DMB

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86 OCT 3 P1:44

September 29, 1986

Dr. J Nelson Grace
U.S. Nuclear Regulatory Commission
Region II
101 Marietta St., Suite 3100
Atlanta, Georgia 30303

Dear Dr. Grace,

Enclosed is our response to your request for additional information (Mr. Reyes letter of July 22, 1986). Also enclosed is a revised Amendment 10 proposal to our Topical Report which incorporates the above responses as necessary.

Respectively Submitted,

G W Grier
Corporate QA Manager

GWG/BRJ/cec

cc w/encl: J C Bryant
P H Skinner
P K Van Doorn
W T Orders
G A Belisle
Document Control Desk

Enclosure 1: Response to Request for Additional Information

Enclosure 2: Revised Amendment 10 Proposal

IE43
1/1

IE01

Enclosure 1
Response to Request for Additional Information
Duke Quality Assurance Program

NRC Question	Duke's Response
1. Table 17.0-1 RG 1.58 Provide information concerning how this change (use of SNT-TC-1A-1980) will be reflected in each station's Inservice Inspection Plan.	The Inservice Inspection Plan will not be affected. The procedures referenced in the ISI Plan require inspectors be certified to our procedure NDE-B. NDE-B complies with SNT-TC-1A-1980 and Section XI, including exceptions in IWA-2300.
2. Table 17.0-1 RG 1.88 Provide additional justification for this apparent decrease in commitments.	A Fire Protection Engineer will evaluate our record storage areas to assure records are adequately protected and the storage areas meet the intent of RG 1.88. Our position on RG 1.88 is revised as follows: RG 1.88 Rev(2) incorporates ANSI N45.2.9-1974. The Duke program conforms to RG 1.88 except the record storage facilities have a minimum 3-hr fire 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 will be a registered professional engineer, qualified for membership grade status in the Society of Fire Protection Engineers.

3.	Page 17.0.3	
	Justify why the term "Vendor Audit" was not identified and justify the change.	This term was added in Amendment 8 of the Topical Report.
4.	Page 17.1-2	
	Explain where the duties of the Safety Review, Analysis, and Licensing Division have been transferred.	This division was re-organized and is now called Research and Projects Section. This division does not interface with nuclear activities. The Licensing responsibilities of this group were transferred to the Nuclear Production Department.
5.	Page 17.1-2	
	Justify why wording concerning the Engineering Manager was deleted.	This was not deleted. The information was carried to the next page which was not originally submitted. Page 17.1-3 is included in Attachment 2.
6.	Page 17.1-4	
	Explain why the word "may" is used and how the Operations QA Manager can effectively implement both programs.	We use "may" as an organizational option. The Operations QA Manager Manager will have both QA organizations (Operations & Construction) at one site report to him during turnover conditions. This is an interim organization established during the final stages of turnover.
7.	Page 17.1-15	
	Define the term "other items" used in the first paragraph.	The term refers to other safety related items. See Page 17.1-15 of Attachment 2 for clarification.
8.	Page 17.1-31	
	Justify why the approval function was changed from QA Technical Service to the QA Department.	The documents referenced in this section are not all approved by the same division of the Quality Assurance Department. Our implementing procedures address specific responsibilities for record approvals.

9. Page 17.1-33 and Page 17.2-27

Explain further the reason for this change and whether transmittal and effective dates may be close enough to allow implementation reviews to occur greater than 3 months after the effective date.	After transmittal of a procedure, a period of 35 days is allowed before the procedure is required to be implemented. The implementation date may be any time after transmittal up to 35 days. Each location may implement the procedure independently of other locations making it difficult to identify the exact implementation date. Since the transmittal date is the same for all locations, it gives us a more specific date to use for reference.

10. Page 17.1-33 and 17.2-27

Justify why "associated records" and "work in progress" were deleted for implementation reviews.	Amendment 9 addressed "associated records" and "work in progress" for surveillance activities. These items are still addressed for surveillance. The implementation review is in addition and external to site/station activities.

11. Page 17.1-33 and 17.2-27

Justify why all QA/QC procedures do not receive an implementation review.	We do implementation reviews on new procedures and major revisions to to existing procedures. It is not necessary to perform these reviews on editorial changes or minor revisions which do not significantly affect the way work is done. Our implementing procedures will be revised to reflect our position.

12. Page 17.2-16

Explain why "before coming valid" was deleted.	This was deleted to clarify that the Level II inspector's inspection and signature are valid. The records are still reviewed by QA prior to filing and storing.

13. Page 17.2-22

Explain how the PIR will replace the NIR and how the data base will be controlled during transfer.

The Problem Investigation Report (PIR) will replace the Nonconforming Item Report (NIR) at a specific point in time. There will not be a transition phase or a transfer of information. The QA Department will be responsible for assuring completion of all NIR's. There will not be any NIR's initiated after the implementation of the PIR process at each station. The PIR process will not use any of the data bases currently used for NIR's.

14. Figure 17.2-1

Explain where the duties of the Manager, Nuclear Engineering Services have been transferred.

The group was transferred to Design Engineering in the Mechanical Nuclear Division except the Licensing and Events Analysis Section which reports to the Manager, Nuclear Technical Services in the Nuclear Production Department.

Enclosure 2

Revised Topical Amendment 10 Proposal

September 29, 1986

DUKE POWER COMPANY

TOPICAL REPORT

QUALITY ASSURANCE PROGRAM

DUKE-1-A

Amendment 10

G W Grier being duly sworn states that he is Corporate Quality Assurance Manager of Duke Power Company; that he is authorized on the part of said company to sign and file with the Nuclear Regulatory Commission this amendment to its Topical Report - Duke 1-A; and that all statements and matters set forth herein are true and correct to the best of his knowledge.

G W Grier

ATTEST:

Carolyn R. Duncan
Assistant Secretary

Subscribed and sworn to me this 2nd day of June, 1986.

Notary Public

My Commission Expires October 22, 1990

My commission expires: _____
Date

LIST OF EFFECTIVE PAGES

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Page No.	Amendment No.	Page No.	Amendment No.
17.1-32	8	Figure 17.1-7	Deleted
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Table 17.1-1, page 1	4	17.2-3	10
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Figure 17.1-2	10	17.2-15	8
Figure 17.1-2A	Deleted	17.2-16	10
Figure 17.1-2B	Deleted	17.2-17	6
Figure 17.1-3 (Sheet 1)	10	17.2-18	6
Figure 17.1-3 (Sheet 2)	10	17.2-19	9
Figure 17.1-3 (Sheet 3)	10	17.2-20	8
Figure 17.1-4	10	17.2-21	6
Figure 17.1-5	Deleted	17.2-22	10
Figure 17.1-6	Deleted	17.2-23	6

LIST OF EFFECTIVE PAGES (continued)

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17.2-24	6
17.2-25	10
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Figure 17.2-1	10
Figure 17.2-2	5
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Problem Investigation Report - A report used during the operational 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. 10

Project Sponsor Engineer - The engineer, appointed by the Vice-President, Design Engineering, to oversee and coordinate all Design Engineering activities associated with the designated project.

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.

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.

Sponsor Division - The sponsor division is the Design Engineering Department Division primarily responsible for coordination of the project design.

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. 10

Line (or Production) Organization - Those individuals directly responsible for activities related to the design, construction or operation of a nuclear power plant unit.

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 means the separate quality verification effort by Quality Assurance Department personnel in activities critical to the safety and integrity of the facility over and above that which is normally performed by the operating and technical staffs. 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 in no way relieves the line management of achieving or assuring quality in all areas of their operation. As defined, the Quality Assurance Department has been given the responsibility to develop and manage a Quality Assurance Program for the Company. 10

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 provisions of the NRC Gray Book (WASH 1283, Revision 1)[1] "Guidance on Quality Assurance Requirements During Design and Procurement Phase of Nuclear Power Plants", Green Book (WASH 1309)[1] "Guidance on Quality Assurance Requirements During the Construction Phase of Nuclear Power Plants", and the Orange Book (WASH 1284)[1] "Guidance on Quality Assurance Requirements During the Operations Phase of Nuclear Power Plants" are also indicated, by reference to Regulatory Guides and standards, in Table 17.0-1.

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.

[1]These manuals represent the original guidelines used in program development. The current guidelines can be found in NUREG-0800, Standard Review Plan.

TABLE 17.0-1

Standard, Requirement or Guide	Conformance Status	Remarks	
Regulatory Guide 1.58 Rev 1 - Qualification of Nuclear Power Plant Inspection, Examination and Testing Personnel	Alternative	RG 1.58 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."	10
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 competent to perform the verification. Advance justification for such use shall be documented and signed by the supervisor's management, with copy submitted to the Quality Assurance Department.	
Regulatory Guide 1.74 - Quality Assurance Terms and Definitions	Conforms	RG 1.74 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.	
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.	10
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.	

TABLE 17.0-1

Standard, Requirement or Guide	Conformance Status	Remarks
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 1.144 Rev (1) - Auditing of Quality Assurance Programs for Nuclear Power Plants	Alternative	RG 1.144 incorporates ANSI N45.2-12, (1977). Duke Program conforms to ANSI N45.2.12-1977 for internal/external audits except Section 4.4.6 for external audits. In lieu of making recommendations for correcting program deficiencies and distributing audit reports to the audited organization, we will identify to the audited organization the results of the audits including identified deficiences. Also, the re-evaluation may be extended to 15 months as described in Section 17.1.7.1.1.
Regulatory Guide 1.146 Rev (0) - Qualification of QA Program Audit Personnel for Nuclear Power Plants	Conforms	RG 1.146 Incorpoates ANSI/ASME N45.2.23-1978.
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.
10CFR50 - 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	-------

Carryover

Amendment 10

The Quality Assurance Department Quality Assurance Program Manual establishes the basic policies of the comprehensive program. This manual provides policy statements corresponding to the eighteen criteria of 10CFR50, Appendix B.

The policies described in the Quality Assurance Department Quality Assurance Program Manual are implemented through departmental program manuals and procedures, and are, therefore, transmitted to all levels of management.

The Corporate Quality Assurance Manager, who directs the Quality Assurance Department (described in 17.1.1.4), has the sole responsibility for assuring the development, management and implementation of the Company's Quality Assurance Program. The Corporate Quality Assurance Manager reports directly to the Executive Vice-President, Engineering, Construction and Production Group.

Duke corporate management is continually involved in activities affecting quality and quality assurance requirements. The Executive Vice-President, Engineering, Construction, and Production Group reviews minutes of all project review meetings which are held regularly and include quality assurance matters on the agenda, holds regular staff meetings which include the Corporate Quality Assurance Manager, and directs and reviews Corporate Audits as outlined in 17.1.18. Reports of trend analyses of nonconformances and audits are sent to the Executive Vice-President, Engineering, Construction and Production Group.

17.1.1.2 Design Engineering Department

The Design Engineering Department is headed by the Vice-President, Design Engineering, and consists of five divisions: Civil-Environmental, Mechanical-Nuclear, Electrical, General Services, and Project Management Division. The organization is presented on Figures 17.1-2. The department is responsible for the engineering design, procurement, and manufacturing of original items for Duke's nuclear stations. Design Engineering also is responsible for technical and schedule liaison with the NSSS vendor. These responsibilities include preparation, verification, and control of design calculations, design drawings, and procurement and design specifications. 10

17.1.1.3 Construction and Maintenance Department 10

The Construction and Maintenance Department (hereafter referred to as Construction) has overall responsibility for the construction of the stations, under direction of the Vice-President, Construction. Construction is organized by projects, and a Project manager is responsible for all site construction activities for each projects. Dependent on the stage of construction, not all positions may be filled; however, normally reporting to the Project Manager are a Human Resources Manager, Materials and Equipment Manager, Craft Manager, Planning and Cost Control Manager, and Engineering Manager. The Craft Manager is responsible for all craft activities including meeting schedule and cost objectives. The Human Resources Manager is responsible for Employment, Employee Relations, Training, Safety, Security, and Payroll. The Materials and Equipment Manager is responsible for accounting, warehousing of material, field purchasing, and maintenance of construction equipment. The Engineering Manager is responsible for field engineering including 10 10 10 10

technical support to the crafts, facilities planning and construction engineering office functions. The Planning and Control Manager is responsible for project scheduling, budget preparation, status reporting, and schedule variation analysis. (The quality assurance controls on inspections and nonconforming items reports are described in 17.1.10.2 and 17.1.15.2.) The Construction Department organization is shown in Figure 17.1-3.

17.1.1.4 Quality Assurance Department

The Quality Assurance Department is responsible for all quality assurance activities related to Duke's nuclear stations. Quality Assurance activities are listed in Table 17.1-3. The Department is directed by the Corporate Quality Assurance Manager who reports to the Executive Vice-President, Engineering, Construction and Production Group. The Corporate Quality Assurance Manager is responsible for assuring the development, management and implementation of the Quality Assurance Program of the Company. The qualifications and responsibilities of the Corporate Quality Assurance Manager is presented in Appendix A. The Corporate Quality Assurance Manager is independent of influences and responsibilities for schedules and costs. The organization chart of the Quality Assurance Department is presented in Figure 17.1-4. Quality Assurance Department personnel are organizationally separate and independent from those persons responsible for performing engineering, construction, operational, and procurement activities. Quality Assurance personnel have the freedom and responsibility to identify quality problems, to initiate, recommend or provide solutions; and to verify and report directly to management the implementation of such solutions. These personnel have written authority and responsibility to stop work when the continuance of the work would produce results adverse to quality.

The Quality Assurance Department consists of six divisions. Each is directed by an individual who reports to the Corporate Quality Assurance Manager. The general responsibilities of each division head are described below.

The Project Quality Assurance Manager is responsible for all quality assurance/quality control activities during the construction of nuclear stations. Reporting to him is a Senior Quality Assurance Engineer, Inspection Superintendent, and Surveillance Supervisor who are responsible for quality assurance/quality control activities. These activities include placing and approving quality assurance requirements on project originated documents, surveillance, and review, approval and maintenance of quality assurance and inspection records.

The Quality Assurance Manager, Technical Services is responsible for all quality assurance activities in the design of nuclear stations. Reporting to him are supervisors responsible for the placing and approving of quality assurance requirements on procurement documents and design documents and surveillance of the design process and for the review and approval and control of design quality assurance records. He is responsible for development, maintenance, and issue of the quality assurance manuals and quality control inspection procedures. He also provides the Quality Assurance Department with a variety of services such as review and interpretation of codes and standards, analysis of trends affecting quality.

The Quality Assurance Manager, Administrative Services is responsible for department administration, the QA Training Program, and certification of Quality Control Inspectors, NDE testers, and examiners.

Carryover

The Quality Assurance Manager, Vendors is responsible for the vendor quality assurance programs, development and approval of approved vendors lists, surveillance of vendor quality assurance programs, and review, approval and control of vendor and procurement quality assurance records.

The Quality Assurance Manager, Operations is responsible for all quality assurance and quality control activities during preoperational testing and operation at nuclear stations. These activities include quality control inspections, administration of the inservice inspection program, and day-to-day surveillance of activities affecting nuclear safety. Reporting to him is a Senior Quality Assurance Engineer resident at each operational nuclear station who is responsible for quality assurance and quality control activities. These activities include maintenance of quality assurance records, surveillance, placing and approving quality assurance requirements on station procedures and performing quality control inspections.

The Quality Assurance Manager, Audit Division is responsible for the Departmental Quality Assurance Audit Program.

17.1.1.5 Department Interfaces

Quality related activities are performed by the Design Engineering, Construction, Transmission and Quality Assurance Departments; and departmental interfaces are identified in the quality assurance program manuals associated with these areas. All Quality Assurance and Quality Control personnel have the authority to stop work pending resolution of any quality problems. If a member of another department disagrees, he is instructed to take the matter to his management. The disagreement may either be resolved at this level or at any level up to and including the Chief Operating Officer. 10

17.1.1.6 Turnover Organization

During the transition from a Construction Quality Assurance Program to an Operations Quality Assurance Program, the Quality Assurance Manager, Operations may be responsible for implementation of both programs. Both programs will exist until final turnover is accomplished. 10

17.1.7 CONTROL OF PURCHASED MATERIAL, EQUIPMENT AND SERVICES

Duke's quality assurance program requires the control of safety-related items or services purchased from a vendor, subvendor or consultant.

17.1.7.1 Engineering

Design Engineering is responsible for the technical qualification of vendors and control of the initial procurement of all safety-related items and services. Specifications are prepared, checked, and approved by Design Engineering and Quality Assurance personnel and forwarded to Purchasing, who prepares an inquiry and forwards it to approved vendors except procurement of consultant services is handled directly by Design Engineering, without involving Purchasing. Quality Assurance is responsible for qualification of vendor's quality assurance programs.

17.1.7.1.1 Vendor Qualification and Selection

Nuclear safety-related material, equipment and services may be procured only from qualified vendors. Vendor qualification is accomplished by a Quality Assurance Vendors Divisions 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 of services to be supplied. When required, an audit or preaward survey is performed by the Vendors Division of Quality Assurance. 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 Quality Assurance Manager, Vendors. An approved vendor may then be included on the Quality Assurance 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 Purchasing Department. Vendor selection is based on bid evaluations by Design Engineering, Purchasing, and Quality Assurance. The evaluation includes conformance to specifications, Quality Assurance requirements, and technical and commercial qualifications of the vendor. | 10

Quality Assurance, Vendors Division 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 reevaluations are performed by audit, the reevaluation may be extended from 12 to 15 months with written approval of the Quality Assurance Manager, Vendor Division. | 10

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. | 10

These commercial grade items used in nuclear safety related designs require evaluation and approval by Design Engineering and approval by Quality Assurance. 10
These items are subject to the same verification and checking process for suitability of application as other safety related items.

17.1.7.1.2 Purchase of Material

After vendor selection is made, Design Engineering prepares a purchase requisition. The QA Department Technical Services Division includes applicable quality assurance requirements. The purchase requisition is checked and approved as outlined in 17.1.4.1. The approved purchase requisition is forwarded to Purchasing who prepares a purchase order including quality assurance requirements for forwarding to the successful vendor in accordance with the controls outlined in 17.1.6.1.

17.1.7.1.3 Vendor Surveillance

Procedures outlined in the QA Department Quality Assurance Program have been established which implement the surveillance program for vendors. This assures that items and services procured for use in nuclear safety-related applications are in compliance with applicable procurement specifications. Vendor surveillance is performed by personnel in the Vendors Division of Quality Assurance.

These procedures provide for surveillance of those characteristics or proceses to be witnessed, inspected or verified. Surveillance activities assure that the vendor complies with all quality requirements outlined on the purchase specification and purchase requisition. The surveillance report becomes a part of the quality assurance 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.

17.1.7.1.4 Documentation

Except for some "commercial grade" items each shipment of items procured from a 10
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.

The QA Vendors Division reviews and approves this documentary evidence of item conformance with procurement requirements.

17.1.7.2 Construction

The Construction Department initiates purchase requisitions for certain safety-related items and services such as weld filler material, aggregate, cement testing, etc., except as specified in 17.1.7.5. These purchase requisitions are submitted to the Quality Assurance Projects Division for review and approval and to Purchasing for procurement.

17.1.7.2.1 Vendor Qualification and Selection

Vendor qualification for construction is accomplished by a technical and quality assurance evaluation performed by the engineer responsible for the

17.1.17 QUALITY ASSURANCE RECORDS

Duke's quality assurance program assigns responsibility for quality assurance record retention to the Quality Assurance Department. The applicable design specifications, procurement documents, or other documents specify the quality assurance records to be generated by, supplied to, or held by Quality Assurance. Quality Assurance records are not considered valid until they are authenticated and dated by authorized personnel.

17.1.17.1 Engineering

The QA Department is responsible for quality assurance records during design and initial procurement for nuclear stations. This includes records generated by vendors. Quality Assurance records include design calculations, purchase orders, specifications and amendments, personnel certifications, procedures, deviations during manufacture and approvals or corrective action taken, various certification forms, source surveillance and audit reports, component data packages, and any other quality assurance documentation required by specifications. 10

Quality Assurance records are numbered, filed, and stored so that they are identifiable and retrievable. These packages require that the quality assurance records be prepared or received from the vendor, reviewed and approved by the QA Department, periodically audited, stored in a secure place and accessibility to these files be controlled. The QA Program also provides for transfer of complete records to the Quality Assurance Project or Operations Division at the site or station at an appropriate time such that records are available at the location where they are needed prior to the onset of work for which they are needed. 10

17.1.17.2 Construction

The Construction Quality Assurance Program contains procedures for reviewing, approving, and handling quality assurance records produced during the construction phase. These records include the results of tests and inspections required by applicable codes and standards, erection and installation records, procurement and receiving records, and personnel certification records. These records are maintained by the Quality Assurance Projects Division on site at a location where they can be reviewed and audited to establish that the required quality has been assured. Quality Assurance records are transferred to Quality Assurance Operations Division at the station for controlled storage at the completion of the construction phase.

17.1.17.3 Vendor

Vendor and subvendor quality assurance programs specify the responsibility for the generation, retention, and/or submission to Duke, of any quality assurance documentation related to the fabrication, inspection, and test of items and services which are nuclear safety related. Quality Assurance documentation submitted by vendors is reviewed and approved by Quality Assurance to assure conformance with specification requirements prior to item installation or use.

17.1.17.4 Record Storage Facilities

Record storage facilities are constructed, located, and secured in accordance with RG 1.88 as addressed in Table 17.0-1.

The individuals responsible for surveillance develop and maintain schedules. The schedules are commensurate with the work in progress. 10

Surveillance consists of the checking of documents, records, and work in progress to determine that quality assurance and quality control procedures are being properly implemented. Work in progress includes such activities as placing concrete, welding, maintenance, system testing and operation, design activities, inspection, record maintenance, etc. 10

10

Persons performing surveillances develop written reports which document the surveillance and list all findings. Copies of surveillance reports with deficiencies and summaries of other reports are provided to the appropriate Quality Assurance Division Manager and to management responsible for the area. Deficiencies are documented and action is taken to the satisfaction of the applicable QA Manager.

The Quality Assurance Manager, Technical Services, or his designee, determines if new or revised Quality Assurance/Quality Control procedures require an implementation review. If a review is required, it shall be conducted within four (4) months of the procedure transmittal date. 10

17.1.18.2 Departmental Quality Assurance Audits

The Quality Assurance Manager Audit Division by direction of the Corporate Quality Assurance Manager initiates all departmental audits. He and the responsible Lead Auditor determine the scope of each audit. The Corporate Quality Assurance Manager may initiate special audits or expand the scope of audits. The Lead Auditor directs the audit team in developing checklists, instructions, or plans and performing the audit. The audit shall be conducted in accordance with the checklists, but the scope may be expanded by the audit team during the audit. The audit team normally consists of a Lead Auditor and at least one other qualified individual.

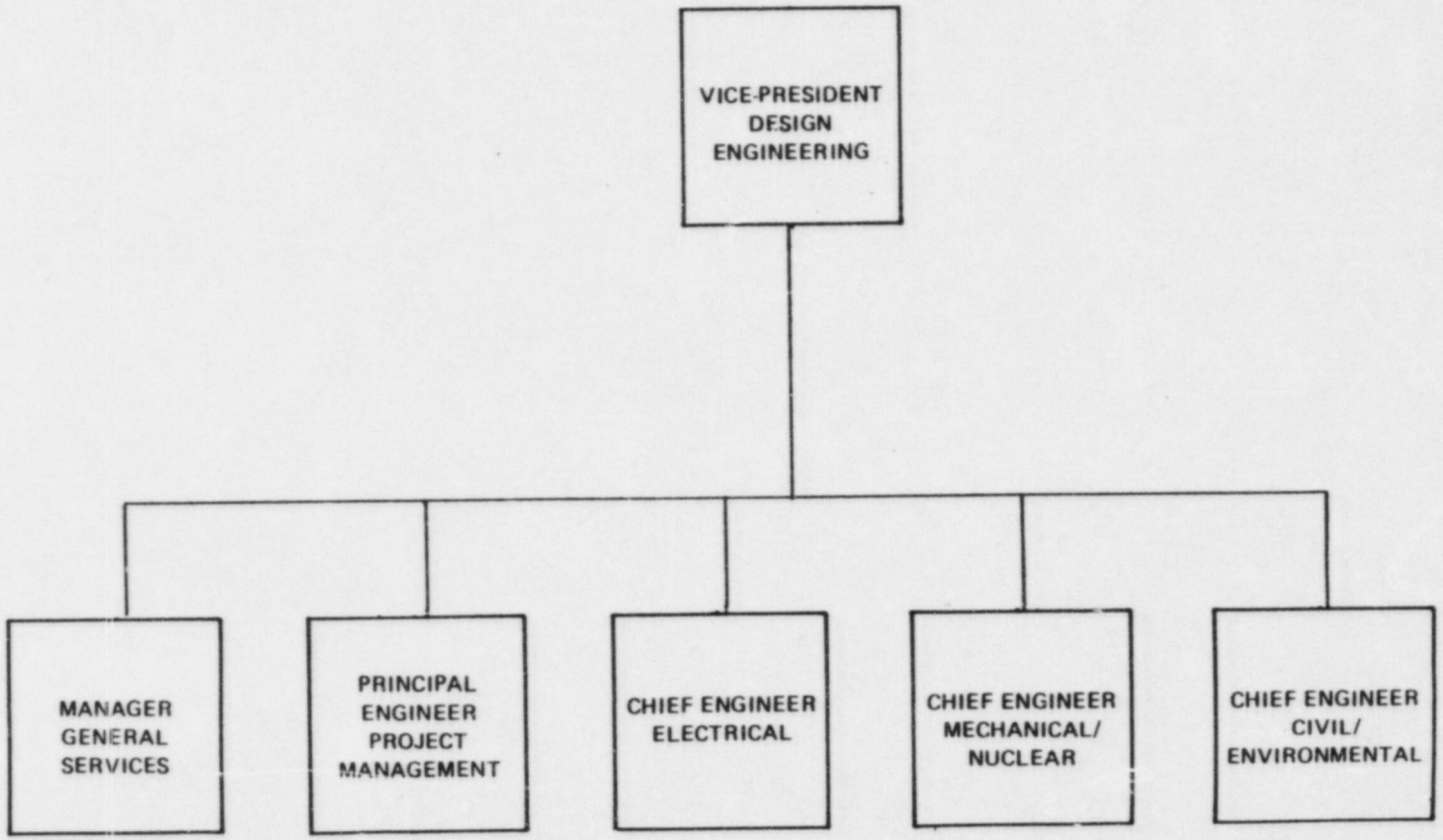
An audit is performed at least every six months, or as directed by the Corporate Quality Assurance Manager for each of the following: Design Engineering Department, Construction Project, Operating Nuclear Station.

The scope of each audit includes the following as a minimum:

(a) Review a major system, component, process, or activity (e.g., design and procurement of a system or component, placement of concrete, and operation, maintenance of the station) which involves quality assurance functions.

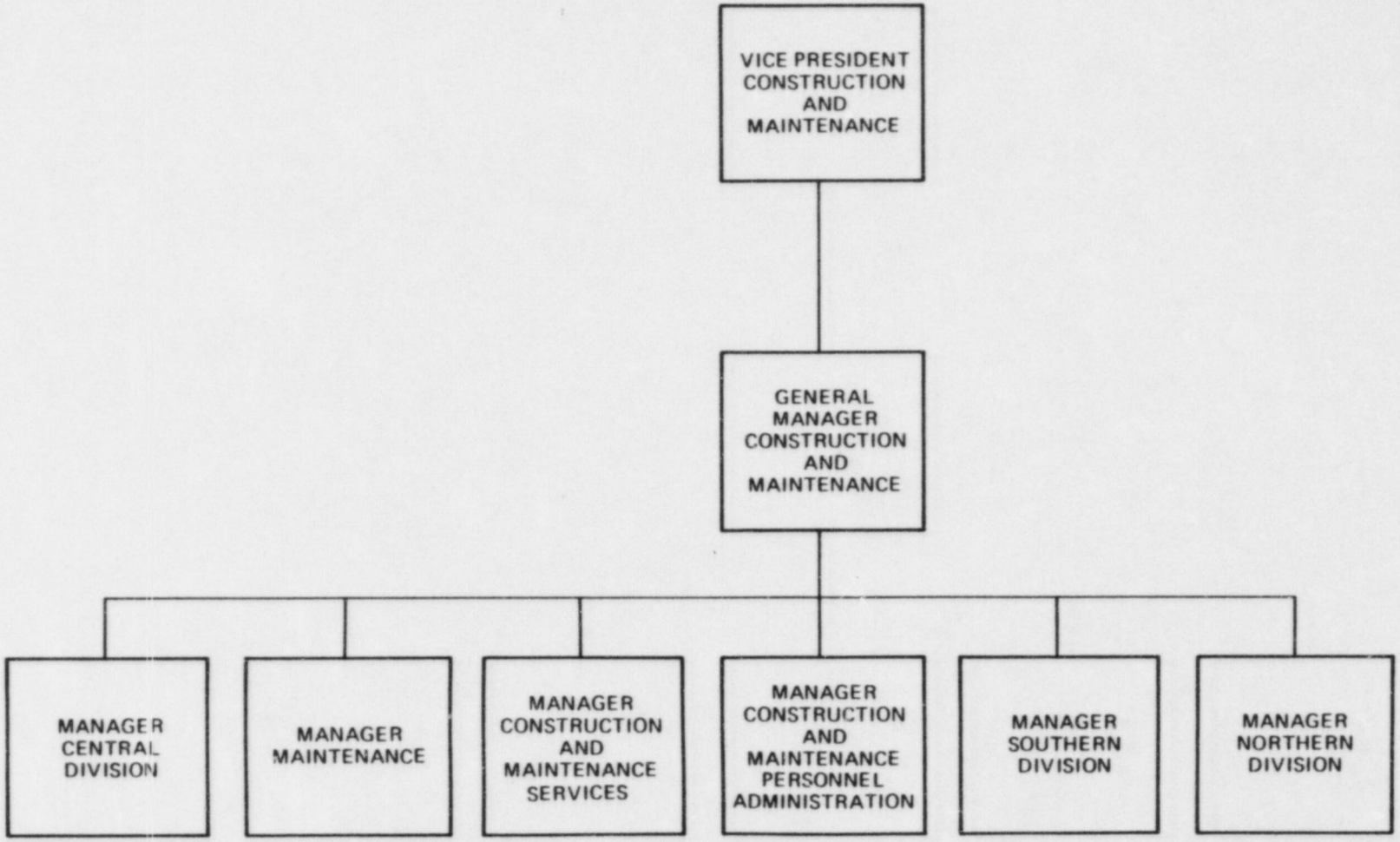
(b) Review of the surveillance reports.

DESIGN ENGINEERING DEPARTMENT
ORGANIZATION CHART



TOPICAL REPORT
QUALITY ASSURANCE PROGRAM
FIGURE 17.1 – 2
AMENDMENT 10

CONSTRUCTION AND MAINTENANCE DEPARTMENT
ORGANIZATION CHART

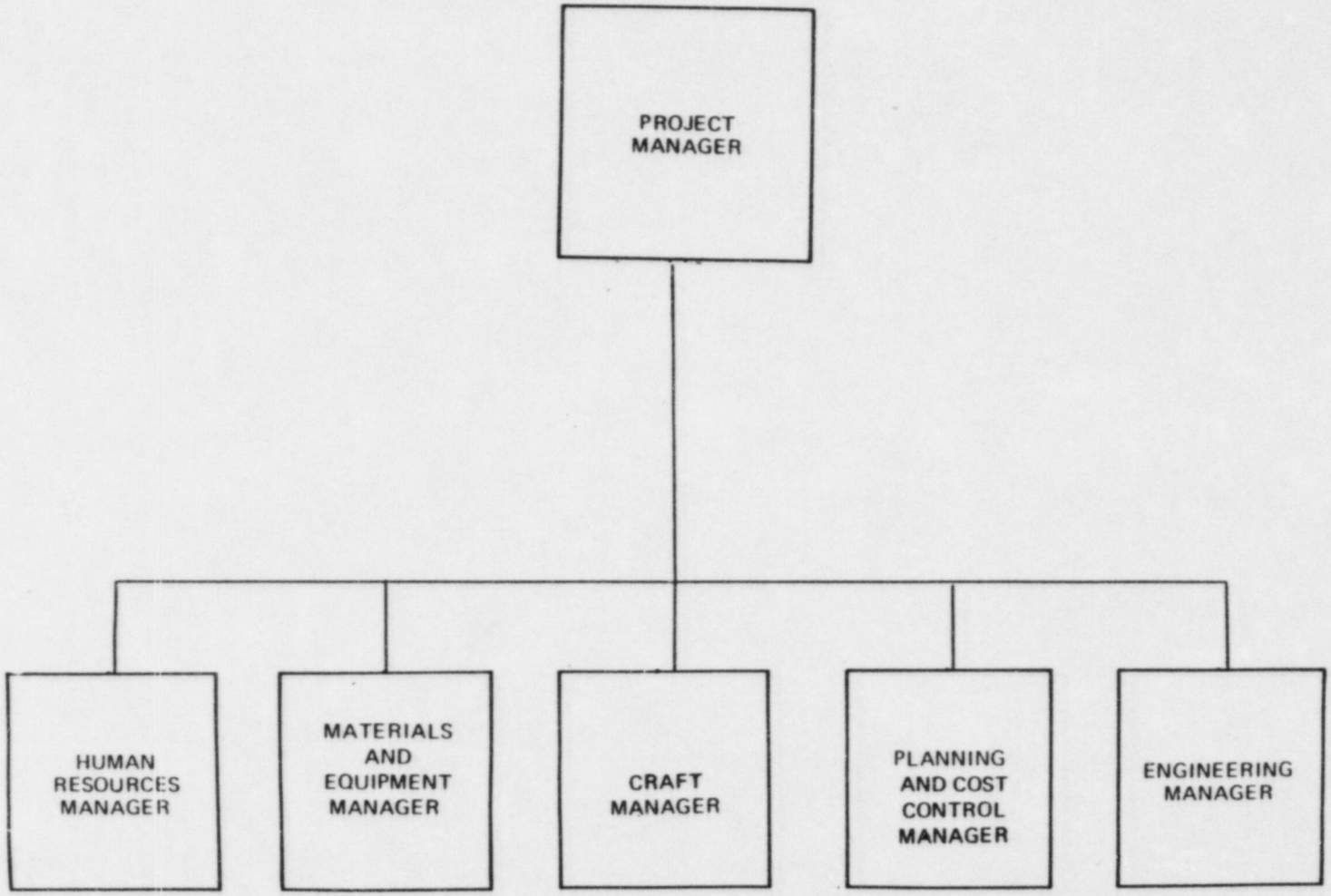


TOPICAL REPORT
QUALITY ASSURANCE PROGRAM
FIGURE 17.1 – 3 (SHEET 1)

AMENDMENT 10

CONSTRUCTION AND MAINTENANCE DEPARTMENT ORGANIZATION

NUCLEAR CONSTRUCTION PROJECT
(TYPICAL)

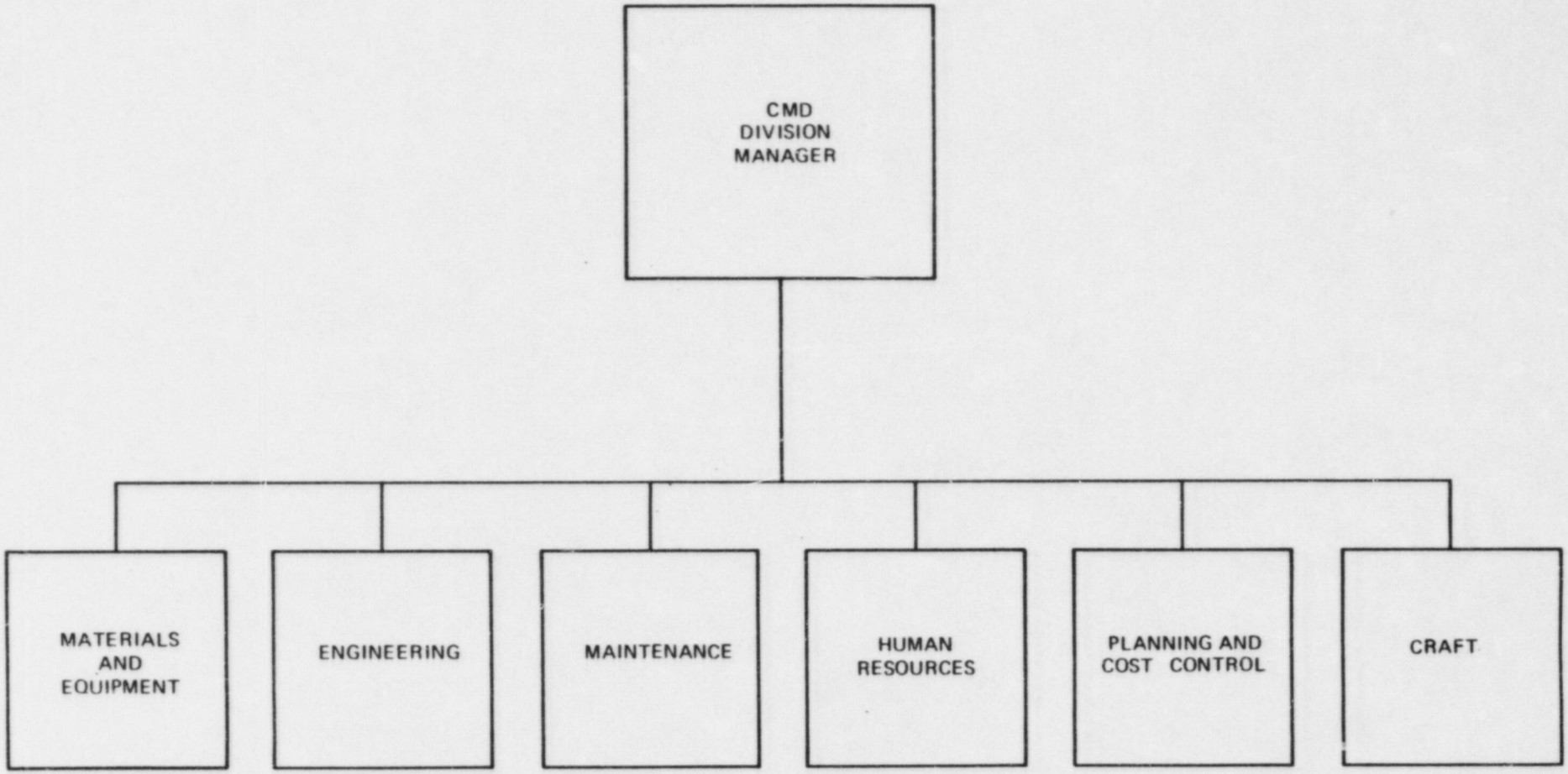


TOPICAL REPORT
QUALITY ASSURANCE PROGRAM
FIGURE 17.1 – 3 (SHEET 2)

AMENDMENT 10

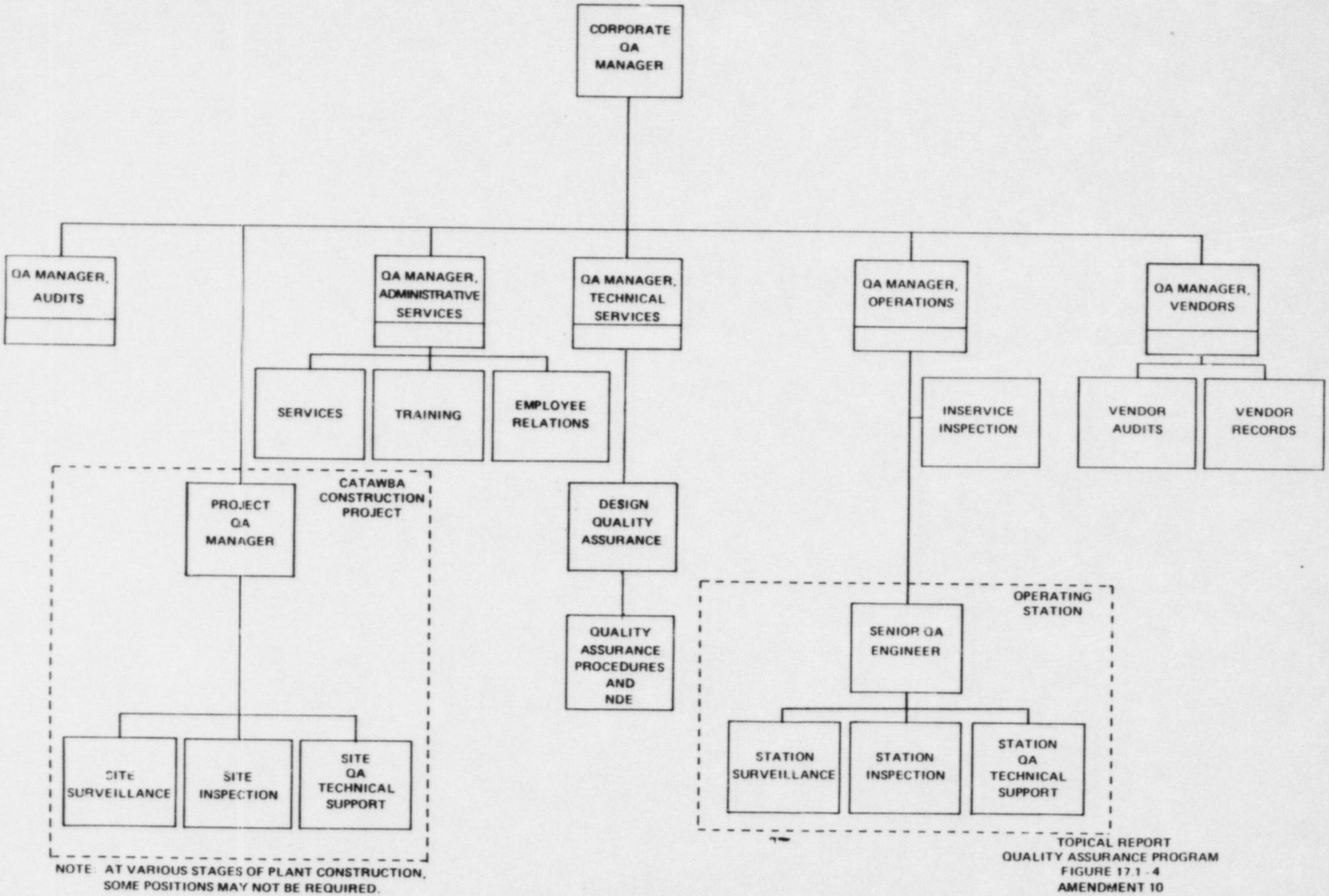
CONSTRUCTION AND MAINTENANCE DEPARTMENT ORGANIZATION

OPERATIONAL NUCLEAR STATION
(TYPICAL)



TOPICAL REPORT
QUALITY ASSURANCE PROGRAM
FIGURE 17.1 - 3 (SHEET 3)
AMENDMENT 10

QUALITY ASSURANCE DEPARTMENT ORGANIZATION CHART



NOTE: AT VARIOUS STAGES OF PLANT CONSTRUCTION, SOME POSITIONS MAY NOT BE REQUIRED.

TOPICAL REPORT
QUALITY ASSURANCE PROGRAM
FIGURE 17.1-4
AMENDMENT 10

The qualification requirements for the Corporate Quality Assurance Manager are given in Appendix A. Resident at each operating nuclear station is a Senior Quality Assurance Engineer who reports to the Corporate Quality Assurance Manager, through the Quality Assurance Manager, Operations. A Senior Quality Assurance Engineer is responsible for all Quality Assurance Department activities at an operating station. He is supported by quality assurance engineers and technicians and by a quality control staff. The qualification requirements of the Senior Quality Assurance Engineer are given in Appendix A.

The Quality Assurance Department has the authority and organizational freedom to: | 10

(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.

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

Specific responsibilities of the Quality Assurance Department with regard to nuclear station operational activities are identified in subsequent subsections of this report. In general, however, the Quality Assurance Department performs checking, auditing, and inspecting functions in order to verify that activities have been correctly performed. Therefore, due to the corporate organizational structure, the individuals performing such verifications are distinctly independent of the personnel directly responsible for performing the activities being checked, inspected, or audited.

17.2.1.4 Construction and Maintenance Department

The Construction and Maintenance Department will perform plant maintenance or modifications when designated by the Nuclear Production Department. | 10

17.2.1.5 Department Interfaces | 10

With regard to the operational quality assurance program, activities affecting the quality of nuclear safety-related structures, systems, and components are performed by, or under the cognizance of, the Nuclear Production Department and the Quality Assurance Department. If a disagreement arises between members of these departments, resolution is sought at successively higher levels of management, as necessary. Such a disagreement may be resolved at any level of management up to and including the Chief Operating Officer.

17.2.2 QUALITY ASSURANCE PROGRAM

The Duke Power Company operational quality assurance program is described in various Company manuals. A summary of the topics addressed, and their relationship to the criteria of 10CFR50, Appendix B, is presented in Table 17.2-1.

Procedures and work instructions necessary to implement the requirements of the operational quality assurance program are developed 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. Onsite implementation of procedures and work instructions is the responsibility of the Station Manager. Quality Assurance Department personnel verify that the procedures are followed by means of inspections, audits and other surveillance. Procedures for such inspections, audits and other surveillances are developed and approved by the Corporate Quality Assurance Manager and implemented by the Quality Assurance Department.

For each nuclear unit, those structures, systems and components which are considered to be nuclear safety-related are identified. As design and construction of such structures, systems and components are completed, the responsibility for the control of activities affecting the items is formally transferred to the Nuclear Production Department. This transfer is documented and the affected structures, systems and components are identified by means of tags, labels, stamps or other suitable means as being under the control of the Nuclear Production Department. Applicable records such as vendor documentation packages and inspections reports, piping isometric drawings, welding records, etc. compiled during design and construction are transferred by the Quality Assurance Department Projects Division to the Quality Assurance Department Operations Division concurrent with transfer of structures, systems and components to the Nuclear Production Department. Such transfer of records is performed in accordance with established procedures.

The Operational QA Program will be developed and expanded as necessary to assure that it is fully established at least (90) ninety days prior to operating license. A preoperational test program is established and controlled to assure that all necessary inspection and testing on transferred structures, systems, and components is performed and properly evaluated. The Operational QA Program shall be implemented as structures, systems, and components are transferred. At operating license and subsequent operational modes, all nuclear safety related activities for those structures, systems, and components required for that mode, shall be under the jurisdiction of the Operational QA Program. Construction activities will continue during the establishment of the Operational QA Program and these activities will be transferred to the Operational Program as they are completed. After the program has been fully implemented, it is continued throughout the operating life of the unit. The program receives on-going review and is revised as necessary to assure its continued effectiveness. When judged necessary by Duke Management, major station modification activities may be performed under the Construction Department Quality Assurance Program. In such cases, all quality assurance activities will be controlled under the quality assurance program described in 17.1. 10

A training program is established for each nuclear station to develop and maintain an organization qualified to be responsible for operation, maintenance 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, technical support and supervisory personnel are

17.2.5 INSTRUCTIONS, PROCEDURES AND DRAWINGS

The basic, written instructions and procedures for operation activities affecting quality are contained in the Nuclear Production Department's "Administrative Policy Manual for Nuclear Stations." It is required that personnel implement this manual as it pertains to the performance of their activities.

With regard to specific operational activities associated with nuclear safety-related 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 specifiations, for determining that the activity addressed is satisfactorily accomplished. Also, as described in station procedure, the procedure will require independent verification by qualified station 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) Health Physics Procedures

(h) Alarm Responses

(i) Chemistry Procedures

Plant procedures shall be reviewed by an individual knowledgeable in the area affected by the procedure no less frequently than every two years to determine if changes are necessary or desirable. This review 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. 10

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.

17.2.10 INSPECTION

In order to assure safe and reliable operation, a program of inspections for nuclear safety-related 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 safety-related structures, systems and components during and/or after maintenance and modification.

The personnel performing these inspections are certified, in the inspection activities performed, as described in Section 17.1.10. 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 requirement inspection by the Quality Assurance Department. Inspection procedures, instructions, and checklists contain the following information or require this information on inspection reports: 10

(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 Quality Control Inspectors, the reports are technically reviewed by Quality Assurance. 10

Inspection activities involving the vendor quality assurance program are evaluated and approved by the Vendors Division.

17.2.15 NONCONFORMING MATERIALS, PARTS AND COMPONENTS

Nuclear safety-related 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 by means of a Nonconforming Item Report or Problem Investigation Report, which is retained on file by the responsible department[1], and, as appropriate, by tags attached to the item. Nuclear Production Department personnel are notified of any nonconformances identified in accordance with approved procedures. 10

The responsible department maintains a listing of the status of all Nonconforming Item Reports or Problem Investigation Reports. 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 Quality Assurance Department personnel with the responsibility and authority for approving the resolution of nonconformances. Until a determination of conformance is made by the Quality Assurance Department, a nuclear safety-related material, part or component cannot be issued or installed. Tags which are placed on items to identify nonconformances are removed upon resolution. 10 10

Information relating to nonconforming materials, parts and components is analyzed by the Quality Assurance Department 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 Assurance Department.

[1] The Quality Assurance Department is responsible for the administration of Nonconforming Item Reports. The Nuclear Production Department is responsible for the administration of Problem Investigation Reports. 10

(t) Copies of minutes of meetings of the Nuclear Safety Review Board applicable to the station.

(u) Copies of station incident reports.

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

(a) Records of inservice inspections.

(b) Records of quality control inspections.

(c) 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.

(d) Records of audits and surveillances performed by the Quality Assurance Department of station activities.

(e) Records of the qualifications of quality control and other appropriate Quality Assurance Department personnel.

Test records maintained by the station and inspection records maintained by the Quality Assurance Department 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.

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)

10

(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).

17.2.18 AUDITS

Operational quality assurance activities are periodically audited by the Quality Assurance Department. The program for such audits is identical to that described in Subsection 17.1.18.

17.2.18.1 Surveillance

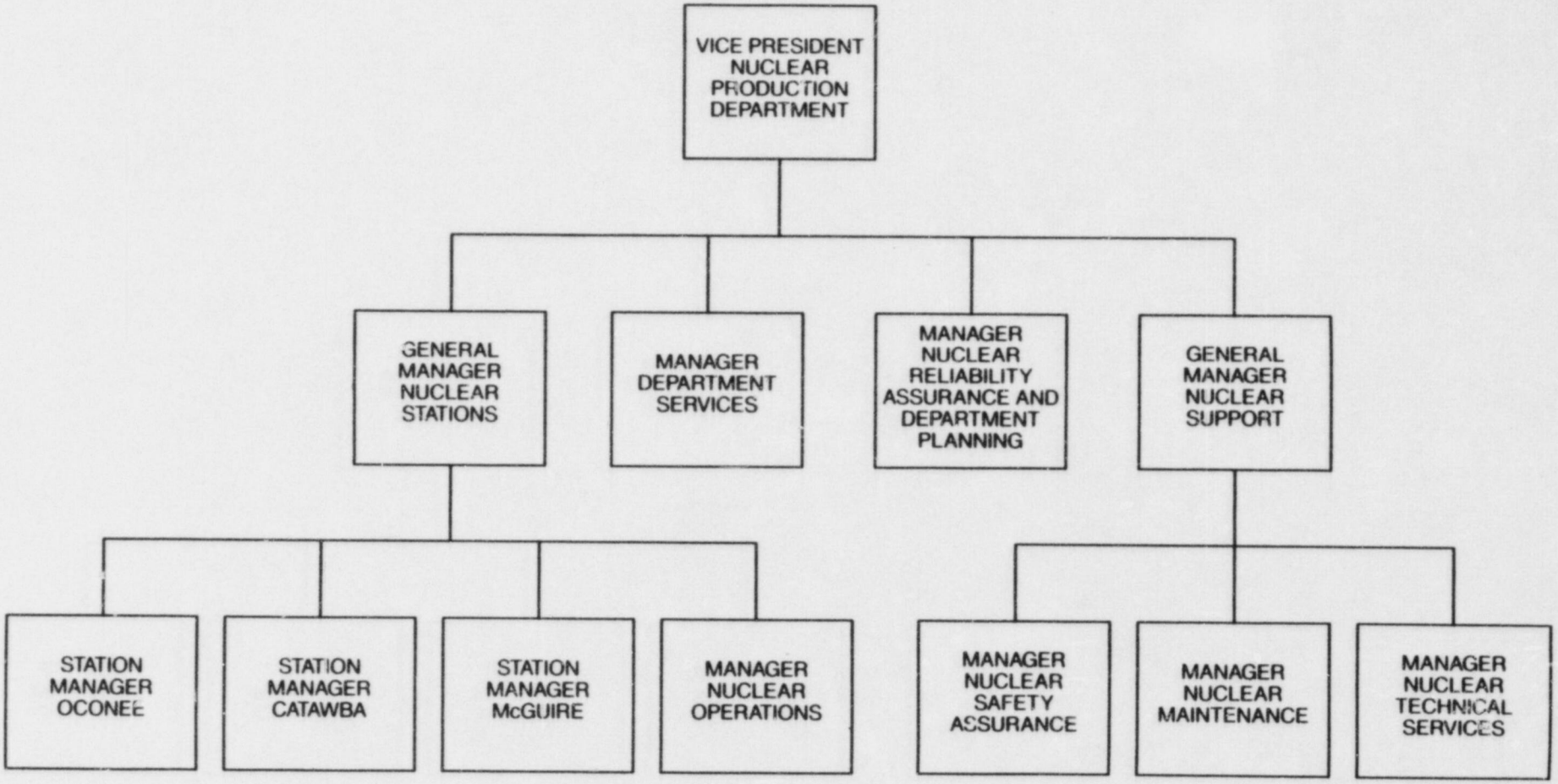
Periodic surveillance of safety related activities at each nuclear station is the responsibility of the Quality Assurance Manager, Operations. Primary responsibility for the administration of the surveillance program is assigned to the Senior Quality Assurance Engineer.

Surveillance consists of 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.

The Senior Quality Assurance Engineer or his designee is responsible for developing and maintaining surveillance schedules, reviewing and approving surveillance checklists and approving written reports documenting surveillance results. Surveillance findings are reported to management in accordance with Section 17.2.15 or surveillance summaries. The surveillance summaries listing nonconforming item reports, repetitive and other identified problems are forwarded to the Station Manager. Verification of corrective action is performed by the Station Surveillance Group. 10

The Quality Assurance Manager, Technical Services, or his designee, determines if new or revised Quality Assurance/Quality Control procedures require an implementation review. If a review is required, it shall be conducted within four (4) months of the procedure transmittal date. 10

OPERATIONAL QUALITY ASSURANCE
NUCLEAR PRODUCTION DEPARTMENT



TOPICAL REPORT
FIGURE 17.2 – 1
AMENDMENT 10