TOPICAL REPORT
QUALITY ASSURANCE PROGRAM
OPERATIONS PHASE
VEP 1 4A

Vepco

VIRGINIA ELECTRIC AND POWER COMPANY

VEP 1-4A

OPERATIONS PHASE QUALITY ASSURANCE TOPICAL REPORT

FOR

THE VIRGINIA ELECTRIC AND POWER COMPANY

REPORT ASSIGNMENT/ACKNOWLEDGEMENT MEMORANDUM

TO: U. S. NUCLEAR REGULATORY COMMISSION
BETHESDA, MARYLAND

FROM: M. E. SEXTON
7/OJRP
VIRGINIA ELECTRIC AND POWER COMPANY
P. O. Box 26666
Richmond, Virginia 23261

REPORT NO.

11A

THIS REPORT HAS BEEN ASSIGNED TO

U. S. NUCLEAR REGULATORY COMMISSION

IT IS THE PROPERTY OF THE VIRGINIA ELECTRIC AND POWER COMPANY, AND IT SHALL BE RETURNED TO THE QUALITY ASSURANCE DEPARTMENT; RICHMOND, VIRGINIA UPON REQUEST.

ACKNOWLEDGEMENT:

I HAVE RECEIVED THE ABOVE REPORT.

NAME: _____

DATE: _____

VIRGINIA ELECTRIC AND POWER COMPANY

TOPICAL REPORT

QUALITY ASSURANCE PROGRAM

OPERATIONS PHASE

VEP-1-4A

Amendment Four

October, 1982

UNITED STATES
NUCLEAR REGULATORY COMMISSION
WASHINGTON, D. C. 20555

SERIAL # 595

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(NOTE FOLLOWUP ACTIONS.)
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Action

OCT 6 1982

Sept 10-12-82

OCT 11 1982 E.A.B.

Mr. E. A. Baum, Executive Manager
Quality Assurance
Virginia Electric and Power Company
Richmond, Virginia 23261

Dear Mr. Baum:

SUBJECT: NRC ACCEPTANCE OF THE VEPCO QA TOPICAL REPORT (AMENDMENT 4)

Your letter of September 21, 1982 transmitted Amendment 4 to the VEPCO topical report VEP-1, "Quality Assurance Program, Operations Phase." The VEPCO topical report, through Amendment 3, was previously reviewed and accepted by the NRC for referencing in license applications as indicated in our letter of February 22, 1977. Amendment 4 reflects quality assurance program, organization, and editorial changes.

Based on our review and evaluation of Amendment 4, we find that the criteria in Appendix B to 10 CFR Part 50 are met. Your amended topical report is, therefore, acceptable, and you may implement it upon issuance.

For new license applications, we will compare Amendment 4 to the latest Revision of the Standard Review Plan (NUREG-0800). The results of this review will be forwarded to you upon completion.

Should regulatory criteria or regulations change such that our conclusions about this topical report are invalidated, we will notify you. You will be given the opportunity to revise and resubmit it should you so desire.

Please enclose a copy of this letter in the report, renumber the report VEP-1-4A, and transmit 15 copies to the NRC. In your transmittal letter, indicate to which plants Amendment 4 will be applicable.

Should you have any questions regarding our review or if we can provide assistance, please contact Mr. Jack Spraul on (301) 492-9489.

Sincerely,

Walter P. Haass

Walter P. Haass, Chief
Quality Assurance Branch
Division of Engineering

cc: P. Beament
W. Clark

ABSTRACT

This topical report describes the Virginia Electric and Power Company's quality assurance program for the operational phase of its nuclear power stations. The report is organized as, and is generically used for, Chapter 17, part 2 - Quality Assurance (Operations) - of Vepco's Safety Analysis Reports. The Vepco quality assurance program conforms to applicable regulatory requirements such as 10 CFR 50, Appendix B and to approved industry standards as endorsed therein. This report describes the quality assurance program beginning with preoperational testing and continuing through all phases of startup and commercial operation. Included are organizational charts and a point-by-point comparison of the program with the 18 criteria of 10 CFR 50, Appendix B. This topical report is intended to be a comprehensive up-to-date description of Vepco's operational quality assurance program for nuclear power generating stations.

October, 1982

TABLE OF CONTENTS

LIST OF TABLES

LIST OF FIGURES

LIST OF AMENDMENTS

Amendment No.	Title	Amendment Date
Original		7-1-75
One		12-30-75
Two		9-27-76
Three		3-1-77
Four		10-1-82

LIST OF EFFECTIVE PAGES

Page No.	Amendment No.
Title Page	Four
Abstract	One
17.2-i	One
17.2-ii	One
17.2-iii	One
17.2-iv	One
17.2-v	Four
17.2-1	Two
17.2-2	Three
17.2-3	Three
17.2-4	Three
17.2-5	Three
17.2-6	Three
17.2-7	Two
17.2-8	Three
17.2-9	Three
17.2-10	Three
17.2-11	Three
17.2-12	Three
17.2-13	Four
17.2-14	Four
17.2-15	Four
17.2-16	Four
17.2-17	Four
17.2-18	Four
17.2-19	Four
17.2-20	Four
17.2-21	Four
17.2-22	Four
17.2-23	Four
17.2-24	Four
17.2-25	Four
17.2-26	Four
17.2-27	Four
17.2-28	Four
17.2-29	Four
17.2-30	Four
17.2-31	Four
17.2-32	Four
17.2-33	Four
17.2-34	Four
17.2-35	Four
17.2-36	Four
17.2-37	Four
17.2-38	Four
17.2-39	Four
17.2-40	Four
17.2-41	Four
17.2-42	Four
17.2-43	One

Page No.	Amendment No.
17.2-44	One
17.2-45	Four
17.2-46	Four
17.2-47	Two
17.2-48	Two
17.2-49	Two
17.2-50	Four
17.2-51	Four
17.2-52	Four
17.2-53	Four
17.2-54	Four
17.2-55	One
17.2-56	One
17.2-57	Four
17.2-58	Four
17.2-59	Four
17.2-60	Four
17.2-61	Four
17.2-62	Two
17.2-63	Two
17.2-64	Two
17.2-65	Two
17.2-66	Two
17.2-67	Two
17.2-68	Two
17.2-69	Two
17.2-70	Two
17.2-71	Two
17.2-72	Two
17.2-73	Two
17.2-74	Two
17.2-75	Two
17.2-76	Four
17.2-77	Four
17.2-78	Four
17.2-79	Four
17.2-80	Four
17.2-81	Four
17.2-82	Four
17.2-83	Four
17.2-84	Four

17.2 QUALITY ASSURANCE DURING THE OPERATIONS PHASE

17.2.0 General

It is the policy of the Virginia Electric and Power Company to establish and maintain a formal quality assurance program for the operational phase of nuclear power generating stations. This program is described by written procedures contained in appropriate manuals. The application of this program accomplishes two important objectives: 1) to provide orderly, uniform administrative and managerial procedures to assure safe, reliable and economic operation of nuclear power stations, and 2) to assure compliance with regulations promulgated by the U.S. Nuclear Regulatory Commission.

The quality assurance program encompasses such activities as operating, testing, refueling, repairing, in-service inspecting, maintaining and modifying nuclear power stations as related to safe operation.

17.2.0.1 Topical Report

This topical report is written in the format of a Safety Analysis Report (SAR) Chapter 17, part 2, "Quality Assurance During the Operations Phase", in accordance with the NRC's "Standard Format and Content of Safety Analysis Reports for Nuclear Power Plants" (Nov. 1975) and subsequent NRC guidelines. The quality assurance program described herein is applicable to all VEPCO nuclear power plants as referenced by Chapter 17 of the plant's SAR's. Section 17.1 (not included in this report) describes quality assurance up to and including preoperational testing (except as noted). The applicable provisions of Section 17.2 are formally and gradually implemented during preoperational testing as deemed necessary by the Station Manager so that, to the extent possible, the entire program is implemented prior to the issuance of the operating license.

Subsequent changes to VEPCO's operational quality assurance program will be incorporated as applicable in this topical report. The topical report is intended to be a comprehensive description of VEPCO's operational quality assurance program for nuclear power stations.

17.2.0.2 Quality Assurance Standards and Guides

The VEPCO operational quality assurance program conforms to Appendix B of 10 CFR 50 as amended and complies with the regulatory positions of the Regulatory Guides indicated in table 17.2.0, as modified or clarified in that table.

TABLE 17.2.0
Conformance of Vepco Operational Quality Assurance Program To NRC Regulatory Guides and ANSI Standards

The ANSI standards, and other documents (i.e. other standards, codes, regulations or appendices) that are required to be included as a part of the standard are either identified at the point of reference or they are described in a special section of the standard. The specific applicability or acceptability of these listed standards, codes regulations or appendices is either covered in other specific areas in the Vepco operational QA program or such documents are not considered as quality assurance program requirements; although they may be used as guidance. When sections are referenced within a standard, it is understood that Vepco will comply with the referenced sections as clarified.

GENERIC STATEMENTS WITH REGARDS TO TABLE 17.2-0, AND THE OPERATIONAL QUALITY ASSURANCE PROGRAM

For operations phase maintenance and modification activities which are comparable in nature and extent to similar activities conducted during the construction phase, Vepco shall control these activities under this operational QA program. When this operational QA program is used, Vepco shall comply with the Regulatory Position established in the guides listed herein in that QA programmatic/administrative requirements included therein (subject to the clarifications in this table) shall apply to these maintenance and modification activities even though such requirements may not have been in effect originally. Technical requirements associated with the maintenance or modification shall be the original requirements or better (e.g., code requirements, material properties, design margins, manufacturing processes, and inspection requirements).

Definitions in the referenced standards in this table which are not included in ANSI N45.2.10 will be used as clarified in Vepco's commitment to Regulatory Guide 1.74.

Standard, Requirement or Guide

Regulatory Guide 1.8 - "Personnel Qualification and Training" (Second Proposed Revision 2, 8/80) Endorses ANSI/ANS-3.1 (Draft 12/79).

The applicability of this guide/standard to other personnel in the Vepco organization is addressed in other sections of the FSAR and the Technical Specifications of the individual nuclear facility.

Vepco's Position	Conformance Status	Justification
Conforms to Regulatory Guide 1.8 with one (1) clarification and one (1) alternative. They are; (1) Clarification: With regard to the term "Bachelor's Degree" as used in the draft standard, the following qualifications may be considered equivalent to a Bachelor's Degree: A. 6 years of applied engineering experience at a nuclear facility in the area for which the qualification is sought, B. 6 years of operational or technical experience/training related to engineering in nuclear power, and C. In addition, experience and training requirements shall be met as delineated. (2) Alternative: With regard to Section 4.4.5 of ANSI/ANS 3.1 (Draft 12/79) titled Quality Assurance, Vepco will comply with Paragraph 4.4.5 as originally stated in ANSI/ANS-3.1 -1978.	Clarification and Alternative meet or exceed applicable guides and standards.	For Clarification: ANSI/ANS-3.1 (Draft 12/79) does not provide a clear alternative to formal educational requirements, but does provide guidance. This guidance was utilized to develop the clarification to qualify non-degree holding personnel. For Alternative: ANSI/ANS-3.1 - 1978. Paragraph 4.4.5 (b) is considered to be consistant with Vepco experience requirements which are delineated in other areas of this report. Further, the 1978 Requirement is considered more conservative than the Draft 12/79 ANSI/ANS Requirement.

Standard, Requirement or Guide

Regulatory Guide 1.26 "Quality Group Classification and Standards for Water, Steam, and Radioactive Waste Containing Components of Nuclear Power Plants." (Rev. 3, 2/76).

Vepco's Position	Conformance Status	Justification
The operational quality assurance program complies with this guide with the following clarification: Vepco does not use the specific A, B, C and D level classification system set forth in this guide. However, Vepco followed the requirements of this guide in developing the list of structures, systems, and components for which the program is applicable. The specific listing of items to which the operational quality assurance program applies is described in the F.S.A.R. for each facility, and described in more detail in station administrative procedures developed at each nuclear facility.	Clarification meets or exceeds applicable guides and standards.	Station administrative procedures provide a specific list of items to which the operational quality assurance program applies. Further, specific instructions have been included in these procedures to allow for any necessary changes.

Standard, Requirement or Guide	Vepco's Position	Conformance Status	Justification
Regulatory Guide 1.28 - "Quality Assurance Program Requirements (Design and Construction)" (6/72) - Endorses ANSI N45.2 - 1971.	This guide and the standard it endorses have been superseded for operations activities by Regulatory Guide 1.33 and ANSI N18.7 - 1976 as stipulated in this table.	Superseded Requirement	This design and construction Regulatory Guide and associate standard has been superseded for operations activities by an equivalent regulatory guide and endorsed standard and is no longer considered necessary, therefore it is not considered part of the program.

Standard, Requirement or Guide		
Regulatory Guide 1.29 - "Seismic Design Classification" (Rev. 3, 9/78).		
Vepco's Position	Conformance Status	Justification
The operational quality assurance complies with this guide with the following clarification: See Generic Statement which prefaces this table in regards to construction related guides, standards, and instructions.	Clarification meets or exceeds applicable guides and standards.	Regulatory Guide 1.29 is primarily concerned with the design and construction phase of nuclear power plants. Vepco's clarification has been formulated to provide a means of translating design and construction criteria into guidance applicable to operating nuclear power facilities.

Standard, Requirement or Guide		
Regulatory Guide 1.30 - "Quality Assurance Requirements for the Installation, Inspection, and Testing of Instrumentation and Electric Equipment" (8/72). Endorses ANSI N45.2.4 - 1972.		
Vepco's Position	Conformance Status	Justification
The operational Quality Assurance Program complies with the guide with the following clarifications and alternatives: (1) See Generic Statement which prefaces this table in regards to construction related guides, standards, and instructions. (2) Section 2.1 - Planning requirements, as determined by Engineering and QA/QC, will be incorporated into maintenance and modification procedures. (3) Section 3 - Preconstruction Verification will be implemented as follows: (1) verification is required only for the modification(s) (2) will be implemented with the clarification that "approved instruction manuals" shall be interpreted to mean the manuals provided by the supplier as required by the procurement order. These manuals will not be reviewed and approved, per se, by Vepco; (3) no special checks will be made by the person withdrawing a replacement part from the warehouse - equivalent controls are assured by compliance with ANSI N45.2.2 as set forth in this table; and (4) will be complied with, as determined by Engineering and QA/QC, by individual technicians as part of the maintenance/modification program.	Clarifications and alternatives meet or exceed applicable guides and standards.	These clarifications to ANSI N45.2.4 - 1972 are required to insure that QA program continuity is maintained. In actuality these clarifications have been extracted from other standards and guides and are considered more conservative. These clarifications also insure that only one standard or guide is committed to for its applicable circumstance.

Vepco's Position	Conformance Status	Justification
Section 4 - Installation instructions will be implemented by inclusion, as determined by Engineering and QA/QC, in the appropriate maintenance or modification procedure, for safety related items. Standard Vepco maintenance practices require that care be exercised in the six areas listed whether a procedure is required or not. Section 5.1 - Inspections, including subsections 5.1.1, 5.1.2, and the first sentence in 5.1.3, will be implemented as set forth in Section 17.2.10 of the operational QA program. The inspection program will incorporate, as determined by Engineering and QA/QC, those items listed in these subsections. The remaining sentence in 5.1.3 is covered in equivalent detail in Vepco's commitment to ANSI N18.7, section 5.2.6; the requirements as set forth in that commitment will be implemented in addition to the requirements stated here. Section 5.2 - Tests, including subsections 5.2.1 through 5.2.3, will be implemented as set forth in Sections 17.2.3 and .11 of the operational QA program. The test program will consider the elements outlined in this Section, as determined by Engineering and QA/QC, when developing test requirements for inclusion in maintenance and modification procedures. In some cases, testing requirements may be met by post-installation surveillance testing in lieu of a special post-installation test. Where elements of Section 5.2 are not being met they shall be documented and justified.		

Vepco's Position	Conformance Status	Justification
Section 6 - Post Construction Verification is not generally considered applicable at operating facilities because of the scope of the work and the relatively short interval between installation and operation. Where considered necessary by Engineering and QA/QC, the elements described in this section will be used in the development and implementation of inspection and testing programs as described in Sections 17.2.3, .10, and .11 of the operational QA program. Section 6.2.1 - Equipment Tests: The last paragraph of this section deals with tagging and labeling. Vepco will comply with an alternate last paragraph which reads: "Each safety-related item of process instrumentation is identified with a unique number. This number is utilized in instrument maintenance records so that current calibration status, including data such as the date of the calibration and identity of the person that performed the calibration, can be readily determined. Such information may also be contained on tags or labels which may be attached to installed instrumentation." Section 7 - Data Analysis and Evaluation will be implemented as stated herein after adding the clarifying phrase "when determined by Engineering and QA/QC" at the beginning of that paragraph.		

Standard, Requirement or Guide

NRC Regulatory Guide 1.33 - "Quality Assurance Requirements (Operation)" (Rev. 2, 2/78) - Endorses ANSI N18.7 - 1976.

Vepco's Position	Conformance Status	Justification
The operational quality assurance program complies with this guide with the following clarifications and alternatives: 1) Paragraph C.3 of Regulatory Guide 1.33 (and Section 4.3.4 of ANSI N18.7 which it references) will be implemented as required by the applicable nuclear facility Technical Specifications which define "Subjects Requiring Independent Review." 2) Paragraph C.4.a of Regulatory Guide 1.33 (and Section 4.5 of ANSI N18.7 which it references) will be implemented as required by the applicable nuclear facility Technical Specifications which define the "Audit Program" to be conducted. The audit program is further defined and will be implemented as required by the commitment to ANSI N45.2.12 as stated in Table 17.2.0 of the operational quality assurance program. 3) Paragraph C.5a of Regulatory Guide 1.33 (and Section 4.4 of ANSI N18.7 which it references) will be implemented with the clarification that the Station Nuclear Safety and Operating Committee may perform this activity. 4) Paragraph C.5.d of Regulatory Guide 1.33 (and Section 5.2.7.1 of ANSI N18.7 which it references) will be implemented by adding the clarifying phrase "When determined by Engineering and QA/QC" in front of the fourth sentence of the fifth paragraph. For modifications where these requirements are not considered practicable, a review in accordance with the provisions of 10CFR50.59 shall be conducted and documented.	Clarifications and alternatives meet or exceed applicable guides and standards.	These clarifications are required to insure that QA program continuity is maintained; i.e. that only one standard or guide is committed to for a particular topic.

Vepco's Position	Conformance Status	Justification
5) Paragraph C.5.e of Regulatory Guide 1.33 (and Section 5.2.13.4 of ANSI N18.7 which it references) will be implemented subject to the same clarifications made for ANSI N45.2.2 elsewhere in Table 17.2.0 of the Operational QA Program.		
6) Paragraph C.5.f of Regulatory Guide 1.33 (and Section 5.2.19.(2) of ANSI N18.7 which it references) will be implenented when determined by Engineering and QA/QC.		
7) Paragraph C.5.g of Regulatory Guide 1.33 (and Section 5.2.19.1 of ANSI N18.7 which it references) will be implemented with the addition of the modifier "normally" after each of the verbs (should) which the Regulatory Guide converts to "shall." It is Vepco's intent to fully comply with the requirements of this paragraph, and any conditions which do not fully comply will be documented and approved by Station and QA management personnel. In these cases, the reason for the exception shall also be documented. The documentation shall be retained for the same period of time as the affected preoperational test.		
8) With regard to Section 4.2 of ANSI N18.7 - 1976 titled Program Description: Two aspects are addressed in this Section: audits and independent reviews. The independent review program is implemented as required by the Technical Specifications of the individual nuclear facility. The Vepco audit program will be described in accordance with and to meet the requirements of ANSI N45.2.12 as endorsed in Table 17.2.0 of the operational QA program, the requirements of the individual nuclear facility Technical Specifications, and Sections 17.2.16 and 17.2.18 of the operational QA program.		

Vepco's Position	Conformance Status	Justification
9) With regard to Section 4.3 of ANSI N18.7 - 1976 titled Independent Review Process: The requirements of this Section, including all of its subparts, shall be met by compliance with the Technical Specification requirements of the individual nuclear facility.		
10) With regard to Section 5.2.7 of ANSI N18.7 - 1976 titled Maintenance and Modification: Since some emergency situations could arise which might preclude preplanning of all activities, Vepco will comply with an alternate to the first sentence in the second paragraph which reads: "Except in the emergency or abnormal operating conditions where immediate actions are required to protect health and safety of the public, to protect equipment or personnel or to prevent the deterioration of plant conditions to a possibly unsafe or unstable level, maintenance or modification of equipment shall be preplanned and performed in accordance with written procedures. Where written procedures would be required and are not used, the activities that were accomplished shall be documented after-the-fact and receive the same degree of review as if they had been preplanned."		
11) With regard to Section 5.2.7.1 of ANSI N18.7 - 1976 titled Maintenance Programs: Vepco will comply with the requirements of the first sentence of the fifth paragraph, when determined by Engineering and QA/QC. This clarification is needed since it is not always possible to promptly determine the cause of the malfunction. In all cases, Vepco will initiate proceedings to determine the cause, and will make such determinations promptly, when determined by Engineering and QA/QC.		

Vepco's Position	Conformance Status	Justification
12) With regard to Section 5.2.8 of ANSI N18.7 - 1976 titled Surveillance Testing and Inspection Schedule: In lieu of a "master surveillance schedule," the following requirement shall be complied with: "A surveillance testing schedule(s) shall be established reflecting the status of all in-plant surveillance tests and inspections."		
13) With regard to Section 5.2.13.1 of ANSI N18.7 -1976 titled Procurement Document Control: The words "the same degree of control" in the last sentence are replaced with "Engineering and QA/QC review."		
14) With regard to Section 5.2.15 of ANSI N18.7 -1976 titled Review, Approval and Control of Procedures: The third sentence in paragraph three is interpreted to mean: Applicable procedures as determined by QA/QC, shall be reviewed following an accident, an unexpected transient, significant operator error or equipment malfunction. For frequently used procedures that are reviewed at the supervisory level and above at each use, the requirments of the first sentence in the fourth paragraph are considered to be met by use, without a formal biennial review. Those procedures which fall into this frequent use catagory are delineated in Station Administrative Procedures.		
15) With regard to Section 5.2.17 of ANSI N18.7 - 1976 titled Inspections: Not all inspections will require generation of a separate inspection report. Inspection requirements may be integrated into appropriate procedures or other documents with the procedure or document serving as the record. However, records of inspections will be identifiable and retrieveable.		

Vepco's Position	Conformance Status	Justification
16) With regard to Section 5.3.9 of ANSI N18.7 - 1976 titled Emergency Procedure: As directed by the NRC, Vepco will follow a format for emergency procedures which is "symptom" based as opposed to "event" based as stipulated in Section 5.3.9.1. Since Vepco will have these "symptom" based procedures, "event based procedures will not normally be provided. 17) With regard to Section 5.3.9.2 of ANSI N18.7 - 1976 titled Events of Potential Emergency: Vepco will interpret item (11) to mean the natural occurrences which have been evaluated in the FSAR for the individual nuclear facility. 18) With regard to Section 5.3.9.3 of ANSI N18.7 - 1976 titled Procedures for Implementing Emergency Plan: Vepco's NRC accepted Emergency Plan for each nuclear facility will be implemented in lieu of the requirements in this Section.		

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

Vepco's Position	Conformance Status	Justification
The operational quality assurance program complies with this guide with the following clarifications: 1) The guide and standard are applicable to those areas of the Quality Assurance Program addressing on-site cleaning of materials and components, cleanness control, and preoperation cleaning and layup of fluid systems. 2) With regard to Paragraph C.3 of Regulatory Guide 1.37: The water quality for final flushing of fluid systems and associated components shall be at least equivalent to the quality of the operating system water except for the oxygen and nitrogen content; but this does not infer that chromates or other additives, normally in the system water, will be added to the flush water. 3) With regard to Paragraph C.4 of Regulatory Guide 1.37: Expendable materials, such as inks and related products; temperature indicating stick; tapes; gummed labels; wraping materials (other than polyethylene); water soluble dam materials; lubricants; NDT penetrant materials and couplants, dessicants, and like materials which contact stainless steel or nickel alloy surfaces shall not contain lead, zinc, copper, mercury, cadmium and other low melting point metals, their alloys or compounds as basic and essential chemical constituents. No more than 0.1 percent (1,000 ppm) halogens will be allowed where such elements are leachable or where they could be released by breakdown of the compounds under expected environmental conditions.	Clarifications meet or exceed applicable guides and standards.	The four clarifications listed were generated to translate general guidance into exact commitments, and to provide alternate means to perform routine tasks.

Standard, Requirement or Guide

Vepco's Position	Conformance Status	Justification
4) With regard to Section 5 of ANSI N45.2.1 - 1973 titled Installation Cleaning: The recommendation that local rusting on corrosion resistant alloys be removed by mechanical methods is interpreted to mean that local rusting may be removed mechanically, but the use of other removal means is not precluded as determined by Engineering and QA/QC.		

Standard, Requirement or Guide		
NRC Regulatory Guide 1.38 - "Quality Assurance Requirements for Packaging, Shipping, Receiving, Storage, and Handling of Items for Water-Cooled Nuclear Power Plants" (Rev. 2, 5/77) - Endorses ANSI N45.2.2 - 1972		
Vepco's Position	**Conformance Status**	**Justification**
The Operational Quality Assurance Program complies with this guide with the following clarifications and alternatives: 1) With regard to Section 2.1 of ANSI N45.2.2 - 1972 titled Planning: (First sentence) The specific items to be governed by the Standard shall be identified on the Q-List. 2) With regard to Section 2.3 of ANSI N45.2.2 - 1972 titled Results: The specific methods for performing and documenting tests and inspections are given in Sections 17.2.10 and 17.2.11 of the Operational QA Program. The requirements in these Sections will be implemented in lieu of the general requirements here. 3) With regard to Section 2.7 of ANSI N45.2.2 - 1972 titled Clarification of Items: Vepco may choose not to explicitly use the four level classification system. However, the specific requirements of the Standard that are appropriate to each class are applied to the items suggested in each classification and to similar items as determined by Engineering and QA/QC. 4) With regard to Section 3.2.1 of ANSI N45.2.2 - 1972 titled Level A Items: As an alternate to the requirements for packaging and containerizing items in storage to control contaminants (Items (4) and (5)), Vepco may choose a storage atmosphere which is free of harmful contaminants in concentrations that could produce	Clarifications and alternatives meet or exceed applicable guides and standards.	The clarifications in this section are proposed only to translate general guidance into specific requirements. The proposed alternatives are provided to reflect current Vepco practices which are distilled from over ten years of experience gained at operational nuclear facilities.

Vepco's Position	Conformance Status	Justification
damage to stored items as determined by Engineering and QA/QC. Similarly (for Item (7)) Vepco may obviate the need for caps and plugs as determined by Engineering and QA/QC with an appropriate storage atmosphere, and may choose to protect weld-end preparations and threads by controlling the manner in which the items are stored. These clarifications apply whenever items (4), (5) or (7) are subsequently referenced and to Section 3.5.1 titled Caps and Plugs and Section 3.4 titled Methods of Preservation.		
5) With regard to Section 3.3 of ANSI N45.2.2 - 1972 titled Cleaning: (Third sentence) Vepco interprets "docmented cleaning methods" to allow generic cleaning procedures to be written which are implemented, as necessary, by trained personnel. Each particular cleaning operation shall have an individual cleaning procedure or reference a generic procedure. The generic procedures will specify methods of cleaning or which type(s) of solvent may be used in a particular application.		
6) With regard to Section 3.4 of ANSI N45.2.2 - 1972 titled Methods of Preservation: (First sentence) Vepco will comply with these requirements subject to the clarifications of Section 3.2.1, (4) and (5) above, and the definition of the phrase "deleterious corrosion" to mean that corrosion which cannot be subsequently removed and which adversely affects form, fit or function.		
7) With regard to Section 3.6 of ANSI N45.2.2 - 1972 titled Barrier and Wrap Material and Dessicants: This section requires the use of		

Vepco's Position	Conformance Status	Justification
nonhalogenated materials in contact with austenitic stainless steel. Refer to Regulatory Guide 1.37 above for the Vepco position.		
8) With regard to Section 3.7.1 of ANSI N45.2.2 - 1972 titled Containers: Cleated, sheated boxes may be used up to 1,000 lbs. rather than 500 lbs. as specified in 3.7.1(1). This type of box is safe for, and has been tested for, loads up to 1,000 lbs. Other national standard allow this (see Federal Specification PPP-B-601). Special qualification testing shall be required for loads above 1,000 lbs.		
9) With regard to Section 3.7.2 of ANSI N45.2.2 - 1972 titled Crates and Skids: Skids or runners will normally be used on containers with a gross weight of 10 lbs. or more. Skids or runner will normally be fabricated from 4 x 4 inch nominal lumber size, minimum, and laid flat except where this is impractical because of the small dimensions of the container. If forklift handling is required, minimum floor clearance for forklift tines will be provided.		
10) With regard to Sections 4.3, 4.4 and 4.5 of ANSI N45.2.2 - 1972 titled, respectively, Precautions During Loading and Transit, Identification and Marking, and Shipment from Countries Outside the United States: Vepco will comply with the requirements of these Sections subject to the clarifications taken to other Sections which are referenced therein.		
11) With regard to Section 5.2.1 of ANSI N45.2.2 - 1972 titled Shipping Damage Inspection: Warehouse personnel will normally visually scrutinize incoming shipments for damage of the types listed in this Section; this activity is		

Vepco's Position	Conformance Status	Justification
not necessarily performed prior to unloading. Since all required items receive the Item Inspection of Section 5.2.2, separate documentation of the Shipping Damage Inspection is not necessary. Release of the transport agent after unloading and signing for receipt of the shipment may be all of the action taken to document completion of the Shipping Damage Inspection. Any nonconformance noted will be documented and dispositioned as required by Section 17.2.15 of the Operational QA Program. The person performing the visual scrutiny during unloading is not considered to be performing an inspection function as defined under Regulatory Guide 1.74; therefore, while he will be trained to perform this function, he may not necessarily be certified (N45.2.6) as an Inspector. 12) With regard to Section 5.2.2 of ANSI N45.2.2 - 1972 titled Item Inspection: The second division of this subsection requires six additional inspection activities if an item was not inspected or examined at the source. Engineering and QA/QC shall determine and document the extent of receipt inspection based on consideration of Paragraph 5.2.2 13) With regard to Section 6.1.2 of ANSI N45.2.2 - 1972 titled Levels of Storage: Subpart (2) is replaced with the following:		

Vepco's Position	Conformance Status	Justification
(2) Levels B items shall be stored within a fire resistant, weathertight, and well ventilated building or equivalent enclosure in which measures have been taken against vandalism. This building shall be situated and constructed so that it will not normally be subject to flooding; the floor shall be paved or equal, and well drained. If any outside waters should come in contact with stored equipment, such equipment will be labeled or tagged nonconforming, and then the nonconformance document will be processed and evaluated in accordance with Section 17.2.15. Items shall be placed on pallets, shoring or shelves to permit air circulation. The building shall be provided with uniform heating and temperature control or its equivalent to prevent condensation and corrosion. Minimum temperature shall be 40°F and maximum temperature shall be 140°F or less if so stipulated by a manufacturer.		
14) With regard to Section 6.2.1 of ANSI N45.2.2 - 1972 titled Access to Storage Areas: Items which fall within the Level D classification of the standard will be stored in an area which may be posted to limit access, but other positive controls such as fencing or guards will not normally be provided with QA/QC concurrence.		

Vepco's Position	Conformance Status	Justification
15) With regard to Section 6.2.4 of ANSI N45.2.2 - 1972 titled Storage of Food and Associated Items: The sentence is replaced with the following: "The use or storage of food, drinks and salt tablet dispensers in any storage area shall be controlled and shall be limited to designated areas where such use or storage is not deleterious to stored items where Engineering and QA/QC deem appropriate. 16) With regard to Section 6.2.5 of ANSI N45.2.2 - 1972 titled Measures to Prevent Entrance of Animals: The sentence is replaced with the following: "Exterminators or other appropriate measures shall be used to control animals to minimize possible contamination and mechanical damage to stored material." 17) With regard to Section 6.4.2 of ANSI N45.2.2 - 1972 titled Care of Items: The following alternates are provided for indicated subpart: (5) "Space heaters in electrical equipment shall be energized unless a documented engineering evaluation determines that such space heaters are not required." (6) "Large (greater than or equal to 50HP) rotating electrical equipment shall be given insulation resistance tests on a scheduled basis unless a documented engineering evaluation determines that such tests are not required."		

Vepco's Position	Conformance Status	Justification
(7) Within thirty days of having been placed in storage, rotating equipment weighing over approximately 50 pounds shall be evaluated by engineering personnel to determine if shaft rotation in storage is required: The results of the evaluation shall be documented. If rotation is required, it shall be performed at specific intervals, be documented, and be conducted so that parts receive a coating of lubrication where applicable and so that the shaft does not come to rest in the same position occupied prior to rotation. For long shafts or heavy equipment subject to undesirable bowing, shaft orientation after rotation shall be specified and obtained.		
18) With regard to Section 6.5 of ANSI N45.2.2 - 1972 titled Removal of Items from Storage: Vepco does not consider the last sentence of this Section to be applicable to the Operations Phase due to the relatively short period of time between installation and use. The first sentence of the Section is relaced with: "Vepco will develop, issue, and implement a procedure(s) which cover(s) the removal of items from storage. The procedure(s) will assure that the inspection status of all material issued is known, controlled and appropriately dispositioned."		

Vepco's Position	Conformance Status	Justification
19) With regard to Section 6.6 of ANSI N45.2.2 - 1972 titled Storage Records: Vepco will comply with the requirements of this Section with the clarification that, for record purposes, only the access of non-Vepco personnel into indoor storage areas shall be recorded. Unloading or pick-up of material shall not be considered "access," nor shall inspection by NRC or other regulatory agents, nor shall tours by non-Vepco employees who are accompanied by Vepco employees.		
20) With regard to Section 7.3 of ANSI N45.2.2 - 1972 titled Hoisting Equipment: Rerating of hoisting equipment will be considered only when absolutely necessary. Prior to performing any lift above the load rating, the equipment manufacturer must be contacted for his approval and direction. The manufacturer must be requested to supply a document granting approval for a limited number of lifts at the new rating and any restrictions involved, such as modifications to be made to the equipment, the number lifts to be made at the new rating, and the test lift load. At all times, the codes governing rerating of hoisting equipment must be observed. If rerating hoisting equipment is necessary and Vepco cannot or does not not contact the equipment manufacturer as described above, the test weight used in temporarily rerating hoisting equipment for special lifts will be at least equal to 110% of the lift weight. A dynamic load test over the full range of the lift using a weight at least equal to the lift weight shall be performed.		

Standard, Requirement or Guide

NRC Regulatory Guide 1.39 - "Housekeeping Requirements for Water-Cooled Power Plants" (Rev. 2, 9/77) - Endorses ANSI N45.2.3 - 1973.

Vepco's Position	Conformance Status	Justification
The operational quality assurance program complies with this guide with the following clarifications: See Generic Statement which prefaces this table. 1) Additional clarifications for ANSI N45.2.3 - 1973 are indicated below for specific Sections. Section 2.1 Planning: Vepco may choose not to utilize the five-level zone designation system, but will utilize standard janitorial and work practices to maintain a level of cleanliness as delineated in the Vepco Accident Prevention Manual which is equivalent to the requirements contained in the referenced section. Cleanliness will be maintained, consistent with the work being performed, so as to prevent the entry of foreign materal into safety-related systems. This will include, as a minimum, documented cleanliness inspections which will be performed prior to system closure. As determined by Engineering and QA/QC, (e.g. the size of the opening would permit entry of the tools being used) control of personnel, tools, equipment, and supplies will be established when the reactor system is opened for inspection, maintenance or repair. Additional housekeeping requirements will be implemented as required for control of radioactive contamination.	Clarifications meet or exceed applicable guides and standards.	These clarifications are proposed to perform a twofold function: A) To translate construction criteria to operating plant oriented requirements. B) To reflect experience gained at operational nuclear facilities. It should be noted that where Vepco does not specifically implement requirements as delineated herein, the proposed alternatives are reflected in written procedures and policy and contain all necessary elements to assure quality is maintained.

Vepco's Position	Conformance Status	Justification
Section 2.2 - Procedures and Instructions: Appropriate procedures will be written and implemented. Section 3.2 - Control of Facilities: Vepco may choose not to utilize the five-level zone designation system, but will utilize the Vepco Accident Prevention Manual polices and procedures to maintain a level of cleanliness commensurate with the requirements of this section. Cleanliness will be maintained, consistent with the work being performed, so as to prevent the entry of foreign material into safety-related systems. This will include, as a minimum, documented cleanliness inspections which will be performed prior to system closure. As necessary, (e.g. the size of the opening would permit entry of the tools being used) control of personnel, tools, equipment, and supplies will be established when major portions of the reactor system are opened for inspection, maintenance or repair. Additional housekeeping requirements will be implemented as required for control of radioactive contamination. Section 3.3 - Materials and Equipment: See Generic Statement which prefaces this table. Section 3.4 - Construction Tools, Supplies and Equipment: See Generic Statement which prefaces this table. Section 3.5 - Surveillance, Inspections and Examination: Subparagraph (1) See Generic Statement which prefaces this table.		

Standard, Requirement or Guide		
NRC Regulatory Guide 1.58 - Qualification of Nuclear Power Plant Inspection, Examination and Testing Personnel" (Rev. 1, 9/80) - Endorses ANSI N45.2.6 - 1978.		
Vepco's Position	**Conformance Status**	**Justification**
The operational QA program complies with this guide with the following clarifications: 1) With regard to Section 1.2 of ANSI N45.2.6 - 1978 titled Applicability: The third paragraph requires that the Standard be used in conjunction with ANSI N45.2; Vepco no longer specifically commits to ANSI N45.2 in the operational QA program. The fourth paragraph requires that the Standard be imposed on personnel other than Vepco employees; the applicability of the Standard to suppliers will be documented and applied, as appropriate, in the procurement documents for such suppliers. 2) With regard to Section 1.4 of ANSI N45.2.6 - 1978 titled Definitions: Definitions in this Reg. Guide 1.58 which are not included in ANSI N45.2.10 will be used; all definitions which are included in ANSI N45.2.10 will be used as clarified in Vepco's commitment to Regulatory Guide 1.74. 3) With regard to Section 2.5 of ANSI N45.2.6 - 1978 titled Physical: Vepco will implement the requirements of this Section with the stipulation that, where no special physical characteristics are required, none will be specified. The converse is also true: If no special physical requirements are stipulated by Vepco, none are considered necessary.	Clarifications meet or exceed applicable guides and standards.	The proposed clarifications reflect Vepco practices and are provided here to assure that QA program continuity with other delineated standards and guides is maintained.

Standard, Requirement or Guide

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

Vepco's Position	Conformance Status	Justification
The operational quality assurance program complies with this guide with the following clarification: See Generic Statement which prefaces this table. 1) With regard to Paragraph C.2(1) of Regulatory Guide 1.64: If in an exceptional circumstance the designer's immediate Supervisor is the only technically qualified individual available, this review may be conducted by the Supervisor, providing that: (a) the other provisions of the Regulatory Guide are satisfied, and (b) the justification is individually documented and approved in advance by the Supervisor's management, and (c) quality assurance audits cover frequency and effectiveness of use of Supervisors as design verifiers to guard against abuse.	Clarification meets or exceeds applicable guides and standards.	Clarification is considered an acceptable alternative to that proposed in the referenced standard in that all Quality elements have been maintained.

Standard, Requirement or Guide

NRC Regulatory Guide 1.74 - "Quality Assurance Terms and Definitions" (2/74) - Endorses ANSI N45.2.10 - 1973.

Vepco's Position	Conformance Status	Justification
The operational quality assurance program complies with this guide with the following clarifications: 1) Vepco reserves the right to define additional words or phrases which are not included in this Standard. Such additional definitions will be documented in appropriate procedures and/or in attachments/appendices to quality assurance procedures manual or in Sections of the operational QA program. 2) Vepco intends for inspections to be performed in accordance with the operational QA program by personnel certified as required by that program and for activities defined by "Inspection" in ANSI N45.2.10. Appropriate references to the plant quality organization which will perform the activity or quality procedures to be used for performing the activity will be made. If such references are NOT made, inspections are to be considered under the following definition: "Inspection" (when used to refer to activities that are NOT performed by quality organization personnel) -Examining, viewing closely, scrutinizing, looking over or otherwise checking activities. Personnel performing these functions are not necessarily certified to ANSI N45.2.6. However, Engineering and QA/QC through prior procedure review shall determine the appropriate personnel qualifications and reporting relationships.	Clarifications meet or exceed applicable guides and standards.	The clarifications illuminate actual Vepco QA program practices, and are considered to enhance Vepco's commitment to Quality practices.

Vepco's Position	Conformance Status	Justification
3) In addition to the Standard's definition of "procurement documents," Vepco will utilize the definitions given in ANSI N45.2.13 and in Regulatory Guide 1.74. The compound definition is given as follows: Procurement documents -Contractually binding documents that identify and define the requirements which items or services must meet in order to be considered acceptable by the purchaser. They include documents which authorize the seller to perform services or supply equipment, material or facilities on behalf of the purchaser (e.g. contracts, letters of intent, work orders, purchase orders or proposals and their acceptance, drawings, specifications or instructions which define requirements for purchase).		
4) "Program Deficiencies" (Not defined in ANSI N45.2.10, but used and defined differently in ANSI N45.2.12) - Failure to develop, document or implement effectively any applicable element of the operational QA program.		
5) "Quality Assurance Program Requirements" (Not defined in ANSI N45.2.10 but used and defined differently in ANSI N45.2.13) - Those individual requirements of the operation QA program which, when invoked in total or in part, establish the requirements of the quality assurance program for the activity being controlled. Although not specially used in the operational QA program, ANSI N45.2 may be imposed upon Vepco's suppliers.		

Standard, Requirement or Guide

NRC REGULATORY GUIDE 1.88 - "Collection, Storage and Maintenance of Nuclear Power Plant Quality Assurance Records" (Rev. 2, 10/76 - Endorses ANSI N45.2.9 - 1974).

Vepco's Position	Conformance Status	Justification
The operational quality assurance program complies with this guide with the following clarifications and alternatives: 1) With regard to Section 3.2.2 of ANSI N45.2.9 - 1974 titled Index: The phrase "an index" is clarified to mean a collection of documents or indices which, when taken together, supply the information attributed to "an index" in the standard. The specific location of a record "within a storage area" may not be delineated (e.g. The specific location within a computer record file may not be constant. Further, Vepco may utilize a computer assisted random access filing system where such location could not be readily "documented", nor would such a location be "relevant"). The storage location will be delineated, but where file locations change with time, the specific location of a record within that file may not always be documented. 2) With regard to Section 4.2 of ANSI N45.2.9 -1974 titled Timeliness: Vepco's contractual agreement with its contractors and suppliers will constitute fulfillment of the requirements of this Section. 3) With regard to Section 5.4 of ANSI N45.2.9 -1974 titled Preservation: The following clarification is substituted for the current subsection 5.4.2 "Records shall be stored in enclosed containers, cabinets, or other comparable document storage hardware.	Clarifications and alternatives meet or exceed applicable guides and standards.	These proposals are the results of experience gained at operating nuclear facilities for over a decade. As with all guides and standards, additional clarity is sometimes required. Further the alternative (6) presented herein reflects the "as-built" condition of Vepco's records storage facilities. These facilities were constructed prior to any regulatory position being defined, and, at the time of construction, were considered more than adequate to assure permanent records retention. The discrepancies which might exist between current guides and standards and "as-built" conditions and more than compensated for by other more stringent measures such as; a) constant surveillance of the facility both by monitoring devices security patrols, and fire inspections, and b) Premanently installed dedicated fire suppression apparatus.

Vepco's Position	Conformance Status	Justification
The following clarification is substituted for the current subsection 5.4.3" "Provisions shall be made for special processed records (such as radiographs, photographs, negatives, microfilm and magnetic media) to prevent damage as appropriate to the record type and will address the manufacturer's recommendations." 4) With regard to Section 5.5 of ANSI N45.2.9 - 1974 titled Safekeeping: Routine general office and nuclear site security systems and access controls are provided. 5) With regard to Section 5.6 of ANSI N45.2.9 - 1974 titled Facility: Records shall be forwarded to station records promptly after completion when required processing and reviews have been completed. Paragraph 4, subsection 3 is clarified to require a two-hour minimum fire rating to be consistent with the 1979 version of the Standard and NRC Criteria for Record Storage Facilities (Guidance - ANSI N45.2.9, Section 5.6) issued 7/15/79. Paragraph 4, subsection 9 is clarified to read: "No pipes or penetrations except those providing fire protection, lighting, temperature/humidity control, or communications are to be located within the facility and they shall comply with a minimum two-hour fire protection rating.		

Vepco's Position	Conformance Status	Justification
The Surry Power Station facility conforms to ANSI N45.2.9 - 1974 as clarified in this Table except that it is rated at approximately 2 hours; concrete floor has no slope; doors, frames, and hardware are three-hour rated; forced-air ducting is not equipped with automatic fire stops; conduit and wiring exist for interior lighting security alarms, and fire protection. This facility is considered to meet the intent of ANSI N45.2.9 and provides adequate protection for records. The North Anna Power Station facility meets the intent of Chapter 3 of NFPA No. 232-1975, subject to the following provisions: a) The file room is constructed with a minimum fire rating of two (2) hours. b) Heating, cooling and ventilation for the file room is by means of a forced air system, with all fans, filters, and heating and cooling elements located in an equipment room which is external to the file room. Ducts for this system are located on the ceiling of the file room and are provided with the standard door dampers with a minimum rating of two (2) hours where they penetrate the file room barrier to other areas of the building. c) The file room is provided with an early warning fire detection system and automatic fire suppression system. A protective signaling system is provided, with a remote alarm located at a constantly attended station.		

Vepco's Position	Conformance Status	Justification
d) Telephone service is provided to the file room, with the wire penetration constructed and sealed in accordance with NFPA No. 232-1975.		
e) All records stored in the file room are stored in metal cabinets, which are arranged to provide adequate access and aisleways. Work not directly related to the storage, retrieval or auditing of records is not allowed in the file room. Smoking, eating, and drinking is prohitited in the file room.		
f) A wall divides the file room into two sections, with one section used as a file room and the other section used for microfilming of records. The dividing wall has a minimum fire rating of two (2) hours, including the fire door dampers in the duct penetrating the wall.		

Standard, Requirement or Guide

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

Vepco's Position	Conformance Status	Justification
The operational quality assurance program complies with this guide with the following clarification: See Generic Statement which prefaces this table. 1) With regard to Section 2.5.1 of ANSI N45.2.5 - 1974 titled Selection: Vepco complies with the requirement set forth in the first paragraph of this Section for selection of measuring and test equipment on the basis of sufficient accuracy to determine conformance to the standard's requirements: this is accomplished without the use of calibrated balances or volumetric buckets.	Clarification meets or exceeds applicable guides and standards.	The proposed clarification is used to translate construction oriented documents to operational regulations.

Standard, Requirement or Guide

NRC Regulatory Guide 1.116 - "Quality Assurance Requirements for Installation, Inspection and Testing of Mechanical Equipment and Systems" (Rev. O-R, 6-76) - Endorses ANSI N45.2.8 - 1975.

Vepco's Position	Conformance Status	Justification
The operational quality assurance program complies with this guide with the following clarification: See Generic Statement which prefaces this table.	Clarification meets or exceeds applicable guides and standards.	This clarification is proposed as a construction to operations device.

Standard, Requirement or Guide

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

Vepco's Position	Conformance Status	Justification
The operational quality assurance program complies with this guide with the following clarifications: 1) With regard to Section 1.3 of ANSI N45.1.13 - 1976 titled Definitions: With two exceptions (Procurement Document and Quality Assurance Program Requirements) definitions in this Standard which are not included in ANSI N45.2.10 will be used; all definitions which are included in ANSI N45.2.10 will be used as clarified in Vepco's commitment to Regulatory Guide 1.74. The two exceptions are defined in Table 17.2.0 under Regulatory Guide 1.74. 2) With regard to Section 1.2.2 of ANSI N45.2.13 -1976 titled Purchaser's Responsibilities: Item c is modified as follows: "Evaluation of the supplier's QA program shall be conducted as determined by the QA Department based on the complexity and use of the procurement." 3) With regard to Section 3.1 of ANSI, N45.2.13 - 1976 titled Procurement Document Preparation, Review and Change Control: The phrase "the same degree of control" is stipulated to mean "equivalent level of review and approval." The changed document may not always be rereviewed by the originator; however, at least an equivalent level supervision shall review and approve any changes.	Clarifications meet or exceed applicable guides and standards.	Clarifications contained herein reflect actual Vepco QA program practices. Further, these proposals assure continuity with the QA Program and other regulations or guides, and are considered to enhance the aforementioned program.

Vepco's Position	Conformance Status	Justification
4) With regard to Section 3.4 of ANSI N45.2.13 - 1976 titled Procurement Document Control: Vepco will meet the requirements of Sections 17.2.4 and 17.2.7 of the operational QA program in lieu of the requirements specified in this Section.		
5) With regard to Section 5.3 of ANSI N45.2.13 - 1976 titled Preaward Evaluation: Vepco will comply with an alternate paragraph which reads: "Except in unusual circumstances as determined and documented by Engineering and QA/QC (e.g. replacement parts are needed to preclude the development of some unsafe or undersireable condition at a nuclear facility), a preaward evaluation of the Supplier shall be performed as required by the operational QA program."		
6) With regard to Section 6.4 of ANSI N45.2.13 - 1976 titled Control of Changes in Items of Services: The phrase "the operational QA program" will be inserted in lieu of "ANSI N45.2, Section 7."		
7) With regard to Section 8.2 of ANSI N45.2.13 - 1976, titled Disposition: The third sentence of item b is revised to read: Nonconformances to the contractual procurement requirements or Purchaser approved documents and which consist of one or more of the following shall be submitted to the Purchaser for approval of the recommended disposition prior to shipment when the nonconformance could adversely affect the end use of a module or shippable component relative to safety, interchangeability, operability, reliability, integrity, or maintainability:		

Vepco's Position	Conformance Status	Justification
1) Technical or material requirement is violated; 2) Requirement in Supplier documents, which have been approved by the Purchaser, is violated; 3) Nonconformance cannot be corrected by continuation of the original manufacturing process or by rework; and/or 4) The item does not conform to the original requirement even though the item can be restored to a condition such that the capability of the item to function is unimpaired. * A module is an assembled device, instrument, or piece of equipment identified by serial number or other identification code, having been evaluated by inspection and/or test for conformance to procurement requirements regarding end use. A shippable component is a part of a subassembly of a device, instrument,or piece of equipment which is shipped as an individual item and which has been evaluated by inspection and/or test for conformance to procurement requirements regarding end use.		

Standard, Requirement or Guide

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

Vepco's Position	Conformance Status	Justification
The operational quality assurance program complies with this guide with the following clarifications: 1) With regard to Section 1.4 of ANSI N45.2.12 - 1977 titled Definitions: With one exception (Program Deficiencies) the definitions in this Standard which are not included in ANSI N45.2.10 will be used as clarified in Vepco's commitment to Regulatory Guide 1.74. The one excepted definition and a clarified definition relevant to this Standard are defined in Table 17.2.0 under Regulatory Guide 1.74. 2) With regard to Section 2.2 of ANSI N45.2.12 - 1977 titled Personnel Qualification: The qualification of Vepco audit personnel will be accomplished as described to meet the requirements of ANSI N45.2.23 -1978 as endorsed in Table 17.2.0 and Sections 17.2.0 and 17.2.18 of the operational QA program. 3) With regard to Section 2.3 (and subsections 2.3.1 through 2.3.3) of ANSI N45.2.12 - 1977 titled Training: The training of Vepco audit personnel will be accomplished as described to meet the requirements of ANSI N45.2.23 -1978 as endorsed in Table 17.2.0 and Sections 17.2.2 and 17.2.18 of the operational QA program.	Clarifications meet or exceed applicable guides and standards.	These clarifications have been proposed to maintain program continuity with other referenced standards and guides committed to in Table 17.2.0. Further, where alternatives have been proposed they reflect Vepco QA program practices and are considered to enhance the referenced program. Not all standards, guides and regulations can be considered programmatically error-free, therefore, operational experience utilizing these documents and the proposed alternatives must be taken into consideration.

Vepco's Position	Conformance Status	Justification
4) With regard to Section 2.4 of ANSI N45.2.12 - 1977 titled Maintenance of Proficiency: The maintenance of proficiency of Vepco audit personnel will be accomplished as described to meet the requirement of ANSI N4.2.23 - 1978 as endorsed in Table 17.2.0 and Sections 17.2.2 and 17.2.18 of the operational QA program.		
5) With regard to Section 3.3 of ANSI N45.2.12 - 1977 titled Essential Elements of the Audit System: Vepco will comply with subsection 3.6.5 as it was originally written (subsection 3.2.5) in ANSI N45.2.12, Draft 3, Revision 4: "Provisions for reporting on the effectiveness of the quality assurance program to the responsible management." For the auditing organization (Vepco), effectiveness is reported as required by the individual nuclear facility Technical Specifications. Other than audit reports, Vepco may not directly report on the effectiveness of the quality assurance programs to the audited organization when such organizations are outside of Vepco. Subsection 3.3.6 requirements are considered to be fulfilled by compliance with the organization and reporting measures outlined in the Operational QA Program and the Technical Specifications of individual nuclear facility. Subsection 3.3.7 requires verification of effective corrective action on a "timely basis." Timely basis is interpreted to mean within the framework or period of time for completion of corrective action that is accepted by the QA		

Vepco's Position	Conformance Status	Justification
organization. Each finding requires a response and a corrective action completion date; these dates are subject to revision (with the approval of the quality organization) and must be escalated to higher authority when there is a disagreement between the audited and the auditing organization on what constitutes "timely corrective action."		
6) With regard to Section 3.5 of ANSI N45.2.12 - 1977 titled Scheduling: Subsection 3.5.3.1 is interpreted to mean that Vepco may procedurally review qualification of a contractor's or supplier's quality assurance program prior to awarding a contract or purchase order by means other than audit.		
7) With regard to Section 4.3.1 of ANSI N45.2.12 - 1977 titled Pre-Audit Conference: Vepco will comply with requirements of this Section by inserting the word "Normally" at the beginning of the first sentence. This clarification is required because, in the case of certain unannounced audits or audits of a particular operation or work activity, a pre-audit conference might interfere with the spontaneity of the operation or activity being audited. In other cases, persons who should be present at a pre-audit conference may not always be available, such lack of availability should not be an impediment to beginning an audit. Even in the above examples, which are not intended to be all inclusive, the material set forth in Section 4.3.1 will normally be covered during the course of the audit.		

Vepco's Position	Conformance Status	Justification
8) With regard to Section 4.3.2 of ANSI N45.2.12 - 1977 titled Audit Process: a) Subsection 4.3.2.2 could be interpreted to limit auditors to the review of only objective evidence; sometimes and for some program elements, no objective evidence may be available. Vepco will comply with an alternate sentence which reads: "When available, objective evidence shall be examined for compliance with quality assurance program requirements. If subjective evidence is used (e.g., personnel interviews, direct observations by the auditor), then the audit report must indicate how the evidence was obtained." b) Subsection 4.3.2.4 is modified as follows to take into account the fact that some nonconformance are virtually "obvious" with respect to the needed corrective action: "When a nonconformance or quality assurance program deficiency is identified as a result of an audit, unless the apparent cause, extent and corrective action are readily evident, further investigation shall be conducted by the audited organization in an effort to identify the cause and effect and to determine the extent of the corrective action required."		

Vepco's Position	Conformance Status	Justification
c) Subsection 4.3.2.5 contains a recommendation which is clarified with the definition of "acknowledged by a member of the audited organization" to mean that a "member of the audited organization has been informed of the findings." Agreement or disagreement with a finding may be expressed in the response from the audited organization.		
9) With regard to Section 4.3.3 of ANSI N45.2.12 - 1977 titled Post-Audit Conference: Vepco will substitute and comply with the following paragraph: "For all external audits, a post-audit conference shall be held with management of the audited organization to present audit findings and clarify misunderstandings; where no adverse findings exist, this conference may be waived by management of the audited organization: such waiver shall be documented in the audit report. Unless unusual operating or maintenance conditions preclude attendance by appropriate managers/supervisors, a post-audit conference shall be held with managers/supervisors for all internal audits for the same reasons as above. Again, if there are no adverse findings, management of the internal audited organization may waive the post-audit conference: such waiver shall be documented in the audit report."		
10) With regard to Section 4.4 of ANSI N45.2.12 - 1977 titled Reporting:		

Vepco's Position	Conformance Status	Justification
a) This Section requires that the audit report shall be signed by the audit team-leader; this is not always the most expeditious route to take to assure that the audit report is issued as soon as practical. Vepco will comply with Section 4.4 as clarified in the following opening: "An audit report, which shall be signed by the audit team leader, or his supervisor in his absence, shall provide": In cases where the audit report is not signed by the Lead Auditor due to his absence, one record copy of the report must be signed by the Lead Auditor upon his return. The report shall not require the Lead Auditor's review/concurrence/signature if the Lead Auditor is no longer employed by Vepco at the time the audit report is issued. b) Vepco will comply with subsection 4.4.3 clarified to read: "Supervisory level personnel with whom significant disussions were held during the course of pre-audit (where conducted), audit, and post-audit (where conducted) activities." c) Subsection 4.4.6 requires audit reports to include recommendations for corrective actions; Vepco may choose not to comply with this requirement. Instead, Vepco auditors/lead auditors are required to document all adverse findings on an audit finding sheet.		

Vepco's Position	Conformance Status	Justification
The procedure for processing audit findings allows the auditor/lead auditor to document actions which are considered necessary to correct the finding; the auditor/lead auditor may also document actions which are considered unacceptable for correcting the finding: the audit finding with these "Recommendations" is then transmitted to the audited organization. In addition, the auditor/lead auditor is required to review the response to the audit finding and determine if it is acceptable. Any disagreements must be escalated to higher management for resolution.		
11) With regard to Section 4.5.1 of ANSI N45.2.12 - 1977 titled By Audited Organization: Vepco will comply with the following clarification of this Section: "Management of the audited organization or activity shall review and investigate all adverse audit findings, as necessary, (e.g. where the cause is not already known, another organization has not already investigated and found the cause, etc.) to determine and schedule appropriate corrective action including action to prevent recurrence. They shall respond, in writing, within thirty days after the date of issuance of the audit report. The response shall clearly state the corrective action taken or planned to prevent recurrence and the results of the investigation if conducted. In the event that corrective		

Vepco's Position	Conformance Status	Justification
action is not completed by the time the response is submitted, the audited organizations' response shall include a scheduled date for completion of planned corrective action: a followup response shall be provided stating the corrective action taken and the date that the action was completed. If corrective actions are verified as satisfactorily completed by the quality organization prior to the scheduled completion date, no followup response is required. The audited organization shall take the appropriate action to assure that corrective action is accomplished as scheduled." The Manager-Quality Assurance may, at his discretion, waive the requirements for a supplementary response.		

Standard, Requirement or Guide

NRC Regulatory Guide 1.146 - "Qualification of Quality Assurance Program Audit Personnel for Nuclear Power Plants" (Rev. 0, 8/80) - Endorses ANSI N45.2.23 - 1978.

Vepco's Position	Conformance Status	Justification
The operational quality assurance program complies with this guide with the following clarifications and alternatives: 1) With respect to Section 1.4 of ANSI N45.2.23 - 1978 titled Definitions: Definitions in this Standard which are not included in ANSI N45.2.10 will be used; "AUDIT" which is included in ANSI N45.2.10 will be used as clarified in Vepco's commitment to Regulatory Guide 1.74. 2) With respect to Section 2.2 of ANSI N45.2.23 - 1978 titled Qualification of Auditors: Subsection 2.2.1 references ANSI N45.2 therefore, Vepco will comply with an alternate subsection 2.2.1 which reads: Orientation to provide a working knowledge and understanding of the operational QA program, including the ANSI standards and Regulatory Guides included in Table 17.2.0 of the Program, and Vepco's procedures for implementing audits and reporting results. 3) With respect to Section 3.2 of ANSI N45.2.23 - 1978 titled Maintenance of Proficiency: Vepco will comply with the requirements of this Section by defining "annual assessment" as one which takes place every 12 months or less and which uses the initial date of certification (not the calendar year) as the starting date for determining when such annual assessment is due.	Clarifications and alternatives meet or exceed applicable guides and standards.	The clarifications and alternatives reflect experience gained at operational nuclear facilities and are intended to enhance and provide additional guidance in the areas of auditing as delineated herein.

Vepco's Position	Conformance Status	Justification
4) With respect to Section 4.1 of ANSI N45.2.23 - 1978 titled Organizational Responsibility: Vepco will comply with this Section with the substitution of the following sentence in place of the last sentence in the Section. The Manager-Quality Assurance, Supervsor-Quality Control or Lead Auditor shall, prior to commencing the audit, assign personnel who collectively have experience or training commensurate with the scope, complexity, or special nature of activities to be audited. 5) With respect to Section 5.3 of ANSI N45.2.23 - 1978 titled Updating of Lead Auditor's Records: Vepco will substitute the following sentence for this Section: Records for each Lead Auditor shall be maintained and updated during the period of the annual management assessment as defined in Section 3.2 (as clarified).		

17.2.1 ORGANIZATION

17.2.1.1 General Description

Figures 17.2.1-1, 2, and 3 illustrate the organizational relationships between the various groups which contribute to the power station quality assurance program.

Under the Senior Vice President-Power Operations, the System Power Operations Group is divided into five distinct departments; Quality Assurance, Nuclear Operations, Fossil and Hydro Operations, Fuel Resources and Environmental Services. Collectively, except Fossil and Hydro Operations, these departments are responsible for the licensing and operation of nuclear power stations. The Quality Assurance Department has prime responsibility for the operational quality assurance program. The Fuel Resources Department has prime responsibility for the quality activities (i.e., fuel design, procurement, inspection, etc.) for nuclear fuel.

17.2.1.2 Management of Operational Quality Assurance

Specific responsibilities for operational quality assurance are:

NUCLEAR OPERATIONS

A. Vice President-Nuclear Operations

Responsible to the Senior Vice President-Power Operations and has corporate responsibility for the operation of nuclear power stations. As such, he has overall responsibility for the implementation of the requirements established by the quality assurance program for the operational phase of nuclear power stations.

B. Manager-Nuclear Operations and Maintenance

Responsible to the Vice President-Nuclear Operations for operations and maintenance support functions requiring specialization not available at the nuclear power stations.

C. Manager-Nuclear Technical Services

Responsible to the Vice President-Nuclear Operations for technical support functions requiring specialization not available at the nuclear power stations.

D. Director-Technical Analysis and Control

Responsible to the Manager-Nuclear Technical Services for technical support services to operating nuclear power stations including analysis of operational requirements, recommending design changes, and project management and engineering for major modifications and analysis.

E. Director-Safety Evaluation and Control

Responsible to the Manager-Nuclear Technical Services to provide support for an independent review of the nuclear power stations and nuclear operations in the areas of safety review, NRC issues and actions, reports, and industry-wide safety review activity.

F. Station Manager

Responsible to the Vice President-Nuclear Operations for the overall safety and efficient operation of the station, and the implementation of quality assurance requirements in the areas specified by the Nuclear Power Station Quality Assurance Manual.

G. Assistant Station Manager

Responsible to the Station Manager for coordinating the functions of the Superintendent Operations, Superintendent Maintenance and Superintendent Technical Services. In the Station Manager's absence, he assumes the authority and responsibilities of the manager, including implementation of quality assurance requirements as specified in the Nuclear Power Station Quality Assurance Manual.

H. Superintendent-Operations / Superintendent-Maintenance / Superintendent-Technical Services

Responsible to the Station Manager, through the Assistant Station Manager, for the safe and efficient operation and maintenance of the Station within their respective areas of responsibility, including the quality assurance program requirements as specified in the Nuclear Power Station Quality Assurance Manual.

I. Station Supervisory Personnel

Responsible directly to the Station Manager or, through their respective superintendents, for implementing the power station quality assurance program requirements applicable to their respective areas of responsibility.

J. Station Staff

It is the responsibility of each member of the station staff to adhere to the provisions contained in the Nuclear Power Station Quality Assurance Manual when performing their work tasks to assure quality workmanship. All station personnel receive training (General Employee Training) in the use of and adherence to the Nuclear Power Station Quality Assurance Manual.

K. Safety Evaluation and Control

The Safety Evaluation and Control staff, under the Director-Safety Evaluation and Control, provides an independent review of matters relating to the activities of the Station Nuclear Safety and Operating Committee, the Operating License and Technical Specifications, changes and modifications, Technical Specification departures, investigations, tests, abnormal performance, and incidents reportable as required by 10 CFR 20 and 50; and to make recommendations on these matters. The Technical Specifications for each station further define their responsibilities.

L. Station Nuclear Safety and Operating Committee

The Station Nuclear Safety and Operating Committee serves in an advisory capacity to the Station Manager. The Technical Specifications for each station define the responsibilities of this committee.

The Station Nuclear Safety and Operating Committee is separate from operational QA activities in that its authority and responsibilities are not established by the operational quality assurance program. However, since the prime responsibility of this committee is to provide a continuing review of the operational and safety aspects of the station, it does perform a quality assurance function.

FUEL RESOURCES

A. Vice President-Fuel Resources

Responsible to the Senior Vice President-Power Operations for the design, procurement, and use of nuclear fuel. Further duties include establishing policies and guidelines for the Quality Assurance Manual - Nuclear Fuels.

B. Manager-Fuel Resources

Responsible to the Vice President-Fuel Resources for the administration of quality assurance activities associated with the design, procurement, and use of nuclear fuel.

C. Director-Nuclear Fuel Accountability and Procurement Quality

Responsible to the Manager-Fuel Resources for the development and implementation of the quality assurance program in the following areas:

1. Auditing of quality assurance activities associated with conversion, enrichment, fabrication, and design of the nuclear fuel.

2. Inspection and surveillance activities associated with new fuel receipt, new and irradiated fuel movements, spent fuel shipping, and handling of nuclear fuel.

3. Administration of the quality assurance activities requirements in the Fuel Resources Department as delineated in the Fuel Resources Department Quality Assurance Manual for Nuclear Fuel. As such, he is responsible for developing and implementing a nuclear fuel manufacturing and design quality assurance audit plan on current and potential nuclear fuel vendors. He is also responsible for nuclear fuel quality assurance liaison at the reactor site.

ENVIRONMENTAL SERVICES

Executive Manager-Environmental Services

Responsible to the Senior Vice President-Power Operations for providing services which will fulfill the nonradiological environmental surveillance requirements.

PURCHASING

Manager-Purchasing

Responsible for implementing the requirements of the Nuclear Power Station Quality Assurance Manual as related to the activities conducted by his department.

QUALITY ASSURANCE

A. Executive Manager-Quality Assurance

Responsible to the Senior Vice President-Power Operations for:

1. Establishment, implementation and direction of the quality assurance program for engineering, construction, and operations activities of the power department.

2. Review of the Vepco QA Manual for Nuclear Fuel and sign off after verification that it meets Corporate QA policy.

The Executive Manager-Quality Assurance may make recommendations to the Vice President-Nuclear Operations or other levels of management. If he disagrees with any action taken by Nuclear Operations, and is unable to obtain resolution, he brings the matter to the attention of the Senior Vice President-Power Operations who will determine the final disposition.

B. Manager-Quality Assurance (One At Each Nuclear Station)

Responsible to the Executive Manager-Quality Assurance for:

1. The establishment and implementation of the quality assurance program for the operational phase of the nuclear power stations.

2. The technical support to the quality assurance effort associated with the operation and maintenance of nuclear power stations.
3. Preparation and maintenance of the Nuclear Power Station Quality Assurance Manual.

The Manager-Quality Assurance may make recommendations to the Power Station Manager or other levels of management. If he disagrees with any quality assurance action taken by the Station Manager, he notifies the Executive Manager-Quality Assurance and the Vice President - Nuclear Operations.

C. Manager-Quality Assurance, Engineering and Vendor Surveillance

Responsible to the Executive Manager-Quality Assurance for:

1. Establishment and implementation of the quality assurance program for the engineering and construction phases of nuclear power stations.

2. Surveillance and audit of vendors and contractors.

3. Preparation and maintenance of the Vepco Vendors List.

4. Implementation of this quality assurance program for certain activities under his cognizance during the operational phase of nuclear power stations.

D. Supervisor-Quality Control (Operating Nuclear Power Facility)

Responsible to the Manager-Quality Assurance for performing the following activities:

1. Development, maintenance, and implementation of suitable quality assurance auditing and inspection programs for all nuclear power stations in the Vepco System. The scope of these programs covers operating power stations, design changes, operation, maintenance, and nuclear construction projects.

2. Establishing a comprehensive system of planned and periodic audits to assure that technical requirements for operating nuclear power stations including the design basis, applicable regulatory requirements, and specified codes and standards, are correctly translated into specifications, drawings, procedures, or instructions.

3. Inspection of operating and maintenance activities at all nuclear power stations including testing, methods of operation, and modifications to systems, components, or structures, where applicable.

4. Development and maintenance of quality assurance training for nuclear operations quality assurance personnel to enable them to more effectively perform quality assurance functions.

5. Formulating, establishing, reviewing and approving QA policies, procedures, and instructions for the activities relative to operation, preventative and corrective maintenance, in-service inspection, repair and modification.

6. Verifying the effectiveness of these procedures and their implementation through a formal audit program that complies with criterion XVIII, Appendix B to 10 CFR 50.

7. Assuring compliance with the Nuclear Power Station Quality Assurance Manual.

8. Performing specific quality assurance functions for the Station Manager (e.g., receipt inspections, procedure review, etc.) as specified in the Nuclear Power Station Quality Assurance Manual.

E. Station Quality Control Staff

The station Quality Control staff conducts audits and inspections in accordance with the Nuclear Power Station Quality Assurance Manual and performs other duties as directed by the Supervisor-Quality Control Operations & Maintenance.

Station Quality Control staff representatives have access to all areas of the power station at any time when deemed necessary for inspections, audits, and observations related to quality. They have access to station records as required for in-depth auditing of station operations, including confidential personnel records (but only to the extent necessary to verify personnel qualifications or other information related to quality).

17.2.1.3 Authority to Stop Work

The Quality Assurance Organization has the authority, and the resonsibility, to stop work in progress which is not being done in accordance with approved procedures or where safety or equipment integrity may be jeopardized.

17.2.1.4 Imposition of "Stop Work"

Station Quality Control Staff

The Station Quality Control staff representative advises the cognizant supervisor or supervisory personnel on the scene to stop work in progress whenever he determines it is not being conducted in accordance with applicable procedures, instructions, guides, or standards or may jeopardize the safe operation of the station. The Supervisor-Quality Control immediately notifies the Station Manager of the decision to stop work because of adverse quality conditions. He also notifies the Manager-Quality Assurance.

Station Manager

The Station Manager considers the Quality Control staff's determination of the necessity to stop work.

1) If he concurs with the decision to stop work he initiates the necessary corrective action. Only after the discrepancy has been corrected and approved by the Quality Control staff does work resume.

2) In the event the Station Manager does not concur with the Quality Control staff's decision to stop work, he may order work to resume by notifying the Manager-Quality Assurance and the appropriate station supervisory personnel in his organization of his decision. He also notifies the Vice President-Nuclear Operations of his course of action.

Vice President-Nuclear Operations

The Vice President-Nuclear Operations is responsible for approving or disapproving the Station Manager's decision in those cases where the Station Manager does not concur and orders work to resume.

Manager-Quality Assurance

The Manager-Quality Assurance may refer any concerns he may have concerning the handling of "stop work" to Vice President-Nuclear Operations or to the Executive Manager Quality Assurance. He may direct imposition of "stop work" whenever he deems such action to be appropriate.

17.2.2 QUALITY ASSURANCE PROGRAM

17.2.2.1 General Description

The objective of the Vepco Quality Assurance Program for operating nuclear power stations is to comply with the criteria as expressed in 10 CFR 50, Apendix B, as amended and with the quality assurance program requirements for nuclear power plants as referenced in the Regulatory Guides and ANSI Standards as listed in table 17.2.0. This program, its policies and procedures are described in the Vepco Nuclear Power Station Quality Assurance Manual and the station procedures, and it applies to those quality-related activities that involve the functions of safety-related structures, systems, and components associated with the operation and maintenance of nuclear power stations and those non safety-related components described in the FSAR. The vehicle for transmission of this program to all levels of management is the Nuclear Power Station Quality Assurance Manual. This manual describes the overall operational quality assurance program addressing, in individual subsections, all eighteen criteria of Apendix B, 10 CFR 50.

The goal of this program is to assure the safe, reliable and efficient operation of the nuclear power station in accordance with sound engineering principles.

The program provides written policies, procedures, and instructions covering engineering, design, procurement, modifications, periodic surveillance, testing, and maintenance after the systems have been installed, checked and turned over to Vepco for operation. Detailed procedures and instructions are issued by the station in accordance with and to meet the requirements of their Technical Specifications for administrative, normal operation, periodic testing, abnormal and emergency conditions. An audit and inspection program has been implemented to provide assurance that these procedures are being correctly applied. The role of Vepco QA/QC personnel in this structure is specified in the Vepco Nuclear Power Station Quality Assurance Manual. The station Supervisor-Quality Control reports to and is under the administrative and supervisory direction of the Manager-Quality Assurance. Vepco quality assurance personnel are thus completely divorced from production influences and fulfill a four-part role as follows:

1. Audit and inspect to ensure that the overall operation of the nuclear power station is carried out in accordance with Technical Specifications, applicable codes and standards, NRC guides and regulations, and company policies.

2. Provide on a continuous basis, objective specified quality assurance and quality control services to the Station Manager as set forth in the Nuclear Power Station Quality Assurance Manual. (Examples: receipt inspections, procedure reviews, hold point inspections, etc.).

3. Serve as a management tool for station and system management personnel, illuminating problem areas, detecting trends, and providing recommendations regarding solution of problem areas when applicable.

4. Provide all levels of management with an independent source of information regarding the quality aspect of station operations and maintenance activities.

Differences of opinion between QA/QC personnel and other departments are resolved either at the station level by the Station Manager and the Manager-Quality Assurance or are forwarded through normal administrative chains of both individuals for resolution

at the corporate level. Final decision-making authority rests with the Senior Vice President-Power Operations.

17.2.2.2 Quality Assurance Manuals

The Vepco Quality Assurance Program policies, procedures, and instructions are documented as follows:

(a) Vepco Quality Assurance Manual, which is applicable to the engineering and construction phases of nuclear power stations;

(b) Nuclear Power Station Quality Assurance Manual, which is applicable to the operational phase of nuclear power stations;

(c) Fuel Resources Department Quality Assurance Manual for Nuclear Fuel, which is applicable to design, procurement and use of nuclear fuel.

(d) Quality Assurance plans written specifically to accomplish major repair, modification and construction projects, when required. These plans shall be approved at the same level of management as the above manuals.

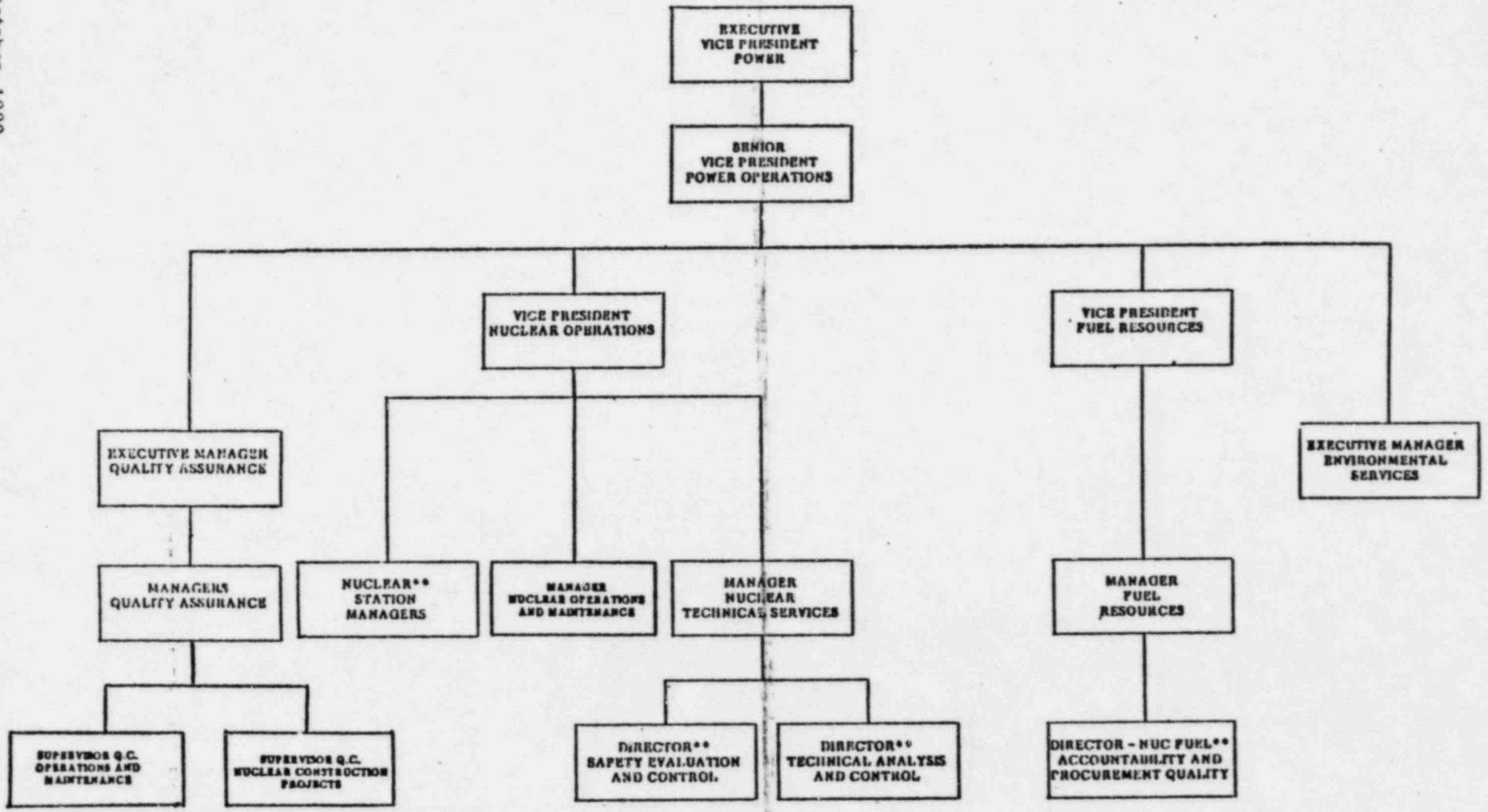
These manuals/programs are structured to correspond to the 18 criteria expressed in Appendix B to 10 CFR 50.

The Quality Assurance Department develops and maintains the Nuclear Power Station Quality Assurance Manual which describes the activities of auditing, reviewing, and inspecting performed during station operations, modification, refueling, etc. This manual addresses the criteria of Appendix B of 10 CFR 50 and the commitments of this Topical Report including (Table 17.2.0). It also identifies the interface between system organizations and the station as related to the overall operation QA program. This manual was first issued in September 1974 for all operating nuclear power stations.

Listed in Table 17.2.2 are the titles and a brief abstract of each section of the Nuclear Power Station Quality Assurance Manual. This manual provides guidance for the operational phase of Vepco's nuclear power stations.

The preparation and continued maintenance of the Vepco and Nuclear Power Station Quality Assurance Manuals is a responsibility of the Coordinator-Quality Assurance Quality Control and the Manager-Quality Assurance, respectively. All manuals are controlled copies unless specifically designated uncontrolled. These manuals are authorized by the Executive Vice President-Power and their use made mandatory for all Vepco personnel.

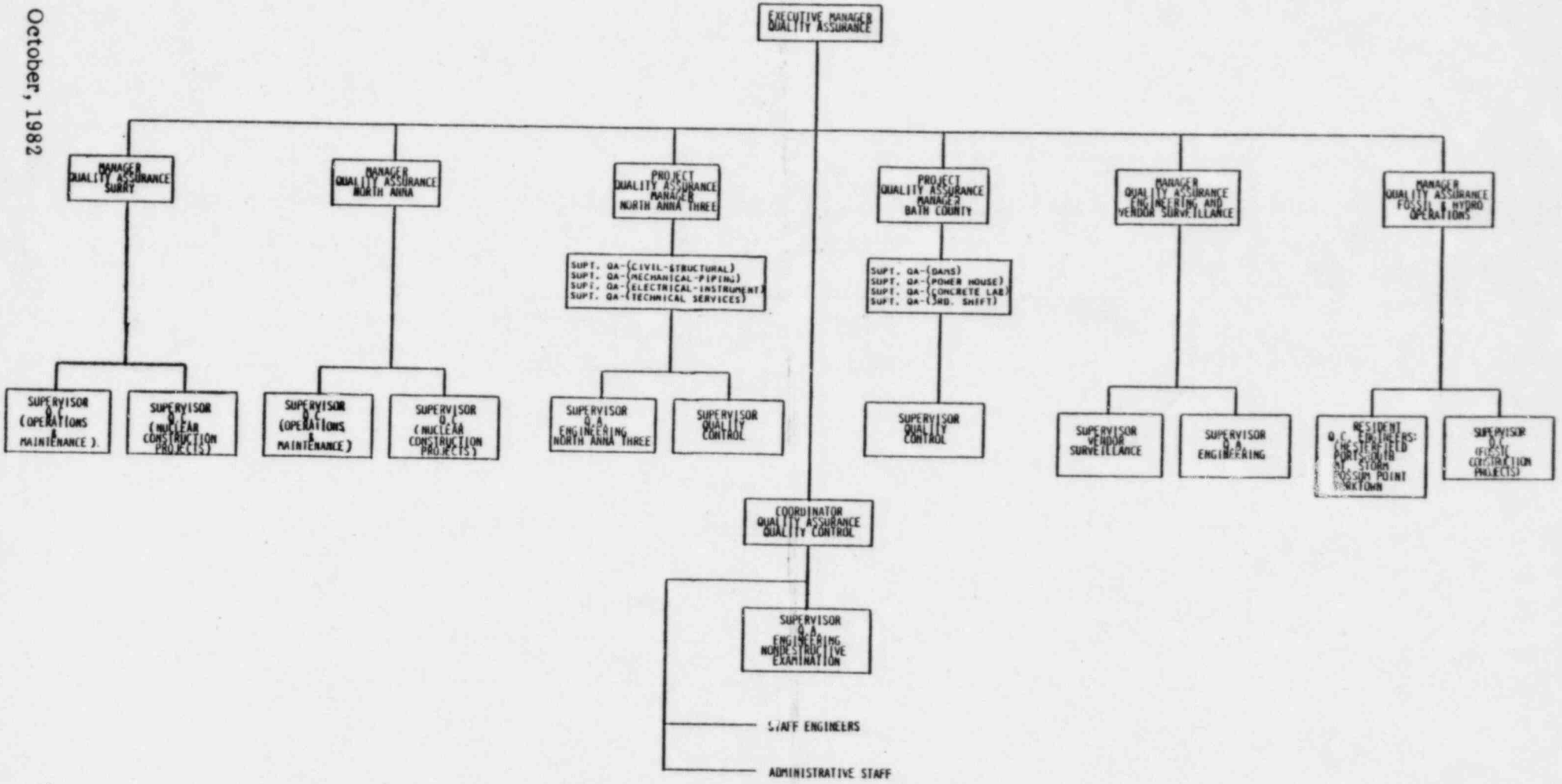
The preparation and continued maintenance of the Vepco Quality Assurance Manual for Nuclear Fuel is a responsibility of the Fuel Resources Department. All manuals are controlled copies unless specifically designated as uncontrolled.



SYSTEM POWER OPERATIONS ORGANIZATION

FIGURE 17.2.1-1

**Communicate on QA Matters

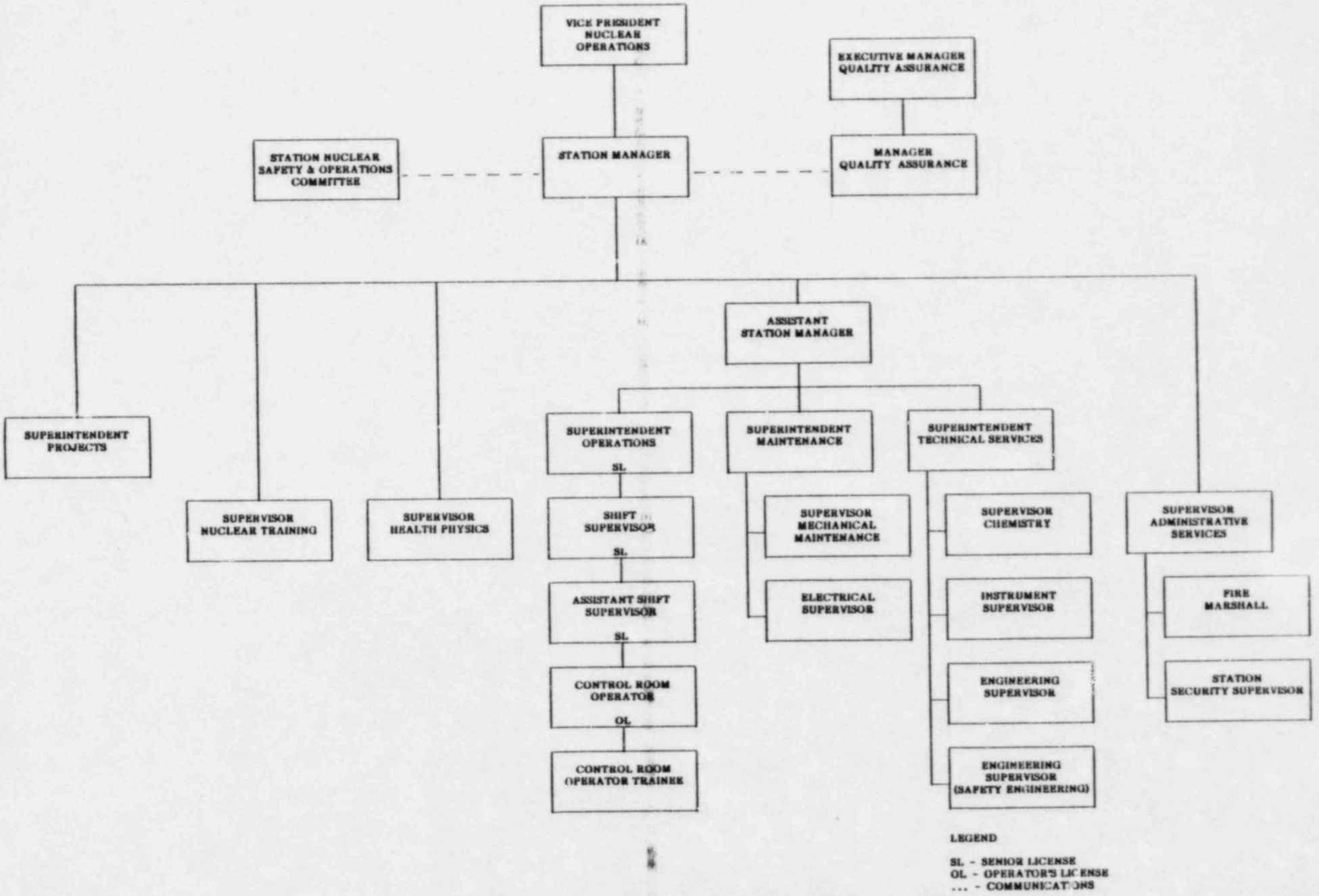


QUALITY ASSURANCE DEPARTMENT
ORGANIZATION

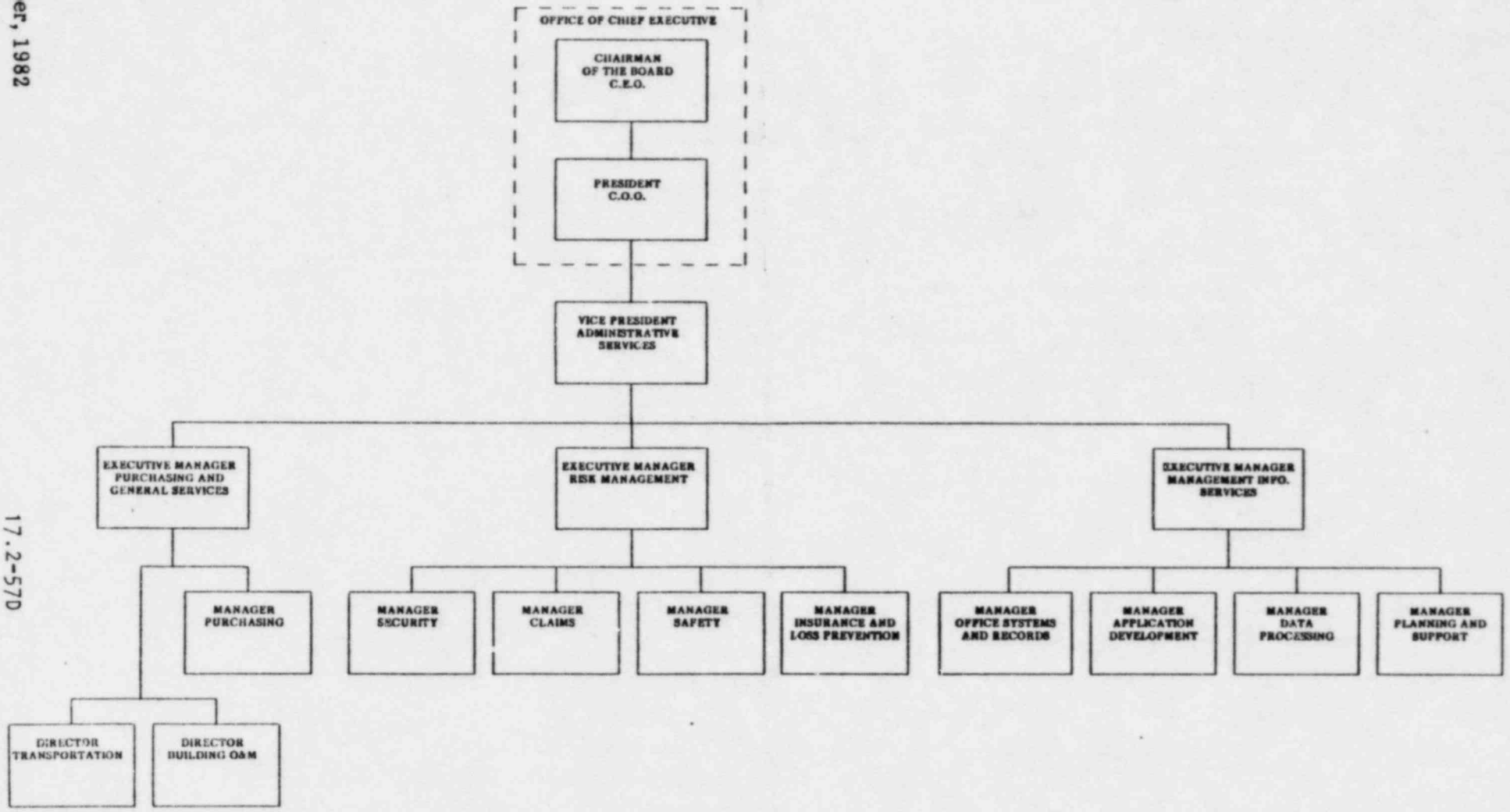
1 MARCH, 1982

FIGURE 17.2.1-2

NUCLEAR POWER STATION ORGANIZATION
FIGURE 17.2.1-3



VIRGINIA ELECTRIC AND POWER COMPANY
ORGANIZATION CHART (*)
ADMINISTRATIVE SERVICES



(*) LIMITED TO POSITIONS REPORTING DIRECTLY TO ELECTED OFFICERS AND EXECUTIVE MANAGERS.

Figure 17.2.1-4

JANUARY 1, 1983

TABLE 17.2.2

Appendix B 10 CFR 50 Criterion	Vepco NPSQAM Section	Title	Abstract
I	I	Organization	Defines the relationship of departments to the quality assurance effort associated with the operation of the nuclear power station.
II	II	Quality Control Program	Defines the Operations Quality Assurance Program, its overall responsibility and provisions.
III	III	Design Control	Defines the policy, responsibility and procedures for exercising design change control within the Nuclear Power Station and the System Power Department.
IV	IV	Procurement Document Control	Establishes policy applicable to plant operation and maintenance.
V	V	Instructions, Procedures, and Drawings	Establishes guidelines for preparing instructions, procedures and drawings.
VI	VI	Document Control	Establishes policy for the control of procedures and instructions.
VII	VII	Control of Purchased Material, Equipment and Services	Establishes methods for assuring that purchased items conform to the specified quality requirements.
VIII	VIII	Identification and Control of Material, Parts and Components	Establishes procedures for the identification and control of material, parts and components.
IX	IX	Control of Special Processes	Establishes procedures which assure that special processes are controlled and accomplished by qualified personnel.
X	X	Inspection	Establishes a program for inspection of activities affecting quality.

TABLE 17.2.2 (Cont'd)

Appendix B 10 CFR 50 Criterion	Vepco NPSQAM Section	Title	Abstract
XI	XI	Test Control	Establishes policy for power stations test programs.
XII	XII	Control of Measuring and Test Equipment	Establishes policy for control and calibration of test and measuring equipment.
XIII	XIII	Handling, Storage and Shipping	Establishes policy for this function as related to material and equipment.
XIV	XIV	Inspection, Test and Operating Status	Makes reference to appropriate administrative procedures which govern this function.
XV	XV	Non-Conforming Material, Parts, or Components	Establishes policy for reporting and controlling non-conforming materials, parts, or components.
XVI	XVI	Corrective Action	Establishes policy for identifying, documenting, notifying, determing causes, and preventing defects from recurring.
XVII	XVII	Quality Assurance Records	Assures maintenace, identification and retrievability of records.
XVIII	XVIII	Audits	Defines policy and procedures for audit programs.

17.2.2.3 Identification of Structures, Systems and Components

Safety related structures, systems, and components are identified in the FSAR. The portions of these structures, systems, and components that are within the scope of the operational quality assurance program are further identified in the respective nuclear power station Administrative Procedures as required by the Nuclear Power Station Quality Assurance Manual.

17.2.2.4 Periodic Review of the operational quality assurance program

An audit of the operational quality assurance program will be conducted at least once per 24 months in accordance with the respective station Technical Specifications. Further, an on-going quality assurance program review is conducted by the Safety Evaluation and Control Group as delineated in station Technical Specifications.

17.2.2.5 Personnel Qualification Requirements

The Executive Manager-Quality Assurance shall have a four-year accredited engineering or science degree or equivalent with a minimum of 10 years experience related to electric power generating facilities. At least 5 years of overall experience shall have been in a supervisory capacity, 2 years of which should have involved quality assurance related matters.

The Manager-Quality Assurance shall have a four-year accredited engineering or science degree or equivalent with a minimum of 8 years experience related to electric power generation facilities, 2 years of which involve experience in nuclear power stations. At least 4 years of overall experience shall have been in a supervisory capacity, 2 years of which should have involved quality assurance related matters.

The Station Supervisor-Quality Control shall have a four-year accredited engineering or science degree or equivalent. A minimum of 2 years overall experience or equivalent training in power plant operations is a prerequisite with at least 1 year of this experience involved in nuclear power station quality assurance program implementation.

The Manager-Fuel Resources shall have a four-year accredited engineering or science degree, or equivalent. At least 10 years of overall experience shall have been in a supervisory capacity.

The Director-Nuclear Fuel Accountability and Procurement Quality shall have a four-year accredited engineering or science degree or equivalent with a minimum of 8 years experience related to quality assurance or electric power generation facilities, 2 years of which should involve experience in nuclear quality assurance. At least 4 years of overall experience shall have been in a supervisory capacity, 2 years of which should have involved quality assurance related matters.

Replacement personnel in the key positions listed will meet or exceed the applicable requirements of ANSI/ANS 3.1 (Draft 12/79) as committed to in Table 17.2.0.

17.2.2.6 Qualification and Certification of QA/QC Personnel

The qualification and certification of QA/QC personnel is accomplished in accordance with the Quality Assurance, Operations Certification Program. This program provides

for the certification and recertification of Level I, Level II and Level III inspectors and for auditors and lead auditors.

The program outlines the qualification and certification requirements for various QA/QC disciplines and requires the individual to be certified in each discipline prior to his performing specified inspection or audit functions associated with those disciplines.

17.2.2.7 Transfer of Quality Assurance Activities from Construction to Operations Phase

The management of technical and quality assurance interfaces between the constructor, architect-engineer, nuclear steam supply system (NSSS) Vendor and Vepco during the phase out of design and construction is detailed in Section 14 of the Vepco Quality Assurance Manual. This procedure specifies the means of tagging and identifying structures, systems and components in a manner that assures continuity of indicators of the status of inspections and tests; and ensures that the effective transfer, storage, and control of records is accomplished. Formal transfer of the following Quality Assurance activities from the Architect-Engineer, NSSS Vendor or Constructor to Vepco is accomplished upon final acceptance of a structure, system or component:

Design Control
Procurement Document Control
Document Control
Control of Purchased Material, Equipment, and Services
Identification of Control of Material, Parts and Components
Control of Special Processes
Inspection
Test Control
Control of Measuring and Test Equipment
Handling, Storage, Shipping, and Preservation
Non-conforming Materials, Parts, or Components
Corrective Action
Quality Assurance Records

The Architect-Engineer and NSSS Vendor are delegated the responsibility of developing and implementing a program, approved by Vepco, to assure that structures, systems, and components are so constructed that they will perform satisfactorily in service. Vepco's surveillance of these programs is accomplished through the quality control inspection of selected vendors' shops and the witnessing of key shop tests on major components, e.g. hydrostatic tests, pump capacity test, control systems checkouts, core and coil inspections, and final assembly inspections.

Vepco Supervisor-Quality Control and the Operating Staff also check the readiness of installed equipment for initial operation, and check the cleanliness of piping and equipment for initial operation of controls and protective devices. At the completion of initial operations and checks, Equipment Conditional Release forms are filled out by the Architect-Engineer Supervisor, Vepco Supervisor-Quality Control, and Vepco Operating Staff signifying that the equipment is essentially complete and accepted by Vepco for formal Preoperational Testing.

The status of inspections and tests performed on individual items is indicated through the use of stickers, tags, stamps or stampings, labels or other suitable means, and is documented through the use of Equipment Record Cards, Test Reports, Field Quality Control Preoperational Test Records, and Check-off Lists.

The Vepco Supervisor-Quality Control verifies that the readiness of items for formal preoperational testing and evaluation through his audit of the specific data package and supporting documents verifying compliance to applicable specifications and codes, and through his audit of the item, verifies the implementation of procedures.

17.2.2.8 Major Contractors Quality Assurance Program

The ultimate responsibility for the safety aspects of the stations, including design and conformance of equipment, and equipment installation to the design, rests with Vepco. To administer this responsibility, Vepco delegates the establishment and execution of the Quality Assurance Program during the Design and Construction phases to the Architect-Engineer and to the NSSS Vendor but, in so doing, Vepco retains the ultimate responsibility for overall Quality Assurance.

The Quality Assurance organizations and programs, design and equipment specifications, equipment Vendor qualifications, and quality standards, for both the A/E and NSSS Vendor are reviewed and approved by Vepco. Conformance to the approved requirements and programs are assured through close liaison with the project engineers of the three companies (A/E, NSSS Vendor, and Vepco) and by surveillance and audits conducted throughout the design and construction phase by Vepco.

The Vepco audit program provides for a system of audits to be made of the A/E, the NSSS Vendor, and Vepco to verify their compliance with and the effectiveness of the respective Quality Assurance Programs. These audits are conducted by Vepco QA staff and/or qualified designees as selected by the Manager-Quality Assurance, Engineering and Vendor Surveillance or the Manager-Quality Assurance.

17.2.3 DESIGN CONTROL

Measures are established to assure that applicable regulatory requirements and the nuclear power station design bases are correctly translated into Vepco specifications, drawings, procedures, and instructions applicable to design changes and/or modifications for the operating nuclear power station.

All design changes and/or modifications to safety related structures, equipment, systems and components described in the FSAR are reviewed, approved, and acted upon by the Station Nuclear Safety and Operating Committee in accordance with their responsibilities and functions as referenced in the Technical Specifications and the Nuclear Power Station Quality Assurance Manual. Design changes to these structures, equipment, systems and components approved by the Station Nuclear Safety and Operating Committee are forwarded to Safety Evaluation and Control Group of Nuclear Technical Services for an independent review. This review may be performed by Safety Evaluation and Control Group personnel, the staff of other company departments, qualified outside contractors, or consultants. The responsibility for the development, identification requirements, monitoring, and implementation of an effective design control program within the station organization is delegated to the Station Manager with input as appropriate from operations personnel.

The Nuclear Power Station Quality Assurance Manual, Section 3, "Design Control," delineates procedures that assure design changes, including field changes, are subject to design control measures commensurate with those applied to the original design and that applicable specified design requirements, such as design bases, regulatory requirements, codes and standards are correctly translated into specifications, drawings, procedures, or instructions for those structures, systems and components classified as safety related in the FSAR. This section provides for verifying or checking the adequacy of design, such as by the performance of design reviews, by the use of alternate or simplified calculational methods, or by the performance of a suitable testing program. When a testing program is solely used to test the adequacy of a design, the test will be conducted under adverse design conditions. The provisions of this section assure that the verifying or checking process is performed by individuals or groups other than those who performed the original design change. These individuals or groups are identified and their authority and responsibility is described. Section 3 also identifies the design documents that are required to be reviewed and the personnel responsible for their review and revisions, to assure that design characteristics can be controlled, inspected and tested, and that inspection and test criteria are identified. Design documents and revisions thereto are distributed to responsible supervisors to determine whether revisions to controlled documents are necessary. Design documents and reviews, records and changes thereto are collected, stored and maintained in a systematic and controlled manner.

The Nuclear Power Station Quality Assurance Manual established measures for the selection and review for suitability of application of materials, parts, equipment and processes that are essential to the safety-related functions of the systems, structures and components. These measures include the use of valid and applicable industry standards and specifications, materials and prototype hardware testing programs, and design reviews. In the event of a design modification to a system which is safety related, engineering studies are initiated to evaluate parts, equipment, processes, and material suitability for repair of such equipment or components; previously approved items are used without further review. Previously approved material, parts or components used for a different application are reviewed for suitability prior to approval for their new application.

Quality control measures are assured through all levels of the design control program by the Design Control Engineer, Engineering Supervisor, Director-Safety Evaluation and Control and the Station Nuclear Safety and Operating Committee, culminating with a final review by the station Quality Control staff to assure quality standards are specified and deviations and changes from such standards are controlled. Any errors or deficiencies noted in the design process are documented on the design change forms and subsequently corrected.

Procedures for design controls, analysis, and reviews have as their basis the applicable portions of documents referenced in the Nuclear Power Station Quality Assurance Manual, and include ASNI N45.2.11 - 1974 as modified in Table 17.2.0.

General procedures have been established to describe the design interface between Vepco and the contractors for the review, approval, release, distribution, and revision of documents involving design interfaces.

Suitable design controls are applied to such disciplines as reactor physics, seismic, stress, thermal, hydraulic, radiation, and accident analysis; compatability of materials; and accessibility for in-service inspection, maintenance, and repair. Designs are reviewed to assure that (1) design characteristics can be controlled, inspected, and tested, and (2) inspection and test criteria are identified.

Changes to non safety related structures, systems, and components will be controlled in accordance with applicable station procedures and to meet the requirements, where applicable, of 10 CFR 50.59.

17.2.4 PROCUREMENT DOCUMENT CONTROL

The Nuclear Power Station Quality Assurance Manual, Section 4 "Procurement Document Control" describes the program for completing procurement documents including review, approval, document control and change control. In addition, references to procedures that govern the actions of the Quality Assurance Engineering and Vendor Surveillance staffs are made which include provisions for access to the suppliers facilities and records, for source inspection and audit by quality assurance personnel, and qualification of vendors prior to the initiation of quality related actions when the need for such inspection and/or audit has been determined. This manual also provides a program for describing the records to be prepared, maintained, made available for review, or delivered to the purchaser prior to use or installation of the hardware, such as drawings, specifications, procedures, procurement documents, inspection and test records, personnel and procedure qualifications, material, chemical and physical tests results, and the identification of quality assurance requirements applicable to the items or services purchased, including sub-tier procurement requirements when required.

Policies are established in the Nuclear Power Station Quality Assurance Manual to ensure that procurement documents reference all actions required by a supplier in accordance with the applicable codes, specifications, and drawings. These documents are reviewed by the Quality Control staff to confirm accuracy and adequacy of the quality references and requirements. The purpose of the review is to determine that 1) quality requirements are correctly stated, inspectable and controllable, 2) there are adequate acceptance and rejection criteria, 3) the documents have been prepared, reviewed and approved in accordance with quality assurance procedures, 4) that changes and revisions to procurement documents affecting the quality assurance program are reviewed and approved to the same scope and depth commensurate with the original document, and 5) the need for source surveillance or audit has been evaluated.

Procurement documents incorporate the design basis technical requirements including the applicable regulatory requirements, component and material identification requirements, drawings, specifications, codes and industrial standards, test and inspection requirements and special process instructions for such activities as welding, heat treating, non-destructive testing and cleaning as applicable.

Procurement documents for spare or replacement parts of safety related structures, systems and components are subject to technical controls at least equivalent to those used on the original equipment, and to current QA/QC controls.

The procurement document, a copy of which is filed and available for review, is prepared by the cognizant supervisor and reviewed by the Quality Control staff for the quality attributes discussed above, and then undergoes the review and approval routing as determined by Vepco procurement policies and procedures. These reviews and approvals are documented.

17.2.5 INSTRUCTIONS, PROCEDURES AND DRAWINGS

As required by the individual units' Technical Specifications, detailed written procedures are established, approved, implemented, and maintained.

Other activities affecting quality of structures, systems and components, within the scope of the 10 CFR 50 Appendix B, are prescribed by documented instructions, procedures, or drawings or a type appropriate to the circumstances. These activities are accomplished in accordance with these instructions, procedures, or drawings. Applicable instructions, procedures, or drawings include for reference appropriate qualitative and/or quantitive acceptance criteria for determining that important activities have been satisfactorily accomplished.

The Nuclear Power Station Quality Assurance Manual, Section 5, describes the requirements for developing, reviewing, approving and controlling procedures used for testing as well as corrective maintenance, operating, administrative and other procedures used at the power station. These requirements include references, prerequisites, precautions, limitations, manufacturer's specifications, check-off lists, and acceptance criteria. When applicable the acceptance limits and requirements contained in the design and procurement documents constitute a portion of the acceptance criteria referenced and contained in written testing procedures.

The station Quality Control staff reviews the documents to ensure revisions are made promptly and that obsolete material is deleted. They specifically review safety related maintenance procedures, design changes and purchase documents and changes thereto for compliance with the 18 criteria of Appendix B to 10 CFR 50 and have the authority to recommend changes to specifications, drawings, purchase orders, or manuals. Through their stop work authority they can prohibit the use of inappropriate documents until correct documents can be obtained.

17.2.6 DOCUMENT CONTROL

Measures are established and documented within the operating nuclear power station describing the control of documents, such as procedures, instructions and drawings, to provide for their review, approval and issue, and changes thereto, prior to release and to assure they are adequate and the quality requirements are stated. Provisions call for, among other things, (1) the periodic review of approved nuclear safety-related station procedures, the review and approval of all new station procedures and design changes prior to release, the review and approval of all changes/revisions to station procedures and design changes by the Station Nuclear Safety and Operating Committee, (2) policy and procedures for issuance of and changes to station drawings and approval of changes by Engineering, and (3) the maintenance and distribution of these procedures. Normally changes to documents are reviewed and approved by the same organizations that performed the original review and approval; however, this responsibility may be delegated to other qualified responsible organizations. Approved changes are incorporated into procedures and drawings, and other appropriate documents associated with the change. Procedures and drawings and changes thereto are processed, distributed and controlled. The Station maintains a record of all holders of procedures and drawings and an index of all procedures and drawings, listing the current revision date. Instructions require that a copy of the appropriate procedure be available at the activity location prior to the commencement of that activity.

These measures are contained in the Nuclear Power Station Quality Assurance Manual and the Technical Specifications.

The Nuclear Power Station Quality Assurance Manual, Section 6, "Document Control" lists certain documents that require strict administrative control for distribution, revision and routing. These documents are categorized as "Controlled Documents." Examples of controlled documents are: Station Procedures, Station Drawings, and Precautions Limitations and Setpoint Document. Also set forth are the distribution and controlling procedures for design and procurement documents. The station Quality Control staff makes periodic inspections and audits of station documents to verify their status, using a current master copy.

17.2.7 CONTROL OF PURCHASED MATERIAL, EQUIPMENT, AND SERVICES

An evaluation of suppliers is performed prior to contract award, except in emergency situations where an item or service is needed to preclude development or deterioration of an unsafe condition at the plant, by one or more of the following: (1) The supplier's capability to comply with the elements of 10 CFR 50, Appendix B that are applicable to the type of material, equipment or service being procured, (2) A review of previous records and performances of suppliers who have provided similar articles of the type being procured, or (3) A survey of the supplier's facilities and quality assurance program to determine his capability to supply a product or service which meets the design, manufacturing and quality requirements. Surveillance of suppliers during fabrication, inspection, testing, and shipment of materials, equipment, and components is planned and performed in accordance with written procedures to assure conformance to the purchase order requirements as applicable. These procedures provide for:

a. Instructions that specify the characteristics or processes to be witnessed, inspected or verified, and accepted; the method of surveillance and the extent of documentation required; and those responsible for implementing these instructions. Surveillance shall be performed on those items where verification of procurement requirements cannot be determined on receipt.

b. Audits and/or inspection which assure that the supplier complies with all quality requirements.

These evaluations are performed under the supervision of the Manager - Quality Assurance, Engineering and Vendor Surveillance. The results of these actions are documented and filed.

The Nuclear Power Station Quality Assurance Manual, Section 7, describes the requirements for controlling purchased material, equipment and services including "off-the-shelf" items for use on safety related structures, systems, equipment and components. The requirements applied to spare and replacement parts are at least equivalent to those applied to the original parts. The manual assigns to the station Quality Control staff the responsibility for assuring that applicable material and equipment received at the station meet the requirements of the specifications, purchase order, code, drawings, or other purchasing documents. This assurance includes the review of documentation received, physical inspection, cleanliness, packaging, marking of functional testing, as required. Purchased items are normally under the control of the "on-site" organization. This organization is authorized to contact system organizations and NSSS, A/E contractors and subcontractors through the auspices of system representatives for assistance as required.

Periodic evaluations or monitoring of procurement history of the suppliers are performed to verify continued supplier capability.

Documentation concerning the quality of material, components and equipment received is identified and reviewed by the power station Quality Control staff for conformance with the Purchase Requisition and Purchase Order in accordance with instructions contained in the Nuclear Power Station Quality Assurance Manual.

The applicable section of the Receipt Inspection Report is completed by the power station Quality Control staff. The receipt inspection report form, a copy of the purchase order and other pertinent documentation are available prior to release of the material, equipment or component for installation or use and become a part of the

station records. If the material or equipment conforms to procurement requirements, the power station Quality Control staff so indicates by affixing a Power Station Receipt Inspection OK sticker, Power Station Quality Control Accepted tag or other positive indicator.

If the proposed material to be purchased falls into the Fuel Resources area of responsibility, evaluation of suppliers prior to contract awards may be accomplished by Fuel Resources Department. This is accomplished under the Director-Nuclear Fuel Accountability and Procurement Quality.

In the case of nuclear fuel, documentation concerning the quality is received and maintained by the Fuel Resources Department in accordance with the Vepco QA Manual for Nuclear Fuel which is reviewed by the Executive Manager-Quality Assurance.

17.2.8 IDENTIFICATION AND CONTROL OF MATERIALS, PARTS AND COMPONENTS

Installed components at the Nuclear Power Station are adequately identified and substantiated with documented records by the Architect-Engineer and the NSSS Vendor during the construction phase of the station. These identifications and records are maintained in the station files.

Replacement materials, parts and components including partially fabricated subassembiles, are adequately and properly identified to allow control and traceability to pertinent quality assurance records such as drawings, specifications, purchase orders, manufacturing and inspection documents, deviation reports, and physical and chemical mill test reports. The identification system is consistent, as is practical, with that used during the construction of the station, with similar identification used during design change activities. The location and method of identification do not affect the function or quality of the item being identified. Verification of correct identification of safety related materials, parts, and components is required and documented prior to the release for fabrication, assembling, shipping or installation.

17.2.9 CONTROL OF SPECIAL PROCESS

The control of special processes is maintained and implemented through the use of procedures, technique sheets, travelers and inspection verification reports, and personnel qualified in accordance with the applicable codes, specifications, and standards for the specific work. In instances where Vepco assigns such work to contractors, the contractor must submit their procedures and personnel qualifications to Vepco for approval prior to the start of work.

Special processes include, for example, those involving welding, heat treating, nondestructive and destructive testing, cadwelding, removal of undesirable substances during shop and site cleaning, degreasing and flushing, and verification of wall thickness of valves and other cast components important to nuclear safety.

Vepco conducts inspections of work involving special processes to assure that procedures and personnel are properly qualified and their workmanship is in compliance with applicable specifications, codes, and standards.

Records of procedures, equipment and personnel qualification are maintained and kept current by the Superintendent-Maintenance or by the Director-Operations and Maintenance Services who reports through a manager to the Vice President-Nuclear Operations.

17.2.10 INSPECTION

Inspection procedures for those activities affecting quality have been established. These procedures govern the inspection and documentation of activities relating to repairs, modifications, and changes made to safety related systems, structures and components. Written maintenance procedures are provided which include quality control hold points for the power station Quality Control staff.

Examinations, measurements or tests of materials or components associated with safety related equipment and systems are performed for each work operation, where necessary, to assure quality. If inspection is impossible or disadvantageous, indirect control by monitoring methods, equipment, and personnel is provided. Both methods are provided when control is inadequate without both.

The station safety related maintenance procedures (including modification procedures) are reviewed by the station Quality Control staff to determine the need for an independent inspection and the degree and method if such an inspection is required. Examinations, measurements or tests that require witnessing by Quality Control personnel are identified as "QC Hold" points in procedures. The inspection performed at a quality control hold point is specific in nature; quality characteristics and acceptance/rejection criteria are included or qualitative criteria such as operability checks, compliance with procedural step or cleanliness instructions are specified, and the inspection is documented by signature or initials on the written procedure form.

The power station Quality Control staff performs physical inspections, not only at hold points specified in the procedures, but also at random spot intervals to ensure quality requirements are met and a copy of the appropriate procedure is being maintained at the work location. These checks are performed as the conditions of the maintenance warrant. These personnel and other inspectors are qualified in accordance with codes and standards as applicable to the Quality Control function they are performing.

The inspection program requires that inspectors be assigned by the Supervisor-Quality Control as appropriate for the activity being inspected. An inspector may be a member of the organization performing the activity, but must be a qualified individual other than the person performing the activity or the supervisor directly responsible for the activity. Personnel so assigned shall become familiar with the procedure being used and other pertinent documents such as technical manuals and drawings prior to performing the inspection.

Personnel responsible solely for the conduct of nondestructive tests are qualified to SNT-TC-1A, 1975. Audits and reviews of their findings and associated corrective actions are periodically conducted by quality control personnel to assure that these procedures are being carried out in a quality manner. The inspectors qualifications are periodically reviewed for recertification.

Inspection procedures for those activities affecting the quality of nuclear fuel have been established by the Vepco Quality Assurance Manual for Nuclear Fuel.

Generally, all physical inspections are under the control of the "on-site" organization. However, the Station Manager is authorized to request assistance as required through the Manager-Nuclear Operations and Maintenance as does the Supervisor-Quality Control via the Manager-Quality Assurance.

For inspections conducted which are not specifically required by a procedure, a QUALITY CONTROL INSPECTION REPORT is used. Instructions for preparing this form require various items to be included which incorporate within their span:

(a) Quality characteristics to be inspected.

(b) Individuals or groups responsible for performing the inspection.

(c) Acceptance and rejection criteria.

(d) Description of the method of inspection.

(e) Evidence of completion and certification of inspection.

(f) Record of the results of the inspection.

(g) Verification that all inspection operations are complete and acceptable.

The Nuclear Power Station Quality Assurance Manual, Section 3, sets forth measures which assure that modifications to safety related equipment (including field changes) are subject to design control measures, including implementation and testing procedures, that are commensurate with original requirements and are approved by the organization that performed the original design or other responsible and qualified organizations. Section 4 of the manual requires that the station Quality Control staff review purchase documents applicable to safety related requirements and specifies that material, equipment or services involving safety related systems shall be purchased to specifications or codes equivalent to those specified for previous purchases of the same item or those specified by a properly reviewed and approved revision. Section 16 of the Nuclear Power Station Quality Assurance Manual requires that the station Quality Control staff review all maintenance procedures on safety related equipment to insure the adequacy of inspection requirements included in these procedures. Section 10 and Section 11 of the manual require the documentation of the inspection and test to include the type of observation or method of inspection, the evidence of completing and verifying a manufacturing inspection or test operation, and the acceptability of the results of the inspection or test. The inspector or data recorder, dates and affixes his signature or initials to the maintenance procedure or other procedure, Inspection Report or the Test Critique form, as appropriate, upon completion of the test. In the event of a nonconforming item or the unacceptability of test results, the Station Manager, the Supervisor-Quality Control or the cognizant supervisor as appropriate will assign corrective action.

Information relating to a nonconformance which is also documented as corrective action by a maintenance report will be included with or referenced on the Inspection Report form or Test Critique form and will be forwarded to the Quality Control staff for reinspection or audit and disposition to station records.

17.2.11 TEST CONTROL

The test program described in the Technical Specifications assures that safety related structures, systems, and components will perform satisfactorily when required. Written "Periodic Test" procedures for this program are reviewed and approved as specified in the individual units' Technical Specifications. These test procedures include or reference:

(1) The requirements and acceptance limits contained in applicable design and procurement documents.

(2) Test prerequisites such as the availability of adequate and appropriate equipment and calibrated instrumentation; trained, qualified and licensed or certified personnel; the completeness of the item to be tested; suitable and controlled environmental conditions; provisions for data collection and storage.

(3) Instructions for performing the test.

(4) Mandatory inspection hold points as appropriate.

(5) Acceptance and rejection criteria.

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

The "Periodic Test Program" provides for instrumentation and electrical equipment in the categories of (1) instruments installed as listed in the Technical Specifications, (2) installed instrumentation used to verify Technical Specifications parameters, and (3) installed safety-related instruments and electrical equipment that provide an active function during operation, shutdown, or abnormal conditions i.e., vice being designated safety related solely because the instrument is an integral part of a pressure retaining boundary, shall be in a calibration program. This program provides, by the use of equipment history data, status, records, and performance schedules, for the date that calibration is due and indicates the status of calibration. The identity of person(s) performing calibration is provided on the calibration documents.

Testing of modifications is done in accordance with procedures developed within the Design Change program described in section 17.2.3 of this report and Section 3 of the Nuclear Power Station QA Manual.

Testing upon completion of maintenance is done in accordance with Maintenance Procedures developed as described in section 17.2.16 of this report.

17.2.12 CONTROL OF MEASURING AND TEST EQUIPMENT

A program has been established and documented in the Nuclear Power Station Quality Assurance Manual that describes the calibration technique and frequency, maintenance, and control of all "Measuring and Test Equipment" (instruments, tools, gauges, fixtures, reference and transfer standards, and nondestructive test equipment) which are used in the measurement, inspection, and monitoring of safety related components, systems, and structures. Measuring and Test Equipment does not include: measuring equipment used for preliminary checks or utility troubleshooting where accuracy is not required. There is also no intention to imply a need for special calibration and control measures of rulers, tape measures, levels, if normal commercial practices provide adequate accuracy. Controls for measuring and test equipment include the transportation, storage and protection of the equipment; the handling of associated documents, giving the status of all items under the calibration system such as maintenance history, calibration test data, and individual log sheets assigned to each device; and the permanent marking of each device by a unique identifying number assigned by the Supervisor-Quality Control.

The maintenance, calibration technique, and frequency of calibration of test and measuring devices utilized in activities affecting quality at the power station are normally performed as specified in the manufacturer's instruction manual. In some cases the calibration interval may be assigned or changed based on accumulated experience by trained technicians. If standards are not available or there is some special reason that procedures cannot be followed, the modified procedures and/or interval are documented, including justification. In other cases, rather than require calibration at specified intervals, requirements may specify the device be calibrated prior to use, as in the case of torque wrenches or micrometers. Where permitted by commercially available state of the art equipment, reference standards are no more than $\frac{1}{4}$ the error allowed in the measuring and test equipment calibrated by that standard. Test and measuring devices used on safety related systems or equipment are calibrated utilizing reference standards whose calibration has a known valid relationship to nationally recognized standards or accepted values of natural physical constants. If no national standard exists, the basis for calibration is documented. Whether the device is calibrated at the power station or at a quality assured outside laboratory, one or more stickers are affixed on a conspicious surface identifying but not limited to, date of calibration and next calibration due date.

When test and measuring devices utilized in activities affecting quality are found to be out of calibration, the Supervisor-Quality Control causes an evaluation to be performed and documented concerning the validity of previous tests and the acceptability of devices previously tested. The Supervisor-Quality Control has the responsibility and authority to require that all previous tests and measurements performed during the current or proceeding calibration cycle be redone if the evaluation so indicates.

Implementation of these procedures is assured through routine inspections or audits by the station Quality Control staff.

Administrative controls for measuring and test equipment calibrated using the Periodic Test Program are also described in Section 17.2.11 of this report.

17.2.13 HANDLING, STORAGE AND SHIPPING

Measures have been established in the Nuclear Power Station Quality Assurance Manual to provide adequate methods by qualified personnel for the classification, packaging, cleaning, preservation, shipping, storage, and handling of material and equipment received at the station.

These measures, prepared in accordance with design and specification requirements, define responsibility, levels of essentiality, degree of receipt inspection, tagging, categories of inspection and their definition, and storage levels for categorized items. The procedures also control cleaning, handling, storage, packaging, shipping and preservation of materials, components and systems to preclude damage, loss, or deterioration by environmental conditions such as temperature or humidity. Implementation of these measures is assured by the quality control inspection function and verified by audits conducted by the QA staff.

In the case of nuclear fuel, measures have been established for the handling, storage and shipping of such material by the Vepco Quality Assurance Manual for Nuclear Fuel, which is reviewed by the Executive Manager-Quality Assurance.

17.2.14 INSPECTION, TEST, AND OPERATING STATUS

Measures for the identification and documentation of the inspection and test status for items to prevent inadvertent bypassing of specified inspections and tests are established in the Nuclear Power Station Quality Assurance Manual and in station operating procedures. These measures define the three general categories of inspection and test status for items: Accept, Reject or Hold. They provide for status identification through the use of stickers, tags, record cards, test records, check-off lists, or logs. The operating status of items and/or equipment is identified through records, checklists, or operational tagging systems that are maintained beginning with the preoperational phase to indicate the status and authority to operate the item and/or equipment. (See also Section 17.2.2.8 of this report.) Operating status is additionally controlled through the normal station operating procedures. The application and removal of the various status tags, stickers, and other indicators is controlled by the Nuclear Power Station Quality Assurance Manual and Station Operating Procedures. Implementation of these measures is verified through audits conducted by the power station Quality Control staff. These audits assure that the required inspections, tests and other critical operations are controlled.

Inspection procedures for those activities affecting the quality of nuclear fuel have been established by the Vepco Quality Assurance Manual for Nuclear Fuel, which is reviewed by the Executive Manager-Quality Assurance.

17.2.15 NONCONFORMING MATERIALS, PARTS AND COMPONENTS

A documented system for controlling nonconformances observed during receipt inspection, storage, fabrication and erection, installation, initial and/or acceptance testing or operation is established and provides for the preparation, issuing, and distribution of Nonconformance Reports in accordance with prescribed procedures. These procedures apply to all nonconforming new or reworked materials, parts, and components. They do not apply to failure in service.

The identification, documentation, segregation, review, disposition and notification to affected organizations of nonconforming material, parts or components, are described or referenced in the Nuclear Power Station Quality Assurance Manual, the Technical Specifications, the station administrative procedures, and/or the station operating procedures. Nonconformance of purchased services are controlled under Section 17.2.7 Control of Purchased Material, Equipment and Services, Section 17.2.10 Inspection, and Section 15, Nuclear Power Station Quality Assurance Manual.

Specifically, instructions require that the individual discovering a nonconformance identifies, describes and documents the nonconformance on a Nonconformance Report. This report is routed to the Supervisor-Quality Control for review and further distribution to the Station Manager and cognizant supervisor. The Station Manager or the Supervisor-Quality Control, when requested by the Station Manager, assigns corrective action to be taken or disposition to be made of the nonconformance including the assignment of the individual or group responsible. This procedure requires the corrective action or disposition of the nonconformance to be documented on the Nonconformance Report and signed by the person completing the correction action or disposition. Final review or inspection and approval of the corrective action or dispostion of the nonconformance is the responsibility of the Supervisor-Quality Control who signifies his approval by affixing his signature to the Nonconformance Report.

When a nonconforming item is identified, it is placed in the hold area established in the storeroom or other segregated location, if practical, and identified with a Quality Control Hold tag to prevent its inadvertent use. Quality Control Hold tags are affixed or removed only by station Quality Control staff personnel. Items considered totally rejectable are indentified by a Quality Control Reject tag and disposed of as determined by the Station Manager.

The Supervisor-Quality Control may release "hold" material, parts or components to station personnel on a risk basis following the documented approval of such risk release by the Station Manager on a "Release on a Risk Basis" form. Each risk release is handled on a case basis and depends on the nature of the hold status. The basis and conditions of the release are described on the form, including the criteria for clearing the original hold status. Rejected material is not risk released.

A nonconformance dispositioned "accept as is" requires an engineering analysis and approval. The results of this review and approval are documented then reviewed and analyzed by analysis station management and Quality Assurance and become a part of station records.

Should the disposition of a nonconformance require the rework or repair of materials, parts, components, systems or structures such rework or repair is reinspected or retested by a method which is at least equal to the original inspection or test method. The inspection requirments and the inspection, rework or repair procedures are documented and become a part of station records.

The disposition and approval of nonconformances are the responsibility of the "on-site" organization. However, the Station Manager has the authority to request assistance as appropriate from "off-site" organizations such as Nuclear Operations, other engineering groups or the Quality Assurance Department. The Supervisor-Quality Control also has the authority to request outside assistance through the Manager-Quality Assurance.

The Nonconformance Reports are analyzed on an "as-occuring" basis by the Supervisor-Quality Control and if quality trends are determined they are reported to appropriate levels of management.

In service failures of materials, parts and components are controlled by the use of Deviation Reports and/or Maintenance Reports as described in paragraph 17.2.16 of this report.

Implementation and verification of the procedures for the control of nonconformances are assured through audits by the power station Quality Control staff.

A documented system for the disposition of nonconformances observed during the receipt inspection of nuclear fuel at all Vepco nuclear power stations is established in the Vepco Quality Assurance Manual for Nuclear Fuel, which is reviewed by the Executive Manager-Quality Assurance.

17.2.16 CORRECTIVE ACTION

Corrective action measures are established as an integral part of the processing and resolving of nonconformances and failures in service. Through these measures, assurance is confirmed that significant adverse quality conditions are identified, documented, their cause determined, and the corrective actions have been taken that preclude repetition of the adverse quality conditions. Verification of the proper implementation of corrective action measures and closeout of corrective action documentation is assured through the monitoring and auditing effort of members of the station staff reponsible for quality assurance and the follow-up reviews and audits conducted by the station Quality Control staff. Adverse conditions significant to quality, the cause of the conditions, and the corrective action taken are reported to appropriate levels of both offsite and onsite management by use of a Deviation Report and/or Maintenance Report.

The procedures for processing a Deviation Report require that each adverse condition significant to quality be categorized as either requiring a Licensee Event Report or as a nonreportable deviation. Nonreportable deviation refers to deviations not reportable to the Nuclear Regulatory Commission. The reporting requirements differ for each of the categories of deviation but require the appropriate levels of management be notified in each case. The station Quality Control staff periodically audits the deviation reporting process.

Procedures require that corrective maintenance of nuclear safety related material, parts or components be documented on a Maintenance Report. The Quality Control staff is notified prior to the commencement of safety related maintenance. The QC staff may then initiate a surveillance program as necessary. Examples of areas subject to surveillance are 1) the use of approved maintenance procedures, 2) the existence of Radiation Work Permits and proper tagout, if applicable, 3) the existence of required plant conditions, 4) documentation of Technical Specification requirements. If the QC staff elects to inspect the work, the surveillance does not have to be performed prior to commencement of work. Also, the station QC staff monitors completed Maintenance Reports to assure maintenance performed is properly documented, maintenance procedures are properly signed off and check lists are completed if applicable, Technical Specification limits were met if applicable, tagout records are cleared if applicable, any materials used are documented, and Maintenance Reports are being adequately reviewed by appropriate supervisory personnel.

Section 16 of the Nuclear Power Station Quality Assurance Manual "Corrective Action," requires that all rework or repair of nuclear safety related materials, parts, components, systems and structures be accomplished in accordance with approved written procedures. The procedures for rework or repair of safety related equipment are approved by the Station Nuclear Safety and Operating Committee to insure provisions for an adequate inspection of the completed rework or repair and that this inspection is a method at least equal to the method originally used for inspection or an acceptable alternative. The cognizant supervisor reviews the completed procedures to insure the acceptance criteria have been satisfied and for the completeness of the post-maintenance check-out. The power station Quality Control staff monitors completed procedures to assure adequate supervisory review.

The Supervisor-Quality Control determines the scope of the required quality assurance effort on the basis of the extent of modifications or repair to safety related equipment, systems or components. When this determination is made, the power station Quality Control staff reviews the proposed procedures to be used for the modification or repair

activities to ensure adequate quality control hold points are included, the procedure complies with the Nuclear Power Station Quality Assurance Manual and ensures that the applicable codes and standards are referenced. For some repair efforts, briefings of quality control personnel by the Supervisor-Quality Control are conducted. For major evolutions, such as refueling, steam generator modifications, etc., a series of seminars covering all aspects of the activity (Examples: radiation control, personnel hazards, stop work procedures, inspection criteria) may be held.

17.2.17 QUALITY ASSURANCE RECORDS

The requirements and responsibilities for quality assurance records transmittal, retention, and maintenance subsequent to completion of work at the power station have been established and are documented in the Nuclear Power Station Quality Assurance Manual.

Quality Assurance records relating to the operating status of the station and documentary evidence of the quality of items and activities affecting quality are maintained in accordance with the Technical Specifications and the Nuclear Power Station Quality Assurance Manual. These records include plant history; operating logs; principal maintenance and modification activities; Licensee Event Reports; results of reviews, inspections, tests, audits and material analysis; monitoring of work performance, qualification of personnel, procedures and equipment; and other documentation such as drawings, specifications, procurement documents, calibration procedures and reports, nonconformance reports and corrective action reports.

Identification and retrievability of these records is facilitated through proper indices and an established basic filing system. Record storage facilities are constructed, located and secured to prevent the destruction of records by fire, flooding, theft, and deterioration through environmental conditions such as temperature and humidity.

The power station Quality Control staff monitors these records to assure their completeness, adequacy, retrievability, and protection. They periodically audit these records to verify implementation of established policies and procedures. The record storage facilities at the nuclear power stations conform to Regulatory Guide 1.88, Rev. 2 October 1976, as stated in Table 17.2.0.

17.2.18 AUDITS

The system of audits devised to verify compliance with quality related aspects of the power station is described in the Nuclear Power Station Quality Assurance Manual. The general audit policy specifies that quality assurance audits be conducted in accordance with a formal preplanned and scheduled system to ensure an adequate and meaningful quality assurance/control program is in effect. In addition to the above manual, the station administrative procedures, other station procedures and the Technical Specifications serve as a basis for quality assurance audits.

The Quality Assurance, Operations and Maintenance section is delegated the responsibility for conducting periodic audits to determine the adequacy of the station's programs and procedures, that they are meaningful, and comply with the overall Quality Assurance Program. An audit includes an objective evaluation of quality related practices, procedures, and instructions; the effectiveness of implementation; and the conformance with policy and directives; and also includes the evaluation of work area, activities, processes, and items, and the review of documents and records. Provisions are established requiring that audits be performed in those areas where the requirements of Appendix B to 10 CFR 50 are being implemented. These areas include as a minimum, but are not limited to, those activities associated with operation, maintenance, modification and repair controls; the preparation, review, approval and control of design changes, procurement documents, instructions, procedures, and drawings; receiving and plant inspections; indoctrination and training programs; the implementation of the operating and test procedures; and the remaining criteria in Appendix B to 10 CFR 50.

The Supervisor-Quality Control or his designee directs audits to be conducted. The audits are regularly scheduled on a formal pre-planned audit schedule; the scope and frequency are determined by quality status and safety importance of the activities being performed. Additional audits may be performed as deemed necessary by the Manager-Quality Assurance or the Supervisor, Quality Control as conditions warrant. These audits are conducted by trained personnel not having direct responsibilities in the area being audited and in accordance with prepared and approved audit plans or checklists.

The results of each audit are reported in writing to the Station Manager, Department/Area Supervisor, Manager-Nuclear Operations and Maintenance, and the Manager of Quality Assurance. Additional internal distribution is made to other concerned management levels as deemed appropriate by the above offices upon receipt of the audit report.

Management responds to all audits and initiates corrective action where indicated. Where corrective action measures are indicated, documented followup of applicable areas through inspections, review, re-audits or other appropriate means is conducted to verify implementation of assigned corrective actions.

If the Supervisor-Quality Control determines the station response to an audit is unacceptable; if a response is not received in the time alloted; or if corrective action is not accomplished as indicated on the station response, the matter is brought to the attention of the Manager-Quality Assurance, who notifies the Station Manager for resolution. If the Manager, Quality Assurance does not agree with the resolution proposed, he notifies the Executive Manager, Quality Assurance for referral to appropriate levels of management in accordance with established escalation procedures.

The responsibility for analyzing audit reports for trends and effectiveness lies with the Manager-Quality Assurance. As trends are discovered or the effectiveness of the program is in question, the analysis of the Manager-Quality Assurance is forwarded to the management level consistent with the seriousness of the problem. The management level attained could be as high as the Senior Vice President-Power Operations.