of such items. Inspections and examinations are performed on a periodic basis to assure that recommended manufacturing shelf life of chemicals, reagents, lubricants, and other consumable materials are not exceeded. These items shall be stored in well ventilated areas which are not in close proximity to ***QA Condition 1*** structures, systems, or components.

Nonconforming items are identified, segregated, or otherwise controlled in such a manner as to preclude their inadvertent substitution for and use as conforming materials parts and components.

17.3.2.8 Test Control

The operational quality assurance program addresses both preoperational and periodic (surveillance) testing. The program requires that such testing associated with ***QA Condition 1*** structures, systems and components be accomplished in accordance with approved, written procedures and that schedules be provided and maintained in order to assure that all necessary testing is performed and properly evaluated on a timely basis.

Test controls include requirements on the review and approval of test procedures, and on the review and approval of changes to such procedures, as discussed in section 17.3.2.14. Also, specific criteria are established with regard to procedure content. Examples of items which must be considered in the preparation and review of procedures include:

(a) References to material necessary in the preparation and performance of the procedure, including applicable design documents.

(b) Tests which are required to be completed prior to, or concurrently with, the specified testing.

(c) Special test equipment required to perform the specified testing.

(d) Limits and precautions associated with the testing.

(e) Station, unit and/or system status or conditions necessary to perform the specified testing.

(f) Criteria for evaluating the acceptability of the results of the specified testing, compatible with any applicable design specifications.

Test procedures contain the following information or require this information be documented:

(a) Requirements and acceptance limits contained in applicable Design and procurement documents.

(b) Instructions for performing the test.

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

(d) Mandatory inspection hold points.

(e) Acceptance and rejection criteria.

(f) Methods of documenting or recording test data and results.

(g) Provisions to assure test prerequisites have been met.

Requirements are also established for verification of test completion and for determining acceptability of tests results. Test results are reviewed and accepted by the testing organization and the organization responsible for the item being tested. In the event that test results do not meet test acceptance criteria, a review of the test, test procedure and/or test results is conducted to determine the cause, required corrective action, and retest as necessary.

In addition to the above, after maintenance to, or modification of, ***QA Condition 1*** structures, systems and components certain proof tests, electrical tests, operational tests or other special tests are performed and documented as required to verify the satisfactory performance of the affected items.

17.3.2.9 Measuring and Test Equipment Control

The organizations performing ***QA Condition 1*** work activities have the responsibility to assure the required accuracy of tools, gauges, instruments, radiation measuring equipment, ***non-destructive testing equipment*** and other measuring and test devices affecting the proper functioning of ***QA Condition 1*** structures, systems and components and that a program of control and calibration for such devices is provided. This program includes the following:

(a) Devices are assigned permanent, identifying designations.

(b) Devices are calibrated at prescribed intervals, and/or prior to use, against certified equipment having known, valid relationships to nationally recognized standards. The calibration interval for a device is based on the applicable manufacturer's recommendations. If experience dictates that the manufacturer's recommendations are not appropriate, the calibration interval is changed as necessary.

(c) Devices that have been acceptably calibrated are affixed, where practical, with a tag, or tags, showing the date of calibration, the date the next calibration is due, an indication that the device is within calibration specifications and the identification of the individual who was responsible for performing the calibration. When attaching tags is not practical, the device is traceable by unique identification to the applicable calibration records.

(d) Devices which fail to meet calibration specifications are affixed with a tag, or tags, showing the date of rejection, the reason for rejection and the identification of the individual rejecting the device. "Accepted" and "Rejected" calibration tags are sufficiently different to preclude confusion between them.

(e) Items and processes determined to be acceptable based on measurements made with devices subsequently found to be out of calibration are re-evaluated.

(f) Devices stored under conditions which are in accordance with, or more conservative than, the applicable manufacturer's recommendations.

(g) Devices are issued under the control of responsible personnel so as to preclude unauthorized use.

(h) Devices are shipped in a manner that is in accordance with, or more conservative than, the applicable manufacturer's recommendations.

(i) Records are maintained on each device which identify such items as the device designation and the calibration frequency and specifications. Records are maintained to reflect current calibration status.

(j) As a rule, the calibration program achieves a minimum ratio of 4-to-1 calibration standard accuracy to measuring and test equipment accuracy unless limited by the state of the art; however, when an accuracy ratio of less than 4-to-1 is utilized, an evaluation of the specific case is made and documented.

Installed instrumentation is subject to the requirements of the Technical Specification and is not subject to the tagging requirements discussed in (c) and (d) above. The Quality Verification Department verifies implementation of the calibration program through periodic audits.

17.3.2.10 Inspection, Test, and Operating Status

In order to assure that equipment status is clearly evident, and to prevent inadvertent operation, the operational quality assurance program requires ***QA Condition 1*** structures, systems and components which are in an other than operable status to be identified as such. This identification may be means of tags, labels, stamps or other suitable methods. Where appropriate, an independent verification of the correct implementation of such identification measures is performed. When tags, labels or stamps are utilized for the identification of equipment status, the issuance and removal thereof is documented in order to assure proper control of such identification measures. Also, procedures require that the operability of an item removed from operation for maintenance or testing be verified prior to returning the item to normal service.

Inspections and tests required by the written approved procedures which address work activities are infrequently, temporarily deferred. When such a deferral does occur, a discrepancy is considered to exist and documentation of the acceptable completion of the affected work activity is not performed until the discrepancy is resolved.

Measures taken to identify equipment inspection and test status by Nuclear Generation Department personnel are controlled by the Nuclear Generation

Department. Measures taken by Generation Services Department personnel, during the performance of required inspections and quality control activities, to identify equipment status are controlled by the Generation Services Department.

17.3.2.11 Special Process Control

The Nuclear Station Manager is responsible for directing the organization and performance of the station's program for the control of special processes, and for assuring the necessary qualified personnel are available.

The Generation Services and Nuclear Generation Departments are responsible for furnishing qualified personnel, performance of and documentation of Non Destructive Examination (NDE).

The operational quality assurance program contains or references procedures for the control of special processes such as welding, heat treating, non-destructive examination, coatings, crimping, and cleaning. The program requires that approved, written procedures, qualified in accordance with applicable codes and standards, be utilized when the performance of such processes affects the proper functioning of a station's ***QA Condition 1*** structures, systems, and components. These procedures shall provide for documented evidence of acceptable accomplishment of special processes using qualified procedures, equipment, and personnel.

Personnel performing such activities must be qualified in accordance with applicable codes and standards. Adequate documentation of personnel qualifications is required prior to performance of the applicable special process. Non-destructive examination personnel are certified to required codes and standards.

17.3.2.12 Inspection

In order to assure safe and reliable operation, a program of inspections for ***QA Condition 1*** structures, systems and components is established at each nuclear station. The program addresses:

(a) Inservice inspections required by Section XI of the American Society of Mechanical Engineers Boiler and Pressure Vessel Code.

(b) Inspections to verify compliance with cleanliness criteria.

(c) Inspections to verify compliance with certain instrument and maintenance procedures.

(d) Inspections to verify conformance of materials, parts, and components received at a nuclear station with applicable specifications and requirements.

(e) Inspections to verify the integrity of ***QA Condition 1*** structures, systems and components during and/or after maintenance and modification.

The personnel performing these inspections are examined and certified in their particular category. Current qualification and certification files are maintained for each inspector. Nondestructive examination inspectors are certified in accordance with American Society for Non-destructive Testing (SNT-TC-1A) recommended practice. Written procedures require the test and certification of inspectors in other categories such as Mechanical, Electrical, and Structural as described in the appropriate quality assurance manual. For cases where inspectors will perform limited functions within a category, they are tested and certified to those limitations. These inspectors are only allowed to perform inspections specifically defined in this limited certification.

Certification procedures and certifications are approved by Nuclear Generation or Generation Services Department personnel responsible for these processes. These procedures comply with the requirements of applicable codes and standards.

Modifications, repairs and replacements are inspected in accordance with the original design and inspection requirements, or acceptable alternatives. Mandatory inspection hold points are included in the documents addressing the activities being performed, as necessary, and work does not proceed beyond such hold points until satisfactory completion of the required inspection, disposition of any item not meeting the acceptance criteria, and any required reinspection. Inspection procedures, instructions, and checklists contain the following information or require this information on inspection reports:

(a) Characteristics to be inspected.

(b) Method of inspection.

(c) Measuring and test equipment information.

(d) Responsibility for the inspection.

(e) Acceptance or rejection criteria.

(f) Identification of required procedures, drawings, specifications, etc..

(g) Signature or initials of inspector.

(h) Record of results of the inspection.

After inspection data is collected and reviewed by the inspector, the reports are technically reviewed by personnel designated to perform that quality assurance function.

Inspection activities involving the vendor quality assurance program are evaluated and approved by the Quality Verification Department.

17.3.2.13 Corrective Action

Station personnel are responsible for the implementation of ***the quality assurance program*** as it pertains to the performance of their activities. Specific to this responsibility is the requirement for informing the responsible supervisory personnel and/or for taking appropriate corrective action whenever any deficiency in the implementation of the requirements of the program is determined.

Procedures require that conditions adverse to quality be corrected and action be taken to preclude repetition. Performance and verification personnel are to:

(a) Identify conditions that are adverse to quality.

(b) Suggest, recommend, or provide solutions to the problems.

(c) Verify resolution of the issue.

Additionally, performance and verification personnel are to ensure that reworked, repaired, and replacement items are to be inspected and tested in accordance with the original inspection and test requirements or specified alternatives.

For significant incidents occurring during operation which are, or could be, related to the nuclear safety of the ***station, reports*** are generated. These reports:

(a) Contain a summary description of the information relating to the subject incident.

(b) Contain an evaluation of the effects of the incident.

(c) Describe corrective action taken or recommended as a result of the incident.

(d) Describe, analyze and evaluate any significant ***QA Condition 1*** implications of the incident.

Each such report is approved by the responsible Management and transmitted to Site Safety Assurance Manager, Senior Vice President Nuclear Generation, and to the Nuclear Safety Review Board. Outstanding corrective action commitments made with regard to such incidents are identified and periodically reviewed to assure that the identified corrective actions are properly completed and documented. An identified corrective action commitment is closed out upon written notification by a cognizant, responsible individual or other written documentation, of the satisfactory completion thereof. Closure of corrective action commitments which specifically involve other Department(s) require written notification by the other Department(s) of the satisfactory completion thereof.

Discrepancies revealed during the performance of station operation, maintenance, inspection and testing activities must be resolved prior to verification of the completion of the activity being performed. In the event of the failure of ***QA Condition 1*** structures, systems, and components, the cause of the failure is evaluated and appropriate corrective action taken. Items of the same type are evaluated to determine whether or not they can be expected to continue to function

in an appropriate manner. This evaluation is documented in accordance with applicable procedures.

QA Condition 1 materials, parts and components which are determined to be nonconforming are identified, segregated or otherwise controlled in such a manner as to prevent installation and/or use. The determination of an item's nonconformance is documented and is retained on file by the Nuclear Generation Department and, as appropriate, by tags attached to the item. Nuclear Generation Department personnel are notified of any nonconformances identified in accordance with approved procedures.

The Nuclear Generation Department maintains a listing of the status of all nonconformance documents. These reports, when complete, identify the nonconforming material, part or component; applicable inspection requirements; and the resolution, and approval thereof, of the nonconformance. Provisions are established for identifying those personnel with the responsibility and authority for approving the resolution of nonconformances. Until a determination of conformance is made, a ***QA Condition 1*** material, part or component cannot be issued or installed. Tags which are placed on items to identify nonconformances are removed upon resolution.

Information relating to nonconforming materials, parts and components is analyzed by Nuclear Services to determine if any discernible trends which might affect quality exist. When recurring nonconformances indicate possible vendor deficiencies, such information is considered in evaluation of vendor acceptability by the Quality Verification Department.

17.3.2.14 Document Control

The Topical Report describes Duke's Quality Assurance Program for all phases of Duke's Nuclear Power Plants. This document is certified to meet NRC Quality Assurance Regulations by the Executive Vice President, Power Generation Group. The Power Generation Group Nuclear Policy Manual establishes the policies and instructions governing activities associated with Duke's nuclear stations and identifies the various departments performing these activities. This manual is approved by the Executive Vice President, Power Generation Group or designee. These manuals are considered controlled documents and numbered copies are distributed by cover letter from the General Manager, Nuclear Services or designee.

The Safety Analysis Reports are considered controlled documents and are distributed by cover letter from the Site Officer or his designee.

The Power Generation Group Nuclear Policy Manual and the manuals listed below specify the requirements for the development, review, approval, issue, control, and use of manuals and procedures to implement the requirements contained within the Topical Report.

The Nuclear Procurement Engineering Program Manual (NPEP) contains the policies and procedures that control nuclear procurement. This manual imposes requirements on all departments involved with procurement, including

Procurement, Services, and Materials (PSM). This manual is approved by the Senior Vice President, Nuclear Generation or designee.

The Information Systems Quality Assurance Program Manual (ISQAP) is Information Systems' governing procedure for the development and maintenance of software which supports QA Condition activities (activities associated with nuclear safety, radwaste, fire protection, and seismic structures, systems, and components) as identified in each station's Quality Standards Manual. This manual is approved by the Vice President, Information Systems or designee.

The Generation Services Department functional area manuals contain the procedures governing the functions that this department performs such as NDE, calibration, and soils testing in support of the nuclear stations. These manuals are approved by the Vice President, Generation Services or designee.

The Generation Human Resources Department Manual contains the policies and procedures governing the functions that this department performs ***such as fitness for duty and fire protection.*** This manual is approved by the Director, Generation Human Resources or designee.

The Power Delivery Department Manual contains the policies and procedures governing the functions this department performs such as maintenance and testing of ***electrical*** equipment. This manual is approved by the Vice President, Power Delivery or designee.

The Quality Verification Department Manual contains the policies and procedures governing the functions this department performs including audits, vendor qualification, and NSRB activities. This manual is approved by the Manager, Quality Verification or designee.

With regard to specific operational activities associated with ***QA Condition 1*** structures, systems and components, it is required that such activities be accomplished in accordance with procedures, instructions, drawings, checklists, etc. appropriate to the nature of the activities being performed. As necessary, such documents identify equipment necessary to perform an activity, specify conditions which must exist prior to and during performance of an activity, and include quantitative and/or qualitative acceptance criteria, compatible with any applicable design specifications, for determining that the activity addressed is satisfactorily accomplished. Also, the procedure will require independent verification by qualified personnel of the performance of specific procedural steps. Examples of documents established concerning quality related operational activities are:

(a) Preoperational Test Procedures

(b) Periodic Test Procedures

(c) Operating Procedures

(d) Emergency Procedures

(e) Maintenance Procedures

(f) Instrument Procedures

(g) Radiation Protection Procedures

(h) Alarm Responses

(i) Chemistry Procedures

The frequency of procedure reviews shall be specified and may vary depending on the type and complexity of the activity involved, and may vary with time as a given plant reaches operational maturity. Review of procedures can be accomplished in several ways, including (but not necessarily limited to) documented step-by-step use of the procedure (such as occurs when the procedure has a step-by-step checkoff associated with it), or detailed scrutiny of the procedure as part of a documented training program, drill, simulator exercise, or other such activity. A revision of a procedure can constitute a procedure review.

In addition to the above, files of drawings and vendor documents applicable to the station's structures, systems and components are maintained at each nuclear station and are utilized, as appropriate, in the performance of quality related activities.

Station procedures which address activities associated with ***QA Condition 1*** structures, systems and components are subjected to a well-defined, established review and approval process. This process includes the requirement that each procedure be reviewed for adequacy by an individual/group other than the individual/group which prepared the procedure, but who may be from the same organization as the individual/group which prepared the procedure. As appropriate, such procedures are also reviewed by personnel from Nuclear Services, by other departments within the Company, by the Nuclear Safety Review Board or by vendor personnel. Final approval of a procedure is by designated station management. Major changes to approved procedures also require final approval by designated station management. Maintenance, instrumentation and modification procedures are reviewed by ***cognizant station personnel*** to determine the need for inspections. Procedures developed and implemented for inspection identify the certifications, inspection methods, acceptance criteria, and provide means for documenting inspection results.

In the case of station activities of a non-recurring nature, e.g., preoperational tests, only an original copy of an approved procedure is available for use. Such copies are controlled and are replaced whenever the procedure is superseded by a new issue. For activities which are of a recurring nature, e.g., surveillance testing, current original copies of approved procedures are maintained in a controlled manner. Copies of these original copies are then utilized in the performance of work activities. When such "working copies" involve the documentation of compliance with acceptance criteria contained in the procedure, the "working copy" of the procedure utilized is compared with the applicable original copy to assure validity. Station procedures administratively control and provide means to document this

comparison. Such completed procedures are retained - See Section 17.3.2.15. When recurring work activities do not involve documentation of compliance with acceptance criteria within the procedure, e.g., certain operating activities, issuance of the applicable "working copies" is controlled to assure that only current copies are available for use.

Drawings and vendor documents, as-built drawings and changes thereto, are normally received from Engineering for distribution and use. Distribution indices are established and utilized for such documents within each station in order to assure their proper distribution and use. A master file of drawings is maintained and a master index, updated regularly, is used to identify drawings, revisions, number of copies, and distribution. Design and procurement documents are maintained, controlled, and are updated, as necessary, by Engineering. As documents are received from Engineering all superseded copies shall be destroyed or clearly marked superseded.

A master copy of all controlled documents is maintained in the document control area of each station. Copies of controlled documents are distributed by station document control personnel utilizing a distribution index to assure proper distribution and use. Reviews are performed regularly and documented to assure proper functioning of the control system.

17.3.2.15 Records

Each nuclear station is required to maintain adequate identifiable and retrievable quality assurance records. Such records are managed in a controlled and systematic manner by means of a station Master File. Access to, and use of, this file is controlled. Records required to be retained include:

(a) ***QA Condition 1*** preoperational testing records.

(b) Records of modifications to station ***QA Condition 1*** structures, systems and components.

(c) Radiation monitoring records.

(d) Personnel radiation exposure records.

(e) Records of radioactive releases and waste disposal.

(f) Isotopic and physical inventory records of special nuclear materials.

(g) Records of the qualifications, experience and training of appropriate station personnel.

(h) Current calibrations for measuring and test devices.

(i) Copies of approved purchasing documents for items requiring quality assurance certification.

(j) Maintenance histories on ***QA Condition 1*** instrumentation and electrical and mechanical equipment.

(k) Records of special processes affecting ***QA Condition 1*** structures, systems and components.

(l) Copies of purchase specifications.

(m) Operating records and logbooks.

(n) Periodic testing records.

(o) Records of inspections.

(p) Copies of approved and of completed station procedures.

(q) Copies of audit reports received from the Quality Verification Department, and responses thereto.

(r) Copies of reports concerning station activities sent to the Nuclear Regulatory Commission.

(s) Copies of drawings and vendor documents.

(t) Copies of ***reports of significant events.***

(u) Records of inservice inspections.

(v) Records of quality control inspections.

(w) Records such as vendor documentation packages and inspection reports, piping isometric drawings, welding records, etc. compiled during the design and construction of a nuclear station.

(x) Records of in-plant reviews performed on station activities.

(y) Records of the qualifications of quality control and other appropriate personnel.

Test inspection, and NDE records maintained by the station contain the following:

(a) A description of the activity performed.

(b) The date and results of the activity.

(c) Information relating to discrepancies identified with regard to the activity.

(d) An identification of the data recorder(s) or inspector(s) involved in the activity.

(e) Evidence of the completion, and verification thereof, of the activity.

(f) An identification of the acceptability of the results of the activity.

Records of activities within the purview of the Quality Verification Department are maintained by the Quality Verification Department in a manner similar to that described above for station quality assurance records. These records include:

(a) Nuclear Safety Review Board meeting minutes.

(b) Nuclear Safety Review Board Reports.

(c) Audit reports for audits conducted under the cognizance of the Nuclear Safety Review Board.

(d) Vendor audit reports and surveillances.

(e) Audit reports of Duke Power Company activities.

(f) Audit and Vendor personnel qualification records.

Records of activities within the purview of the Generation Services Department are maintained by the Generation Services Department in a manner similar to that described above for station quality assurance records. These records include:

(a) NDE inspection personnel certification records.

(b) Calibration standard records and Measuring and Test Equipment (M & T E) calibration records.

(c) Environmental compliance records.

Records of activities within the purview of the Information Systems Department are maintained by the Information Systems Department in a manner similar to that described above for station quality assurance records. These records include:

(a) Software requirements.

(b) Software test plans.

(c) Software test results.

(d) Program/Module specifications and source codes.

Records of activities within the purview of the Procurement, Services and Materials Department are maintained by the Procurement, Services and Materials Department in a manner similar to that described above for station quality assurance records. These records include:

(a) Records of Materials and Equipment (MEDB) Catalog.

The retention times for the various quality assurance records are in accordance with applicable requirements, including those of the Code of Federal Regulations, a

station's Technical Specifications and established national codes and standards. To the maximum extent practicable, records are stored such that they are protected from possible destruction by causes such as fire, flooding, theft, insects and rodents and from possible deterioration due to a combination of extreme variations in temperature and humidity conditions.

Record storage areas shall be evaluated by a qualified Fire Protection Engineer to assure the records are adequately protected from damage. The evaluation shall include the following considerations as a minimum:

(a) Structural collapse.

(b) Unprotected steel (suspended floor slab or roof).

(c) Fire frequency of similar occupancies.

(d) Quantities of combustible materials.

(e) Ceiling height/Room configuration which would contribute to heat dissipation.

(f) Fire detection.

(g) Fixed fire suppression systems.

(h) On-site fire fighting organizations including available equipment.

This evaluation shall be documented for each record storage area (includes satellite file locations).

17.3.3 SELF ASSESSMENT

17.3.3.1 Methodology

The Self-Assessment process encompasses internal and corporate audits, independent review committee activities, in-plant reviews, and other independent assessments. This process is to confirm to management that activities affecting quality comply with the quality assurance program and that the quality assurance program has been implemented effectively. These functions are directed by the Manager, Quality Verification and the Managers of Safety Assurance. The assessment activities are performed in accordance with instructions and procedures by organizations independent of the areas being assessed. Organizations performing self-assessment activities are technically and performance oriented, with the primary focus on the quality of the end product and a secondary focus on procedures and processes.

17.3.3.2 Assessment

17.3.3.2.1 Nuclear Safety Review Board

The Executive Vice President, Power Generation Group, appoints a Nuclear Safety Review Board to serve as a nuclear safety review and audit backup to the normal operating organization. The Nuclear Safety Review Board reviews proposed tests and experiments, proposed station modifications, and proposed changes to procedures, when such involve an unreviewed safety question. Also, the Board reviews reportable occurrences and violations of a station's Technical Specifications and makes recommendations to prevent recurrence.

17.3.3.2.2 Internal Audits

Duke's Quality Assurance Program requires a comprehensive system of planned and periodic internal audits for all phases of station operations and supporting activities.

All organizational units conducting quality assurance activities are evaluated with a system of audits. These audits are performed to determine the effective implementation of all applicable criteria of 10CFR50, Appendix B. Periodic audits of activities or records of processes (e.g., welding, maintenance, development of design, record management, or system testing), to verify compliance and effectiveness of the implementation of the Quality Assurance Program are performed. Internal audits are initiated under the direction of the Verification Manager, Audits. The Manager, Quality Verification Department may initiate special audits or expand upon the scope of an existing audit. The scope of each audit is determined by the responsible Lead Auditor, under the direction of the Verification Manager, Audits. Additionally, the scope of audits performed under the cognizance of the Nuclear Safety Review Board (NSRB) are evaluated for compliance with NSRB requirements by the NSRB staff. The lead auditor directs the audit team in developing checklists, instructions, plans and in the performance

of the audit. The audit shall be conducted in accordance with checklists; the scope may be expanded upon by the audit team during the audit, if needed. One or more persons comprise an audit team, one of whom shall be qualified lead auditor.

Audits of selected aspects of operational phase activities are performed with a frequency commensurate with safety significance and in such a manner as to assure that an audit of all ***QA Condition 1*** functions is completed within a period of two (2) years. The audit system is reviewed periodically and revised as necessary to assure coverage commensurate with current and planned activities.

The audit team concludes with a post-audit conference between the audit team and responsible management. The conference includes a brief discussion of audit results, including any deficiencies and recommendations. The audit results are documented in a report.

Within thirty (30) days of the post-audit conference, a report is issued to the responsible management with copies sent to the Vice President of the audited Site or department and other management as appropriate.

Within thirty days after receipt of the audit report, responsible management replies in writing to the Verification Manager, Audits , describing corrective action and an implementation schedule. When necessary, after receipt of the management reply, a re-evaluation is made to verify implementation of corrective action. This re-evaluation is documented. The audit is closed with a letter to the responsible management. All pertinent correspondence, checklists, and reports related to the audit are placed in the Quality Verification file.

Audit data are analyzed and the resulting reports on the effectiveness of the QA program, including any quality problems, are reported to management through the Integrated Safety Assessments, for review and assessment. This data is also used to modify the audit schedule as necessary to assess potential weaknesses.

17.3.3.2.3 Safety Assurance

Safety Assurance, through Safety Review Group, and ***Regulatory*** Compliance, monitors the day to day ***and*** overall performance of each nuclear station.

The Safety Review Group investigates significant occurrences and problems to determine the root cause(s) and to identify actions necessary to prevent recurrence. The Safety Review Group also performs in-plant reviews ***including*** checking documents, records, and work in progress to determine that quality assurance requirements are being properly implemented. Work in progress includes such activities as welding, maintenance, system testing, station operation, station modifications, refueling, and record management. These investigations and reviews are documented in reports and submitted to Management, NRC, and other authorities as appropriate. ***The Safety Review Group also coordinates the development of corrective actions for significant occurrences and problems.***

The Regulatory Compliance Group is responsible for the preparation, issue, and maintenance of all site licensing documents; providing site personnel with interpretations on the licensing documents, the preparation and submittal of violation responses, ***and coordination of NRC inspection activities on site.***

The Environmental Compliance Group is responsible for the overall coordination of the site Environmental Management Programs to assure compliance with applicable Federal, State, and Local requirements.

The Emergency ***Planning*** Group is responsible for the overall coordination of the Site Emergency Plan to assure compliance with applicable FEMA and NRC requirements.

17.3.3.2.4 Corporate Audit

Corporate audits are initiated and directed by the Executive Vice President, Power Generation Group. This audit is performed annually on the Quality Verification Department.

The Executive Vice President, Power Generation Group selects the audit team and appoints a team leader. The audit team consists of at least three qualified individuals, none of which is from the area audited.

The scope of the audit is determined by the Executive Vice President, Power Generation Group and the audit team. In each a review of Internal Quality Verification audits is included. The audit is performed with preapproved checklists, instructions, or plans.

The audit team conducts a post-audit conference with the responsible management of the area audited to discuss the audit results, including deficiencies. The audit team prepares checklists and the audit report. The report is sent to the Executive Vice President, Power Generation Group and the Senior Vice President, Nuclear Generation.

The Executive Vice President, Power Generation Group determines the need for corrective action and reevaluation. Necessary corrective action and reevaluation are performed as required.

All pertinent correspondence, checklists, and reports related to the audit are placed in the quality verification file.

17.3.3.2.5 Integrated Safety Assessments

Integrated Safety Assessments are performed twice annually to assess the operational performance from a nuclear safety point of view. The Nuclear Generation Department has the lead responsibility for coordinating these assessments. The Integrated Safety Assessment Group is composed of representatives from Quality Verification, and Nuclear Generation all of which are independent of station operation management. Assessment results are provided to

nuclear station management teams, Department Heads, Executive Vice President, Power Generation Group, and the Nuclear Safety Review Board.

17.3.3.2.6 Self-Initiated Technical Audits

Self-Initiated Technical Audits are performed to assess the operational readiness and functionality of a safety system, component, or structure at a nuclear station. The Manager, Quality Verification is responsible for the development of the audit plan and has the responsibility for organizing and directing the audits and providing audit team leaders. Appropriate departments will supply audit team members who have the needed expertise and level of experience. Audit Reports will be distributed to the appropriate management and the Nuclear Safety Review Board.

17.3.3.2.7 Vendors

Vendor quality assurance programs are evaluated and monitored by the Quality Verification Department, Suppliers to assure that quality assurance requirements are met. Vendor Quality Assurance Programs require a system of periodic and planned vendor and sub-vendor audits conducted by persons not directly involved in the activity being audited.

Duke assures that vendor quality assurance programs provide for surveillance, evaluation and approval of subvendors supplying items and services. This assurance is accomplished by reviewing vendor audits of subvendors as part of the pre-bid audit, by making vendor control of subvendor work a criterion for vendor approval or disapproval, and by making vendor surveillance of subvendor a requirement of the purchase requisition.

The Verification Department, Suppliers maintains surveillance and performs audits on suppliers' quality assurance programs including the activities of their vendors and subvendors, to assure that operations are in compliance with specified quality assurance requirements. In the case of an audit of a supplier, any deficiencies noted by the auditor are clearly outlined in writing and given to the suppliers quality assurance organization, which takes appropriate steps to resolve the deficiencies.

A reaudit is performed, if appropriate, to verify the implementation of the corrective action.