

CE-1-A
Topical Report
Revision 21

QUALITY ASSURANCE PROGRAM
FOR
NUCLEAR GENERATING STATIONS

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Commonwealth Edison Company

CE-1-A
Topical Report
January 1976
Rev. 21 - 6/6/82

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

JUL 20 1982

JUL 15 1982

Mr. E. Douglas Swartz
Nuclear Licensing Administrator
Commonwealth Edison Company
P.O. Box 767
Chicago, IL 60690

Dear Mr. Swartz:

SUBJECT: PROPOSED REVISION 21 TO CE-1-A

Your letter to me of June 7, 1982 submitted Revision 21 to the topical report CE-1-A describing the Commonwealth Edison Quality Assurance Program. Revision 21 to the topical report reflects the title change from Vice President - Nuclear Division to Vice President and General Manager - Nuclear Division, clarifies supplier QA evaluation responsibilities, and provides additional information regarding the follow-up of open station items regarding corrective action. Revision 21 is acceptable.

Please transmit 33 copies of Revision 21 to the NRC with this letter attached.

Sincerely,

A handwritten signature in cursive script, appearing to read "W. P. Haass".

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

LISTING COVERING REVISION OF
TOPICAL REPORT CE-1

Listed below is Revision 21 dated 6/6/82 to the
Commonwealth Edison Company Quality Assurance Program
Topical Report CE-1:

Pages: 1-4, 1-6, 1-21, 1-22, 1-23, 1-28, 1-29,
1-33, 1-38, 1-40, 3-2, 3-3, 4-3, 5-2,
7-2, 15-2, 15-3, 16-2, 18-2, 18-3

Approved By: WJ Skowski
Manager of Quality Assurance

6/6/82

QUALITY ASSURANCE DURING DESIGN, CONSTRUCTION AND OPERATION

Introduction

This Topical Report has been prepared to delineate the requirements governing the Commonwealth Edison Company Quality Assurance Program for its nuclear generating stations. Implementation of the Program with Quality Procedures provides the degree of quality assurance commensurate with the requirements of ASME Section III, Division 1 and Division 2 for concrete containment and other applicable codes, Nuclear Regulatory Commission requirements and Federal Regulations governing design, procurement, construction, testing, operation, refueling, maintenance, repair and modification of Commonwealth Edison Company's nuclear power generating facilities. The scope of this Report covers the total Quality Assurance Program for the life of the Commonwealth Edison Company generating plants commencing with the construction of the LaSalle County Station and for the operation periods of the Dresden, Quad Cities and Zion plants and is described in the ensuing 18 sections of this Report.

1. Organization

A. Basic Organization Responsibilities

Commonwealth Edison Company is ultimately responsible for the assurance of quality in all phases of the design, procurement, construction, modification, testing and operation of the Station. Edison executes this responsibility in accordance with the program set forth in the Company Quality Assurance Manual and described herein and assigns areas of ultimate responsibility to specific Edison organizations and individuals. Edison has delegated the responsibility for certain phases of the work to the Architect Engineer and the NSSS Supplier, both of whom act as Edison's agents in the assigned areas. Edison maintains overall control of the efforts of these organizations by various mechanisms such as design evaluation and audits. Edison has prime responsibility for controlling the quality of on-site work by field contractors. Also, Edison retains overall responsibility for procurement, design, construction, modifications, and operation of the plant including certification and stamping in accordance with the ASME Code.

The Commonwealth Edison Company Quality Assurance Program for Nuclear Generating Stations covers the organization arrangement whereby the Quality Assurance Department is a separate and independent organization. The Site Construction Superintendent or Construction Project Engineer supported by Field Engineers is responsible for administration of the contracts and verification that construction activities carried out by site contractors conform to procurement document requirements which include performance and quality related functions. Also, the Construction site group has responsibility for reviewing site contractor quality control procedures, preparing checklists for witnessing inspection notification points at vendor plants, inspection and designation of status of incoming material at the site, reviewing inspection procedures and monitoring quality control activities of contractors at the site. 15

The Quality Assurance site group is responsible for assuring that the quality requirements are fulfilled and for final approval of: (1) quality assurance procedures of site contractors; (2) the program, including checklists and reports, for witness inspection and audits at contractor plants; (3) site receipt inspection of materials performed by others; and (4) for audit of contractor inspection activities at the site. Independent Inspection Agency activities performed directly for Commonwealth Edison are under the direction and responsibility of the Site Quality Assurance Superintendent and such Agency shall be staffed with qualified personnel acceptable to Quality Assurance. Such Agency has responsibility to identify unacceptable or nonconforming work occurring on-site and, when assigned, at off-site supplier's plants. An Independent Inspection Agency is assigned responsibilities for inspection and testing, to determine and report whether the item conforms to design, test and specification requirements and to reject unsatisfactory materials, equipment and other items. Such rejection by an Independent Inspection Agency will be the basis for action by the Commonwealth Edison site organizations to carry out necessary steps to assure repair, rework or processing of a nonconformance report in accordance with the Quality Assurance Program. 15

The Commonwealth Edison Company Quality Assurance Program includes the quality assurance requirements for operating nuclear power stations. The Program covering operations shall comply with the 18 Criteria of the "Quality Assurance Criteria for Nuclear Power Plants" of Appendix B to 10CFR50 for maintenance, modification and refueling activities and with Criteria 1, 2, 5, 6, 10, 11, 12, 14, 15, 16, 17 and 18 for operating activities. As supplementary Criteria to the 18 Criteria described above for Appendix B to 10CFR50, the Program also complies with Regulatory Guide 1.33 "Quality Assurance Program Requirements (Operations)" as an acceptable method of complying with the Commission's regulations with regard to overall quality assurance program requirements. The Program shall apply to the quality assurance activities affecting the safety-related structures, systems and

components. The Program is applicable to the maintenance, modification, operating and refueling quality assurance activities from the time the Operating License is issued to the end of the operating life of the items. Repairs are performed as maintenance activities and alterations as modifications. The Program covering operations, including quality control, are planned and implemented in accordance with procedures necessary to provide Commonwealth Edison Company adequate confidence that a safety-related structure, system or component performs satisfactorily in service.

B. Organizational Responsibilities for Major Activities

Design

Control of design quality is essentially a four-stage process. Designs originated by either the NSSS Supplier or Architect Engineer are subjected to internal review by the designer and an independent internal party (or parties). The NSSS Supplier and Architect Engineer designs are evaluated by each other as well as by personnel from one or more Edison departments. These steps constitute the primary design evaluation for all safety-related and ASME Section III items in the Station. Appropriate document distribution and control has been established to permit an effective effort in this area. Comments on designs resulting from these evaluations are presented in letter form, by telephone (with written follow-up) or in meetings with published minutes. Edison has final authority with respect to decision making on designs. | 2

Procurement

Procurement control and follow-up for NSSS components is established and maintained by the NSSS Supplier. Edison and the Architect Engineer evaluate the NSSS Supplier procurement specifications, and Edison audits and inspects the NSSS Supplier control measures. Procurement of and follow-up on non-NSSS components and services are directly controlled by Edison, based on the Architect Engineer specifications which have been evaluated by Edison. The Architect Engineer is used to assist in this effort, as Edison's agent, as requested by Edison.

Construction

Construction quality assurance is an Edison responsibility. Edison exercises managerial control of all site construction activities. The site Quality Assurance Group maintains close surveillance of on-site contractor's and other associated construction quality assurance activities. The NSSS Supplier furnishes technical and Quality Control assistance for on-site activities relating to the NSSS. On-site contractors' quality assurance programs are independently evaluated by Edison Quality Assurance.

Pre-service Testing

Pre-service testing, consisting of preoperational and start-up testing, is controlled by Edison. The Architect Engineer and the NSSS Supplier furnish rough draft test procedures to Edison. Based on these, a final draft is written by Edison. This final draft is subjected to internal Edison evaluation and evaluation by the Architect Engineer or the NSSS Supplier as appropriate. The tests are managed and performed by Edison with technical assistance from the NSSS Supplier as appropriate. The evaluation of the test results is performed by Edison and confirmed by independent internal Edison evaluations. Further independent evaluations by the Architect Engineer or the NSSS Supplier are performed as required by Edison.

Operations

Commonwealth's managerial and administrative control of the Quality Assurance Program for operating nuclear stations, as illustrated in Figures 1-0, 1-1, and 1-6 includes review and approval of procedures by the personnel described in this document.

Quality Procedures and revisions thereto for the Company Manual are concurred with by the principally involved departments. The Director of Quality Assurance (Operating) reporting to the Manager of Quality Assurance, verifies that the Quality Procedures for Operating contained in the Company Manual or Station Quality Procedures comply with the policy described in this document. Similarly, the Supervisor Quality Assurance (Maintenance) verifies that the Quality Procedures for maintenance, modifications, in-service inspection and Stores activities comply. The Manager of Quality Assurance directs the quality assurance activities covering operations and approves the Quality Assurance Procedures covering operating, maintenance, modifications, in-service inspection and Stores activities for use in the Station. | 15

Station Procedures and instructions and revisions thereto for the Station Procedures Manual are reviewed and approved as provided in the Technical Specifications. The station Quality Assurance Engineer or Inspector reporting to the Director of Quality Assurance (Operating) provides surveillance of the preparation and revision of the station operating procedures and instructions to assure compliance with the policies contained in the Quality Assurance Program. The Quality Assurance Engineers or Inspectors for maintenance, reporting to the Supervisor Quality Assurance (Maintenance), provide surveillance of the preparation of procedures and instructions for maintenance, modifications, in-service inspections and Stores activities to assure compliance with the policy contained in the Quality Assurance Program. Temporary changes to procedures which do not change the intent of the original procedures, may be made with the concurrence of qualified individuals as | 15

described by Technical Specifications. Such temporary changes are subsequently reviewed, approved and authorized in a manner commensurate to that used for the original procedure.

Managerial and Administrative Controls

Lines of authority and responsibility for the Quality Assurance Program are documented and updated, as appropriate, in the form of organizational charts, functional descriptions of departmental responsibilities or descriptions of key quality assurance positions including those providing technical support or audit responsibility.

In general, the Quality Assurance Program provides that an activity is verified as being correctly performed, that Quality Assurance activities are performed independent of the individual or group directly responsible for performing a specific activity, and that quality assurance functions have sufficient authority and organizational freedom to identify quality problems; to initiate, recommend, or provide solutions; and to verify implementation of the solutions.

The responsibilities for implementation of the Quality Assurance Program are assigned to the Vice Chairman, Executive Vice Presidents, Vice President (Engineering), Vice President - Nuclear Operations, Manager of Station Construction, Manager of Projects, Vice President (Purchasing), Vice President (Divisions) and Manager of Quality Assurance. The organizations or personnel named herein and reporting to the Vice President (Engineering), Vice President of Nuclear Operations, Manager of Station Construction, Manager of Projects, the Vice President (Purchasing) and Manager of Quality Assurance may assign to other organizations or personnel, the work of establishing and executing any part of the Quality Assurance Program under their cognizance, but the assigning organizations or personnel retain responsibility for such assignments. Figures 1-0, 1-1 and 1-6 illustrate the functional and administrative responsibilities of the major organizations and personnel participating in the Quality Assurance Program for operating nuclear stations. Dashed lines represent the functional responsibility for establishing and administrating the procedures and instructions. Solid lines represent responsibility for implementing the procedures and instructions. Dotted lines represent audit responsibility for verifying compliance with the procedures and instructions independent of the person or group directly responsible for performing the activities.

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The specific responsibilities for the Quality Assurance Program are described in the following paragraphs.

1.1 General

As assigned in the policy statement for the Corporate Quality Assurance Manual by the Chairman and President, the Vice

Chairman of Commonwealth Edison Company has overall responsibility for the Quality Assurance Program covering the design, construction and operation of the Company's nuclear generating stations. Similarly assigned, authority and responsibility is assigned to the Manager of Quality Assurance for quality assurance with respect to design, procurement, construction and operation of the Company's nuclear power stations. Further, other authorities and responsibilities are as delineated in the organization section.

The Executive Vice Presidents, Vice President (Engineering); Manager of Quality Assurance; Vice President Nuclear Operations; Vice President (Divisions); Manager of Station Construction; Manager of Projects and Vice President (Purchasing) are responsible for implementation of the Quality Assurance Programs as described herein.

The Manager of Projects directs the design, construction and pre-operations operating activities involving the project during the initial design and construction of the nuclear unit or for other specially established projects after the unit has been placed into operation. The Project Managers reporting to the Assistant Manager of Projects and the Manager of Projects, is responsible for the Project activities involving project engineering, construction, testing, and preoperational and start-up operations. The Projects Department Engineering, Construction and Operation groups have line responsibility involving the project during the initial design, construction and preoperational operations of the nuclear unit. The Project Engineering, Project Construction and Project Operation groups are formulated respectively from the Station Nuclear Engineering and Station Construction Departments and the Production Nuclear Division which have functional responsibility and control of the corresponding Projects Department organizations. The Project Operation group for a respective unit shall revert back to the Production Nuclear Division when an operating license becomes effective. The Project Construction and Project Engineering groups shall revert back, respectively, into the Station Construction and Station Nuclear Engineering when the nuclear unit is placed into commercial operation. Also, during the projectized phase, the applicable respective Station Construction Department, Station Nuclear Engineering and Production Nuclear Division procedures shall correspondingly apply to the Project Construction, Engineering and Operations activities as established by interface procedures or documents between the Station Construction and Engineering Departments and the Nuclear Division, respectively, and the related Project groups.

The Station Nuclear Engineering Manager, reporting to the Assistant Vice President responsible for Station Nuclear Engineering, Nuclear Licensing and Nuclear Fuel Services, who in turn, reports to the Vice President (Nuclear Operations), has functional responsibility and control during initial design, construction and startup for the activities involving design, test procedures, and the baseline

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data for future in-service inspection and is responsible after the nuclear unit is placed into commercial operation for the activities involving design, test procedures and plant modifications for the Commonwealth Edison Company (CECo) nuclear power generating stations. The Operational Analysis Manager and the Materials Analysis Manager, both reporting to the Assistant Vice President who in turn reports to the Vice President (Engineering), is responsible, respectively, for the testing activities of the Operational Analysis and Materials Analysis Departments and have functional responsibility and control, respectively, of the Operational Analysis and Materials Analysis testing activities during construction and plant operations. 20

The Manager of Quality Assurance directs the quality assurance activities for the design, procurement, construction and operation of the Company's nuclear power facilities and interface activities with the Nuclear Regulatory Commission, Office of Inspection and Enforcement, Region III and the Authorized Inspection Agency. He or his designated alternate has been delegated responsibility and authority to stop unsatisfactory work and plant operations as well as further processing or unsatisfactory material during design, engineering and construction of the plant, and during plant modification, maintenance and in-service inspection.

If conditions, which are adverse to quality and which require prompt action are found by Quality personnel at the site or Station and required corrective measures can not be agreed upon, the Manager of Quality Assurance or his designated alternate, will be notified promptly.

The Director of Quality Assurance (Engineering-Construction), the Director of Quality Assurance (Operating) and the Supervisor Quality Assurance (Maintenance) report directly to the Manager of Quality Assurance. The Director of Quality Assurance (Engineering-Construction) has responsibility for administering design, procurement and construction quality assurance activities; the Director of Quality Assurance (Operating) has responsibility for administering operating quality assurance activities; and Supervisor Quality Assurance (Maintenance) has responsibility for quality assurance activities covering maintenance, modification, in-service inspection and Stores activities. They have authority and organizational freedom to identify problems and to initiate, recommend or provide solutions. The Quality Assurance organization is independent of the groups and individuals directly responsible for performing specific activities to which such quality assurance is applicable.

The qualification requirements for the position of Manager of Quality Assurance includes having a broad background and working knowledge of nuclear plant engineering, construction and operating activities within Commonwealth Edison Company as well as functional interfaces with working organizations outside the company plus

having executive capabilities to achieve goals and objectives in concert with company policies. Also required is knowledge of Quality Assurance regulations, policies, practices and Standards and experience working in Quality Assurance or related activity in reactor design, construction or operation or in a similar high technology industry. Educational requirements include, as a minimum, a baccalaureate degree or equivalent in Engineering or related science. "Equivalent" is considered to be commensurate with the factors described in paragraph 4.1 (items a-j) of ANS-3.1-1979. The Manager of Quality Assurance shall have (4) years experience in the field of quality assurance, or equivalent number of years of nuclear plant experience in a supervisory position preferably at an operating nuclear plant or a combination of the two. At least one (1) year of this four years experience shall include detailed involvement in the administration of and adherence to the Quality Assurance Program in a significant technical management responsibility directly involving nuclear power plants, such as engineering, construction, operation, etc.

Job requirements for the positions of the Directors of Quality Assurance and Supervisor Quality Assurance (Maintenance) include having a broad background and working knowledge of engineering, construction, operating activities with Commonwealth Edison Company as well as having a knowledge of codes and standards applicable to power plant design, construction and operation and quality assurance principles. They also shall have supervisor and management qualities and capabilities. Educational requirements shall include a baccalaureate degree or equivalent in engineering or an equivalent technical discipline.

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The Executive Vice President for Construction, Production and Engineering directs the activities of departments responsible for licensing, construction, construction testing, plant operations, nuclear and other engineering training and environmental affairs.

In this capacity he is responsible for the activities of departments and divisions concerned with the operations, maintenance and nuclear engineering of the Company's generating facilities as well as control over the bulk power transmission system. The departments and divisions and the person responsible for activity within each are as follows:

Production Training Department Production Training Manager

System Power Supply Department System Power Supply Manager

Station Construction Department Manager of Station Construction

Station Nuclear Engineering, Nuclear Licensing, Nuclear Fuel Services Departments, and Production Nuclear Division Vice President (Nuclear Operations)

Operational Analysis, Materials Analysis, Environmental Affairs, Research, Production Fossil Division and other Engineering Departments Vice President (Engineering)

The Vice President (Divisions) is responsible for the activities of the seven Operating Divisions and the Operating Manager. These Divisions are assigned responsibility for those activities concerned with distribution of power as well as service to customers and public relations within their respective geographical areas including operation and maintenance and inspection of electrical transmission and distribution facilities. The Operating Manager's responsibility includes the Transmission and Distribution Construction Department which has functional responsibility and control for Division Substation Construction activities.

A division Vice President is responsible for each Division. A Division Operating Manager reports to the Division Vice President. The Division Operating Manager is responsible for Division Substation Construction and Division Operational Analysis activities.

Commonwealth Edison assigns to the Vice President (Purchasing) the responsibility for the procurement of: services, spare parts, materials and equipment in accordance with the purchase requisition and contract specifications, requirements and for obtaining the required quality assurance documentation for such items. Corresponding responsibility for the procurement of nuclear fuel (including reprocessing) is assigned to the Vice President (Fuels & Budgets).

1.2 Organization

The Commonwealth Edison Company organization as related to Quality Assurance, is shown in Figures 1-0 and 1-1. Departmental and divisional organizations showing the Quality Assurance function is shown in Figures 1-2, 1-2.1, 1-3 and 1-5.

1.3 Scope

Specific responsibilities for implementation of the Quality Assurance Program are assigned to the Commonwealth Edison Company organizational groups as outlined in Paragraphs 1.4 through 1.6.

The scope of responsibilities involved in a nuclear project is divided into four Phases.

Phase I - Definitions of system design and quality requirements and acceptance of the quality of design.

Phase II- Verification that design and quality requirements have been met during construction.

Phase III- Baseline in-service inspection; preoperational testing.

Phase IV - Operation, in-service inspection, maintenance, repair, refueling and station modifications.

1.4 Engineering and Construction Responsibilities

1.4.1 Engineering (Project Engineering and Station Nuclear Engineering Department)

Station Projects Department including Project Engineering is organized as shown in Figure 1-4. The Station Nuclear Engineering Department is organized as shown in Figure 1-3. The Station Nuclear Engineering Department has engineering responsibility for Phase IV. Project Engineering has responsibility for Phases I, II and III.

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- 1.4.1.1 For Phases I and II Project Engineering delegates and also coordinates various segments of these activities with Project Construction, the Station Nuclear Engineering Department, Station Construction Department, Nuclear Licensing Department, Operational Analysis Department, Production-Nuclear Division and Project Operating. For Phase IV station modifications design activities, the Station Nuclear Engineering Department has responsibility for design and schedules and for obtaining assistance for the Production Nuclear Division.
- 1.4.1.2 The Project Engineering Manager, who reports to the Project Manager, has overall Project Engineering responsibility and assigns specific nuclear generating station project responsibilities to the Project Engineer. The Project Engineer has engineering responsibility for the project and specifically supervises the electrical, mechanical, structural and nuclear activities during plant design and construction. During plant operation, the Project Engineer, who reports to a Station Nuclear Design Engineer in the Station Nuclear Engineering Department, has overall engineering responsibility and specifically supervises the electrical, mechanical, structural and nuclear activities involving plant modifications.

The respective Project Engineer directs and coordinates the associated activities under his or her scope of work. The Project Engineering Project Engineer is responsible for the following responsibilities:

- a. Review and control the scope of work involving the electrical, mechanical, structural and instrumentation, and control designs of the NSSS vendor and Architect Engineer to verify that applicable Safety Analysis Report (SAR), regulatory requirements, ASME Code requirements, and design bases are properly translated into specifications, drawings, procedures and instructions.
- b. Review and accept the specifications, drawings, and scope for electrical, mechanical and structural material, equipment and erection work, prepared by the Architect Engineer and NSSS vendor, to verify inclusion of inspection, testing and acceptance criteria.
- c. Analyze bids, make purchase recommendations, control expenditures and assure that necessary quality requirements are included in purchase orders and contracts.
- d. Disposition of electrical, mechanical and structural design changes.
- e. Review the Architect Engineer's evaluation of fabricator's and erector's detailed designs, drawings and work instructions for reasonableness and completeness.
- f. Review and approve resolution of nonconformances relating to electrical, mechanical and structural portions of the generating station.
- g. Establish the plans for the preoperational and start-up test programs.
- h. Coordinate the preparation and review of preoperational and start-up test procedures.

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- i. Coordinate the evaluation of the adequacy of the results of the preoperational and start-up testing. Make recommendation for acceptance of test results when results are judged satisfactory.
- j. Develop overall schedules.

Similarly, during plant operation the Station Nuclear Engineering Department Project Engineer is responsible for the responsibilities listed above as applicable for plant modifications.

The Station Nuclear Engineering Manager has overall Owner's responsibility for the Form N-3 Data Report and other CECO N type Data Reports including stamping responsibility for ASME Section III, Division 1 and 2 covering concrete containments. The Station Nuclear Engineering Manager assigns the CECO responsibilities for the Form N-5 and C-1 Data Reports, including stamping, to the Project Manager during initial design and construction. The Station Nuclear Engineering Manager assigns the NA and NPT responsibilities for Code adherence to the Nuclear Station Superintendent in connection with the extension of the corporate certificate.

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1.4.1.3 The Quality Assurance Coordinator assigned to Station Nuclear Engineering Department and Project Engineering has the responsibility to assure that the following quality assurance activities are performed. (Also see 1.4.5.1.A)

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- a. Development of quality procedures to be used by Station Nuclear Engineering and Project Engineering in the Commonwealth Edison Quality Assurance Program.
- b. Evaluation of contractors' quality assurance programs.
- c. Acceptance of only acceptable contractors' quality assurance programs.

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- d. Audits of the design review system of Architect Engineer and NSSS vendor.
- e. Audits of off-site contractors, as necessary, or requested.
- f. Purchase documents (i.e., specifications drawings, procedures and instructions, are reviewed for assurance of the inclusion of Quality Assurance Requirements.
- g. Fabricator and erector work instructions are reviewed for inclusion of nondestructive and electrical testing requirements.

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1.4.1.4 The Architect Engineer is responsible to Project Engineering and, for operating nuclear plant modification, to the Station Nuclear Engineering Department for the mechanical, structural and electrical design of the plant and for the quality of that design (except for those portions of that design included within the scope of the Nuclear Steam Supply System (NSSS)). In this context, the Architect Engineer performs an independent evaluation of vendor proposals, designs, quality assurance programs, test reports and design reports. The Architect Engineer further performs an independent evaluation of the NSSS design. The Architect Engineer is assigned responsibility for the document distribution for Phases I, II and III of the job.

1.4.2 Station Electrical Engineering Department

The Station Electrical Engineering Department will provide electrical engineering technical assistance to the Station Nuclear Engineering Department, as requested, or assigned by the Station Nuclear Engineering Department or Project Engineering for nuclear station projects.

1.4.3 Construction Project Construction and Station Construction Department

The Station Construction Department is organized with a Manager, Technical Staff, Project Engineers and Field Engineers as shown in Figure 1-2. Project Construction, reporting to the Project Manager,

is organized as shown on Figure 1-4 with a Site Construction Superintendent and Field Engineers. The respective Site Field Engineer groups generally are headed by a supervising or lead type individual depending on the status and requirements of the project who, in turn, carries out the responsibilities of, and reports to, the Project Site Construction Superintendent or Construction Project Engineer. (A Site Quality Assurance Superintendent or Supervisor Quality Assurance is assigned to each construction site independent of the Station Construction Department for Phase II.)

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1.4.3.1 The Project Manager assigns a Site Construction Superintendent or Project Engineer to a construction site who has the following responsibilities:

- a. Advisor to Engineering for design suitability from a construction viewpoint.
- b. Coordinate requests for field revisions.
- c. Receipt of items including furnishing necessary storage facilities.
- d. Assist Project Engineering in development of overall schedule.
- e. Verify conformance and completeness of contractor's installation or erection to specification requirements.
- f. Supervise and approve mechanical and structural construction tests.
- g. Coordinate and provide assistance for electrical construction tests.
- h. Coordinate preoperational tests.

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Similarly, during plant operation the Station Construction Department Project Engineer is responsible for the responsibilities listed above, as applicable for plant modifications.

1.4.3.2 The Site Construction Superintendent or Project Engineer is responsible for coordinating and directing Phase II of the Program activities, for assuring procurement requirements are fulfilled by suppliers, and for construction at the site. The Station Construction Department provides construction assistance and expertise to the total program including plant modifications under Phase IV.

The Project Manager is assigned ASME Section III, Division 2 Constructor responsibilities. The Manager of Station Construction has the responsibility for maintaining a Level III person on Staff responsible for personnel development and qualification and for the performance to the requirements for concrete inspection as required by rules established in Section III, Division 2 of the ASME Code.

1.4.4 Operational Analysis Department and Materials Analysis Department

The Operational Analysis Department and Material Analysis Departments are organized as shown in Figure 1-5.

1.4.4.1 The Operational Analysis Manager has the following responsibilities including functional control of Division and Project Operational Analysis Department:

- a. Participate in review of design specifications to verify the inclusion of adequate electrical testing requirements as directed.
- b. Prepare procedures and conduct electrical construction tests as directed.
- c. Participate in the preparation and review of preoperational and start-up test procedures, as directed.
- d. Participate in and coordinate preoperational and start-up testing, as directed.

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- e. Maintain Commonwealth Edison Company off-site testing facilities and equipment required to fulfill the Department responsibilities.
- f. Provide specialized testing services and equipment analysis such as instrument and equipment calibrations (traceable to national standards).

The Operational Analysis Department provides specialized field testing services through its technical staff specialists, standardizing and calibration services and retention of related quality assurance documentation. Also, the Department is responsible for inspection and proof testing of electrical generation, transmission and distribution equipment.

1.4.4.2 The Materials Analysis Manager has the following responsibilities involving chemistry, metallurgy, nondestructive examination and vibration activities:

- a. Participate in review of design specifications to verify proper selection of materials as directed.
- b. Prepare procedures and conduct tests as directed.
- c. Maintain SNT-TC-1A Level III person on staff responsible for personnel and procedure development and qualification to ASME Code requirements for nondestructive examination.
- d. Maintain Commonwealth Edison Company off-site testing facilities and equipment required to fulfill the Department responsibilities.
- e. Provide necessary assistance and expertise for baseline and in-service inspection.
- f. Provide specialized testing services and equipment analysis such as for evaluation of materials.

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The Materials Analysis Department provides specialized chemistry, metallurgy, nondestructive examination and vibration analysis services and materials expertise through its technical staff specialists. The Company Level III NDE person is assigned to this Department.

1.4.4.3 The Quality Assurance Coordinator assigned to the Operational Analysis and Material Analysis Departments has the responsibility to assure that the following quality assurance activities are performed:

- a. Calibration is performed on test and measurement equipment as required.
- b. Auditing is performed of destructive and nondestructive testing as directed.
- c. Nondestructive test personnel qualifications records are maintained.
- d. Auditing is performed of calibration services vendors.

1.4.5 Director of Quality Assurance (Engineering-Construction)

The Director of Quality Assurance (Engineering-Construction) reports to the Manager of Quality Assurance and is responsible for administration of the Commonwealth Edison Company Quality Assurance Requirements and Procedures established for the design and construction phase of nuclear power generating stations. Specifically, he will direct the efforts of the Site Quality Assurance Superintendent and each Quality Assurance Coordinator assigned to the Station Nuclear Engineering, Project Engineering, Materials Analysis and Operational Analysis Departments. He maintains a cognizance of the Operations portion of the Quality Assurance Program to determine that it interfaces with the design and construction quality assurance phases. He shall serve as liaison with quality assurance organizations of the NSSS Vendor, Architect Engineer, Authorized Inspector and Contractors - as necessary - to verify that compliance with the applicable Codes, Standards and Regulations are met. This Director of Quality Assurance will regularly inform the Manager of Quality Assurance of significant quality assurance

development and problem areas. The Director of Quality Assurance (Engineering-Construction) has sufficient authority to identify problem areas and require corrective action.

1.4.5.1 Site Quality Assurance, Superintendent
(Engineering-Construction)

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Each Site Quality Assurance Superintendent reports to the Director of Quality Assurance (Engineering-Construction) and is responsible for the quality activities within his specific department. He is responsible to observe and inform the Director of Quality Assurance (Engineering-Construction) of any deficiency involving required Safety Analysis Reports, Quality Assurance Manual Reports, design reports, construction reports and test reports. Reporting to such Superintendents, where established as site activities deem necessary, are the site Supervisors Quality Assurance.

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The Site Quality Assurance Superintendent or each Quality Assurance Coordinator, as applicable, is responsible for reviews and audits to assure that the above requirements are met and that nonconformances are resolved.

- A. Engineering - In addition to the responsibilities stated herein, under Section 1.4.1.3, the Quality Assurance Coordinator assigned to the Station Nuclear Engineering Department and Project Engineering is responsible for surveillance and audit of Engineering activities involving construction projects and operating nuclear plants for conformance to requirements. He maintains surveillance of required documentation of modifications activities at operating stations where Station Nuclear Engineering Department responsibility is involved. His responsibilities are achieved through project review, surveillance and day-to-day involvement plus by support, involvement and action of the Director of Quality Assurance (Engineering-Construction) and, in turn, the Manager of Quality Assurance.

B. Operational Analysis and Materials Analysis -

The Quality Assurance Coordinator assigned to the Operational Analysis Department and the Materials Analysis Department is responsible for assuring that calibration procedures and records are maintained for Nuclear Station Test and Measurement equipment. He also maintains surveillance of required documentation of their respective testing and inspection activities. His responsibilities are achieved essentially in the same manner as stated for the Quality Assurance Coordinator assigned to Engineering.

- C. Construction Site - The Site Quality Assurance Group will vary with the volume of quality oriented activity at the site. Generally, the number will vary from one to twenty or more; although, in the pre-construction and early stages of construction a Supervisor Quality Assurance or a Site Quality Assurance Coordinator or Engineer may perform these activities alone.

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The Site Quality Assurance Superintendent or other site Quality Assurance designee is responsible for assuring necessary procurement requirements are provided in CECO site procurement packages involving safety-related and ASME Code purchases, off-site vendor inspections and surveillances, surveillance of site contractor quality activities, compliance of material and equipment with procurement document requirements, maintenance of quality records filed at the site and direction of the site quality assurance group activities. These responsibilities will be achieved using Quality Assurance Engineers or Inspectors through review, surveillance and audit activities, continued monitoring and day-to-day involvement.

The Site Quality Assurance Superintendent and, in turn, the Supervisors Quality Assurance reporting to such Superintendents have the responsibility that the following quality assurance activities are performed:

- a. Development and approval of site contractor construction quality control procedures.
- b. Review and approval of site contractor quality assurance programs including site procedures.
- c. Advise the appropriate Engineering organization of Bidder Quality Assurance capabilities when requested.
- d. Maintain surveillance of site contractors to verify conformance to approved quality control programs and procedures by review, surveillance and audits.
- e. Assure accumulation, filing and maintenance of quality assurance documents and records required for site construction by surveillance and audit.
- f. Review and acceptance of nondestructive test documentation.
- g. Identification and maintenance of files for site nonconforming items and follow-up and monitor of corrective action required for disposition of site nonconformances.
- h. Maintenance of calibration records for test equipment involved in site construction activities through surveillance and audit.
- i. Safekeeping of quality assurance documentation during construction by surveillance.
- j. Surveillance and approval by Quality Assurance of material receiving reports including assurance required corrective actions are completed.
- k. Review by Quality Assurance of on-site contractor surveillance reports for quality problems and completion of corrective actions.

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- l. Quality Assurance audit of on-site contractors.
- m. Review and approval of site procurement packages involving safety-related and ASME Code purchases to assure necessary requirements are provided and the proposed vendor(s) is acceptable.
- n. Results of electrical construction tests are reviewed.

1.4.6 Director of Quality Assurance (Operating)

The Director of Quality Assurance (Operating) reports to the Manager of Quality Assurance and is responsible for administration of the Commonwealth Edison Company Quality Assurance Requirements and Procedures established for the operating phase of nuclear power generating stations. Specifically, he will direct the effort of the Quality Assurance Engineers or Inspectors covering quality assurance for operating activities. This Director of Quality Assurance will regularly inform the Manager of Quality Assurance of significant quality assurance development and problem areas. He will also inform the Division Vice President and General Manager, Nuclear Stations, Director Nuclear Fuel Services and, where applicable, the Vice President (Fuel & Budgets) of significant quality assurance questions and problems related to fuel fabrication. The Director of Quality Assurance (Operating) has sufficient authority to identify problem areas and require corrective action.

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1.4.6.1 Nuclear Fuel Fabrication Inspector

The Nuclear Fuel Fabrication Inspector has the responsibility for surveillance of fuel fabrication at vendor's plant. He reports to the Director of Quality Assurance (Operating).

1.4.7 Supervisor Quality Assurance (Maintenance)

The Supervisor Quality Assurance (Maintenance) reports to the Manager of Quality Assurance and is responsible for administration of the Commonwealth Edison Company Quality Assurance Program Requirements and Procedures established for the maintenance

modification, in-service inspection and Stores activities at Operating Nuclear Power Stations. This Supervisor will regularly inform the Manager of Quality Assurance of significant Quality Assurance developments, activities and problem areas. The Supervisor Quality Assurance (Maintenance) has sufficient authority to identify problem areas and require corrective action.

1.4.8 Station Quality Assurance Supervisor

The Station Quality Assurance Supervisor reports to the Director of Quality Assurance (Operating) on quality assurance operating activities and to the Supervisor Quality Assurance (Maintenance) on quality assurance activities involving modifications, maintenance, in-service inspection and Stores activities for operating nuclear power stations. The respective Quality Assurance Engineers or Inspectors assigned to the station report to the Station Quality Assurance Supervisor.

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- I. The Quality Assurance Engineers or Inspectors for operating assigned to a station have authority and responsibility for the surveillance and audit of:
 - a. The preparation and revision of the station procedures for administration and operations.
 - b. Implementation of the Operations portion of the Quality Assurance program.
 - c. The completion of documentation showing that the required inspections and tests were performed.
 - d. The completion of reported corrective action.
 - e. The incorporation of approved engineering changes into station operating procedures.
- II. Quality Assurance Engineers and Inspectors for maintenance, modification, in-service inspection and Stores activities assigned to the stations have authority and responsibility for surveillance and audit of:

- a. Implementation of the modification and maintenance portion of the Quality Assurance Program.
- b. The preparation and revision of the Station Procedures for the modification and maintenance.
- c. The completion of documentation showing that the required inspections and tests were performed for modification, maintenance and material receipts. He shall also review and approve receiving inspection documentation.
- d. The proper and satisfactory completion of modification, maintenance and reported corrective action. He shall also review and approve such completion and corrective action.
- e. The incorporation of approved engineering changes into maintenance and operating procedures.
- f. Completion of ASME Code requirements.
- g. In-service inspection and Stores activities.
- h. Adherence to Technical Specification requirements where involved with modification, maintenance and in-service inspection activities.

1.5 Production Department Responsibilities

1.5.1 Production - Nuclear Division

1.5.1.1 Division Vice President and General Manager, Nuclear Stations

The Commonwealth Edison Company production stations are divided into two Production Divisions - Fossil and Nuclear. The Division Vice President and General Manager in charge of each Division is responsible for the safe and reliable operation and maintenance of the plant assigned to his division.

The Division Vice President and General Manager, Nuclear Stations reports to the Vice President (Nuclear Operations) and has line responsibility for the administration, management and direction of all Production Department activities at operating nuclear stations. During construction and preoperation operating activities, he has functional responsibility and control of Project operation activities and assumes operating responsibility when an operating license becomes effective. He is responsible for implementation of the Quality Procedures for the Quality Assurance Program and for development of Station procedures for the Station Procedures Manual. He is also responsible for obtaining and authorizing the use of services, or required liaison or interface with, other Commonwealth Edison Company departments such as: Accounting, Industrial and Public Relations, Purchasing, Engineering, Construction, Materials Analysis and Operational Analysis. He is responsible for approval of requisitions for the procurement of services from vendors and contractors. He provides liaison between the Regional Nuclear Regulatory Commission's Director of the Office of Inspection and Enforcement and the Office of the Production Department.

He is responsible, through the Station Superintendent, for the management of each assigned power station. This includes all activities such as, operation, maintenance and refueling, and authorization of modifications performed at the Station, compliance with all regulations and licenses, personnel selections, training and related activities. He assigns responsibility for preparation and implementation of the Station Procedures Manual to the Station Superintendent including the Maintenance Procedures.

The Division Vice President and General Manager, Nuclear Stations coordinates the planning of each assigned station's activities with the activities of other plants on the Commonwealth Edison Company system and with the System Power Supply Manager.

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The coordinated planning involves scheduled outages, system electrical demands and Commonwealth Edison Company policy and rules. He maintains contacts with similar nuclear stations of other companies and transmits information from them regarding operating problems to Commonwealth Edison's nuclear stations.

1.5.1.2 Station Superintendent

Each nuclear generating station is managed by a Station Superintendent (See Figure 1-7) who is responsible for direct management of the station including industrial relations, planning, coordination, direction of the operation, maintenance, refueling and technical activities. The Station Superintendent is responsible for Phase III and IV and compliance with the Station's NRC Operating License, government regulations, ASME Code requirements and the Company Quality Assurance Program. He also authorizes the use of procedures contained in the Station Procedure Manual, and is responsible for final approval and distribution of station reports. The Station Superintendent authorizes all modifications to the Station after the issuance of an Operating License and completion of preoperational testing. He forwards requests for modifications to the Commonwealth Station Nuclear Engineering Department. Repair and equipment maintenance needing technical review for substitution of equipment are reviewed by the Station Technical Staff and completed as maintenance activities under station management. He supervises the Station's on-site review function as provided in the Administrative Section 6.0 of the Technical Specifications.

During periods when the Station Superintendent is unavailable, he shall designate this responsibility to an established alternate who satisfies the ANSI N18.1 experience requirements for plant manager.

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1.5.1.3 Operating Assistant Superintendent

Responsibility for the day-to-day operating and refueling activities for the Station is delegated to the Operating Assistant Superintendent. Reporting to him are the Station Operating Engineers and Shift Engineers.

1.5.1.3.1 Operating Engineers

The Operating Engineers are responsible for the operation of the mechanical and electrical equipment and certain common plant systems, such as fuel handling and radioactive waste processing, assigned to them by the Operating Assistant Superintendent. They are responsible for recommending maintenance for such equipment and for authorizing functional acceptance tests to be conducted by Operating and Technical Staff personnel.

1.5.1.3.2 Shift Engineer

The Shift Engineer on duty is responsible for operating the plant in compliance with the station Operating License and the Station Operating Procedures. During his shift, the Shift Engineer is in charge of the entire plant operation and is responsible for the plant being operated in a safe and reliable condition. He receives direction from the Operating Assistant Superintendent.

1.5.1.4 Administrative and Support Service Assistant Superintendent

The Administrative and Support Services Assistant Superintendent reports to the Superintendent and performs various administrative duties and support services as assigned. Reporting to him are: (1) Technical Staff Supervisor, (2) Office Supervisor, (3) Station Security Administrator,

(4) Quality Control Supervisor, and (5) Rad/Chem Supervisor.

1.5.1.4.1 Technical Staff Supervisor

The Technical Staff Supervisor provides technical support for plant operations, refueling, maintenance, modifications and in-service inspection and evaluates process data and equipment performance and adequacy of station procedures. He makes recommendations and advises the Assistant Superintendent with respect to quality assurance. He has the responsibilities and authority as described in Section 6.0 of the Technical Specifications for implementation of the onsite review function. He is also responsible for the following:

- a. Witnessing of assigned testing for verifying completion of modifications and equipment maintenance.
- b. Verification of incorporation of approved engineering changes into station maintenance and operating procedures.
- c. Verification of completion of reported corrective action.

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1.5.1.4.2 Quality Control Supervisor

The Station Quality Control Supervisor reports to the Administrative and Support Services Assistant Superintendent and is responsible for the quality control activities at the Station such as: reviewing drawings, specifications, Maintenance/Modification Procedures and requests

for purchase for inclusion of applicable quality requirements; performing receiving inspection for ASME and safety-related incoming materials and items and inspection of fabrication and installation activities; and having nondestructive examination and other testing performed as required.

1.5.1.4.3 Office Supervisor

The Office Supervisor is responsible for directing the activities of the station's clerical staff and for maintaining files of quality assurance documents assigned to him.

1.5.1.4.4 Station Security Administrator

The Station Security Administrator is responsible for directing the station's security plan activities and supervising the on-site security activities.

1.5.1.4.5 Rad/Chem Supervisor

The Rad/Chem Supervisor is responsible for directing Health Physics, Chemistry, and Radio Chemistry activities. The Rad/Chem Supervisor is responsible for the formulation and implementation of a Station Radiation Protection Program to maintain occupational radiation exposures as low as reasonably achievable (ALARA). Although the Rad/Chem Supervisor reports to the Administrative and Support Services Assistant Superintendent, the Rad/Chem Supervisor does have direct recourse to the Superintendent in order to resolve questions related to the conduct of the Radiation Protection Program.

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1.5.1.5 Maintenance Assistant Superintendent

The Maintenance Assistant Superintendent is responsible for directing the maintenance, including repair, of all mechanical and electrical equipment including instrumentation. His responsibility includes planning work, providing on-the-job training of maintenance personnel, maintaining calibration listing for maintenance work and its inspection to be performed and initiating requisitions for the procurement of tools, materials, equipment and parts from vendors and services from contractors.

1.5.1.5.1 The Master Instrument Mechanic

The Master Instrument Mechanic is responsible for maintaining and repairing instrumentation at the Station. His responsibility includes planning work, providing on-the-job training of instrument personnel, setting up instruments for tests, maintaining listing of calibrated instruments, arranging for the instrument maintenance work and its inspection to be performed and initiating requisitions for the procurement of instruments and parts from vendors and services from contractors. The Master Instrument Mechanic reports to the Maintenance Assistant Superintendent.

1.5.1.6 Personnel Administrator

The Personnel Administrator reports to the Superintendent and performs various personnel activities as assigned. Reporting to him is the Training Supervisor.

1.5.1.6.1 Training Supervisor

The Training Supervisor is responsible for the training and retraining of operating and maintenance personnel. His

responsibility includes planning, scheduling, preparing, presenting and documenting completion of training courses.

1.5.2 Maintenance Manager - Nuclear Stations

The Maintenance Manager is shown in Figure 1-6. The Maintenance Manager reports to the Division Vice President and General Manager, Nuclear Stations and is responsible for functional direction of maintenance activities at nuclear stations including In-Service Inspection activities, special tool and equipment development, equipment and refueling outage schedules and contractor and vendor activities. He is responsible for providing direction to the Maintenance Assistant Superintendent regarding day-to-day maintenance operations, forced outages, scheduled outages and refueling operations plus an effective maintenance program for ALARA radiation exposures.

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1.5.3 Operations Manager - Nuclear Stations

The Operations Manager is shown in Figure 1-6. The Operations Manager reports to the Division Vice President and General Manager, Nuclear Stations and has functional responsibility for operation of nuclear stations in a safe and efficient manner and in accordance with Company procedures, NRC Technical Specifications and governmental regulations. His responsibilities include:

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- a. Providing direction to the Operating Assistant Superintendent regarding day-to-day operation of station units.
- b. Coordinating unit outages with Power Supply.
- c. Reviewing station operating performance for adherence to procedures, technical specifications and other governmental regulations.
- d. Reviewing the results of personnel performance investigations and follow-up on corrective actions.
- e. Participating in personnel performance investigations as assigned.
- f. Participating in station AIR meetings and follow-up as appropriate on corrective actions.

- g. Reviewing license event reports and deviation reports for trends, effects on other units and corrective action.
- h. Communicating common equipment and system problems among stations in a timely manner.
- i. Reviewing station response to NRC inspections and Quality Assurance audits for trends, corrective action, and follow-up on completion of commitments.
- j. Initiating and coordinating GSEP drills.
- k. Coordinating the implementation of nuclear security regulations.

1.5.4 Technical Services Manager - Nuclear Stations

The Technical Services Manager is shown in Figure 1-6. The Technical Services Manager reports to the Division Vice President and General Manager, Nuclear Stations and has functional responsibility for the Station Technical Staff organizations and work assignments. He has responsibility for career planning of technical personnel assigned to the stations, providing needed technical support for the stations and developing operating strategies to improve thermal performance and availability.

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1.5.5 System Power Supply Department

System Power Supply is shown in Figure 1-6. The System Power Supply Manager is responsible for managing the bulk power system with the objectives of safe operation, reliable service and efficient utilization of Company-owned production facilities.

- 1.5.5.1 The Manager System Power Supply has the following responsibilities:
- a. Scheduling power generation.
 - b. Purchase and sale of power from and to other utilities.
 - c. Coordinating the operation of the Commonwealth system with the MidAmerica Inter-Pool Network and other interconnected utilities.

- d. Final scheduling of outages for generating stations for corrective and preventative maintenance.

1.5.6 Production Training Department

The Production Training Department is shown in Figure 1-6. The Production Training Manager is responsible for training activities.

- 1.5.6.1 The Production Department training staff coordinates training activities for Commonwealth's nuclear generating stations. They coordinate the preparation of training materials, surveillance of on-the-job training and other off-site training.

1.5.7 Production Stores Department

The General Supervisor, Production Stores has the following nuclear maintenance Production Stores responsibilities:

- a. Control of spare parts inventory;
- b. Coordinating procurement of spare parts and materials and assuring that technical and quality assurance requirements are specified in procurement documents; and
- c. Liaison with company stations and departments, manufacturers and other utilities on spare parts matters.

The Production Stores staff, in particular, review station purchase requisitions for safety and ASME Code related spare parts, material and equipment to assure that requirements for Quality Assurance are specified as required and that Stores Code Numbers are assigned to spare parts to be stored at the station.

1.6 Director of Nuclear Safety

The Director of Nuclear Safety reports to the Chairman and President and receives day-by-day functional direction from the Vice President (Nuclear Operations). This Director supervises the Off-Site Review Group and On-Site Nuclear Safety Groups.

The primary responsibilities of the Director of Nuclear Safety are to:

- a. Interpret, integrate, generalize, and analyze information from within and outside the Company to discern patterns in designs, components, and procedures which affect nuclear safety.
- b. Promptly report any unsafe plant conditions or practices to the Chairman of the Company.
- c. Assure findings and recommendations of the Off-Site Review Staff and the On-Site Nuclear Safety Groups are satisfactorily resolved.
- d. Assure that the operating experience from within and outside the Company is assessed and lessons learned are factored into Edison's plant operations. 14
- e. Initiate recommendations to improve safety at nuclear plants.
- f. Review the various phases of nuclear safety (design, construction, operation, and maintenance) to provide for integration of all safety related considerations.

1.7 Purchasing Responsibilities

1.7.1 Vice President (Fuel & Budgets)

The Vice President (Fuel & Budgets) is responsible for Commonwealth's procurement of nuclear fuel to specifications furnished by the Station Nuclear Engineering Department. He reports to the Vice Chairman on matters involving such fuel.

1.7.2 Station Stores Supervisor 14

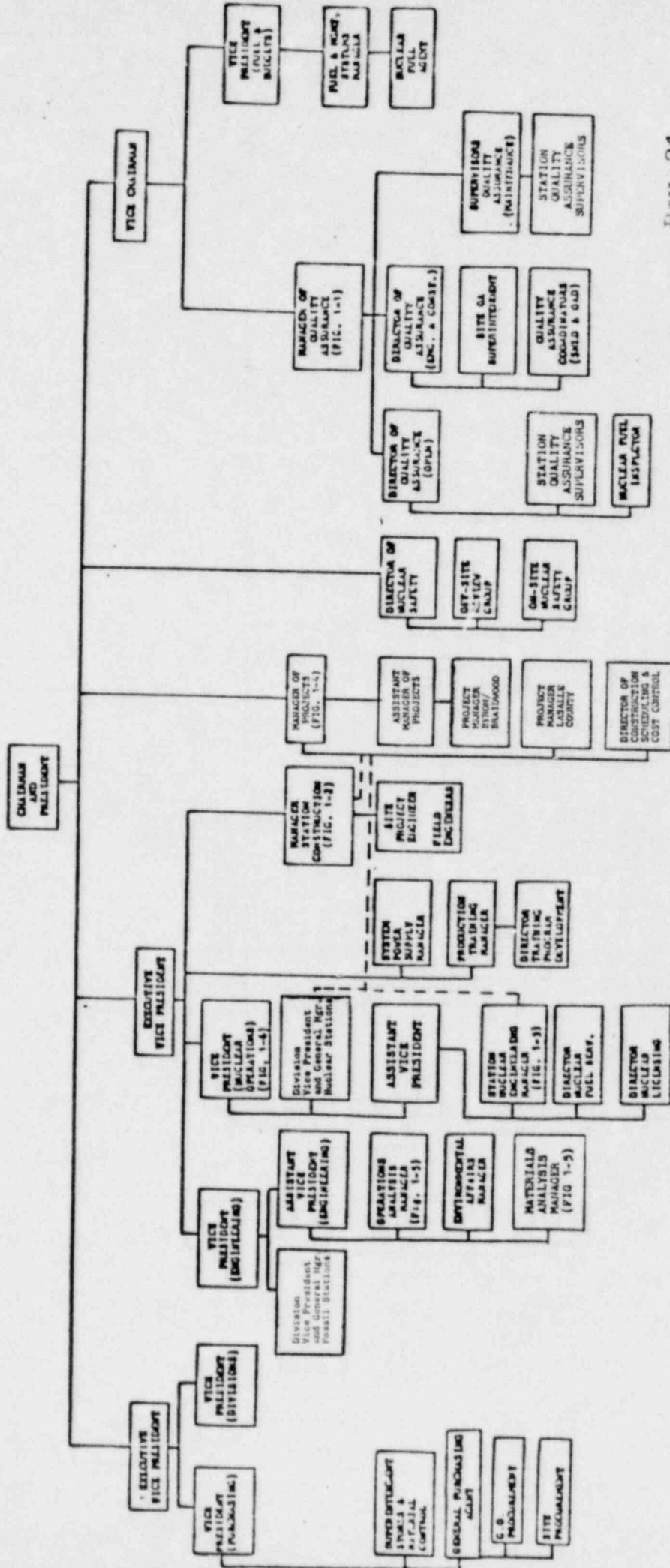
The Station Stores Supervisor reports to the Maintenance Assistant Superintendent. The Station Stores Supervisor receives functional direction from the Superintendent Stores and Material Control under the Manager of Purchasing for station storekeeping activities. He is responsible for the administration of the station storeroom including receiving, inspection, storing and issuing spare parts, materials and equipment. His responsibility includes verifying the receipt of quality assurance documents specified in the procurement documents for spare parts, material and equipment directed to him, maintaining inventory records of spare parts, material and equipment and complying with special handling and storing instructions.

1.8 Division Operations Responsibilities

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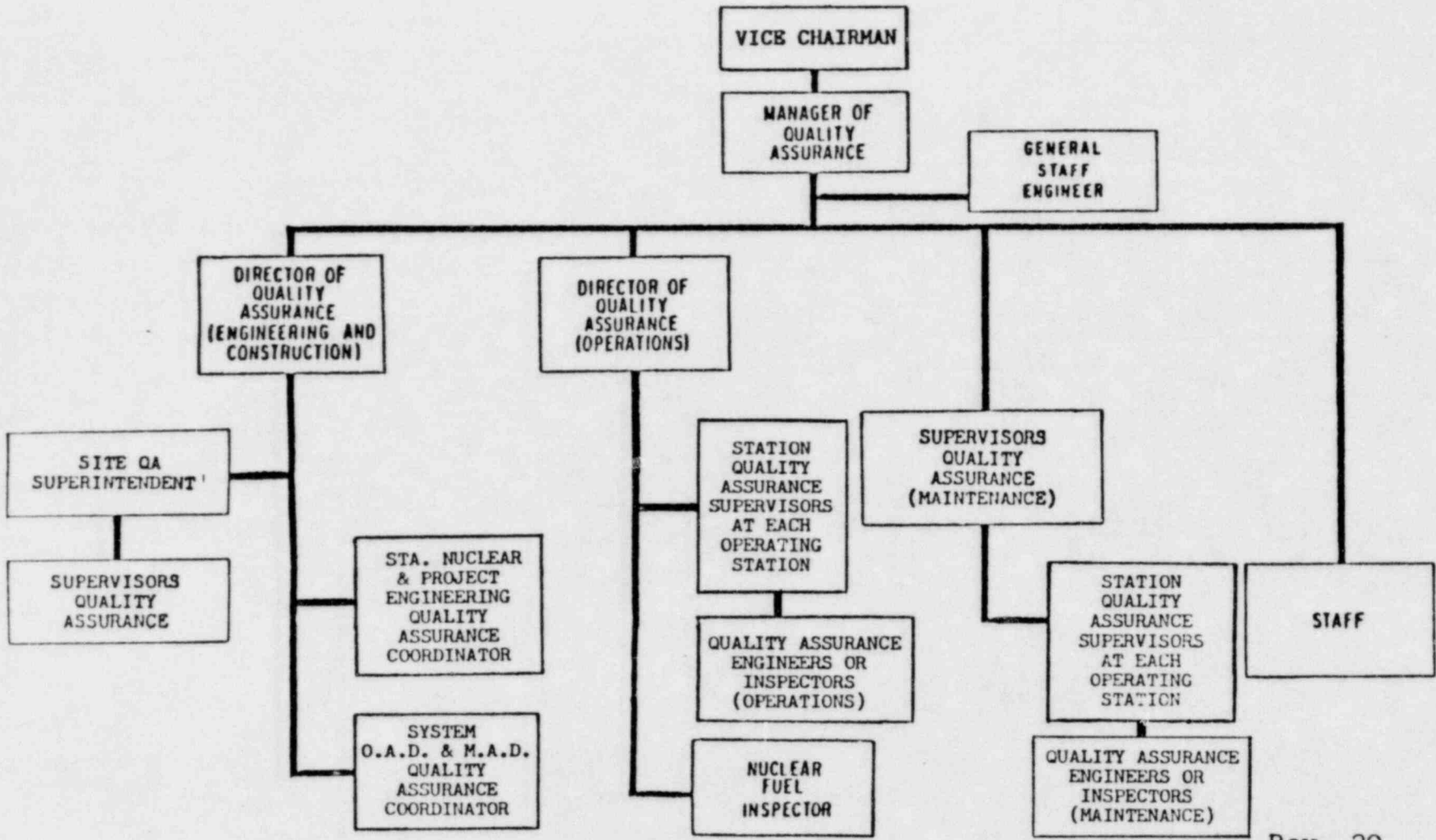
1.8.1 Substation Construction Department

The Substation Construction Department performs electrical modifications at nuclear generating stations as directed and in accordance with the provision of the Quality Assurance Manual. A Substation Construction Procedures Manual is used to control specific processes and procedures unique to electrical construction and installation.



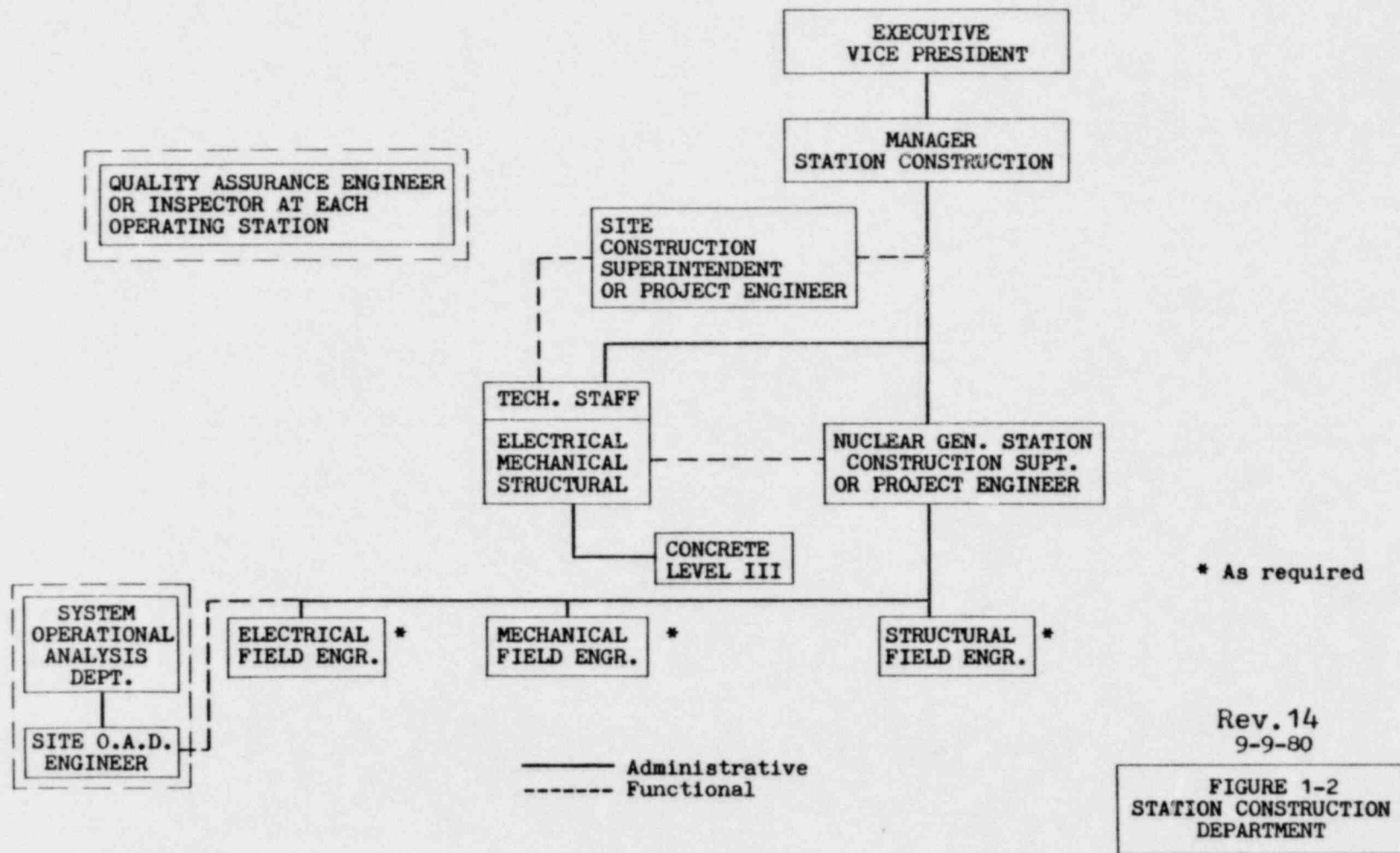
Rev. 21
6/6/82
FIGURE 1-0
ORGANIZATION CHART
RELATED TO
QUALITY ASSURANCE

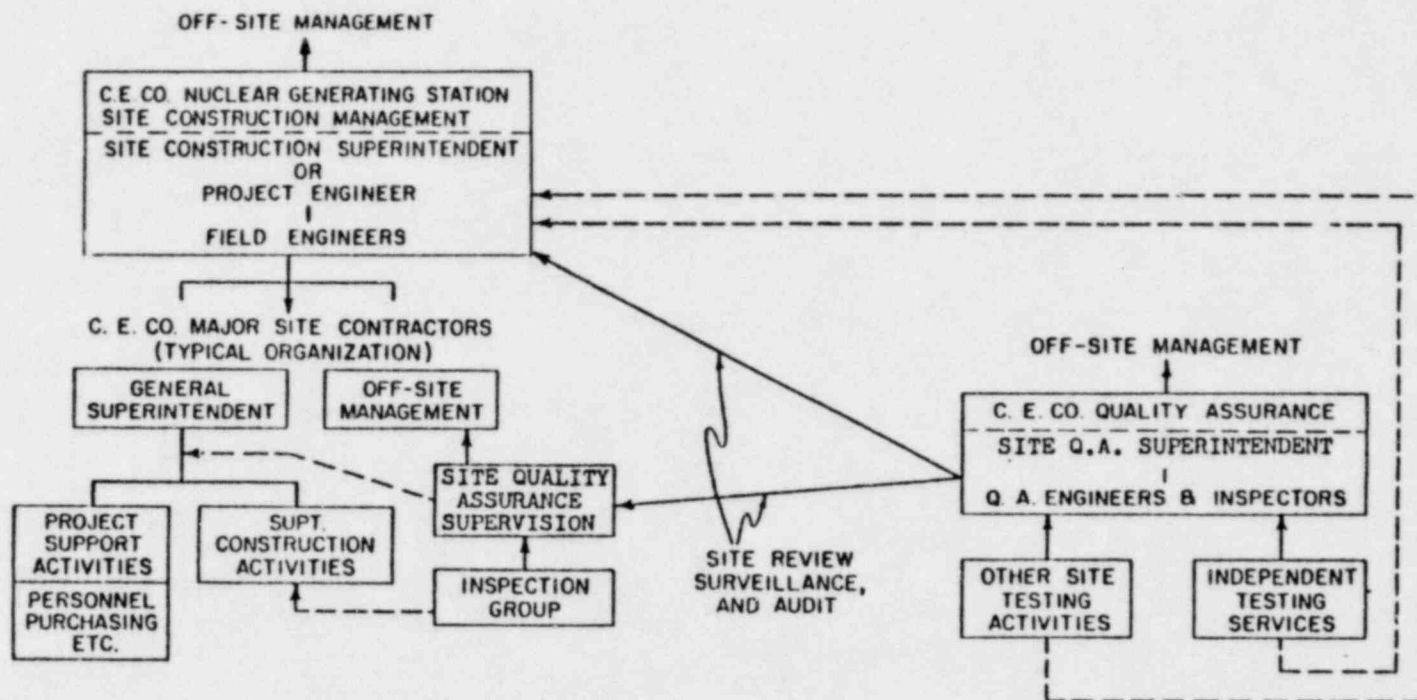
----- Administrative
----- Functional



Rev. 20
2-17-82

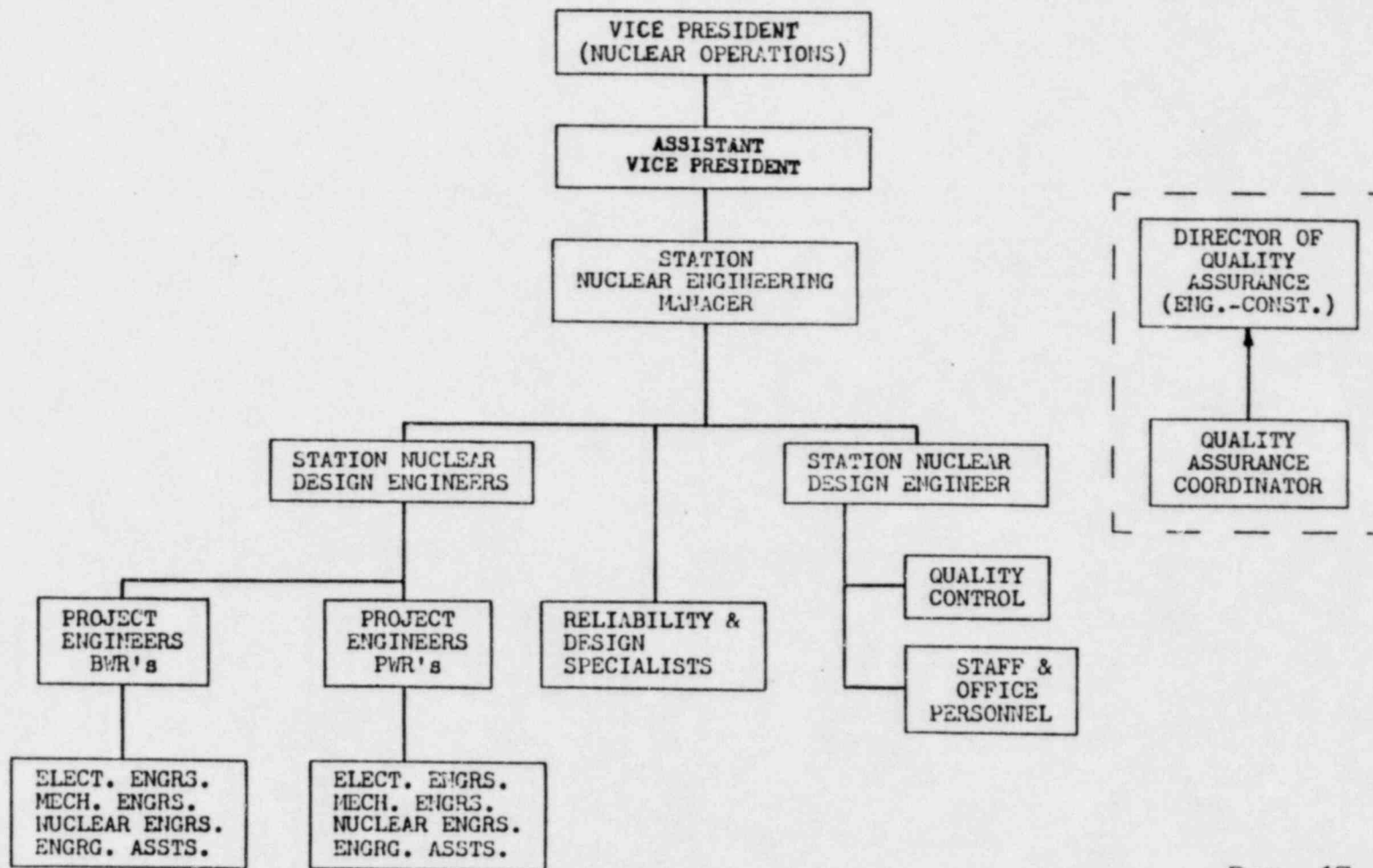
FIGURE I-1
ORGANIZATION CHART
QUALITY ASSURANCE





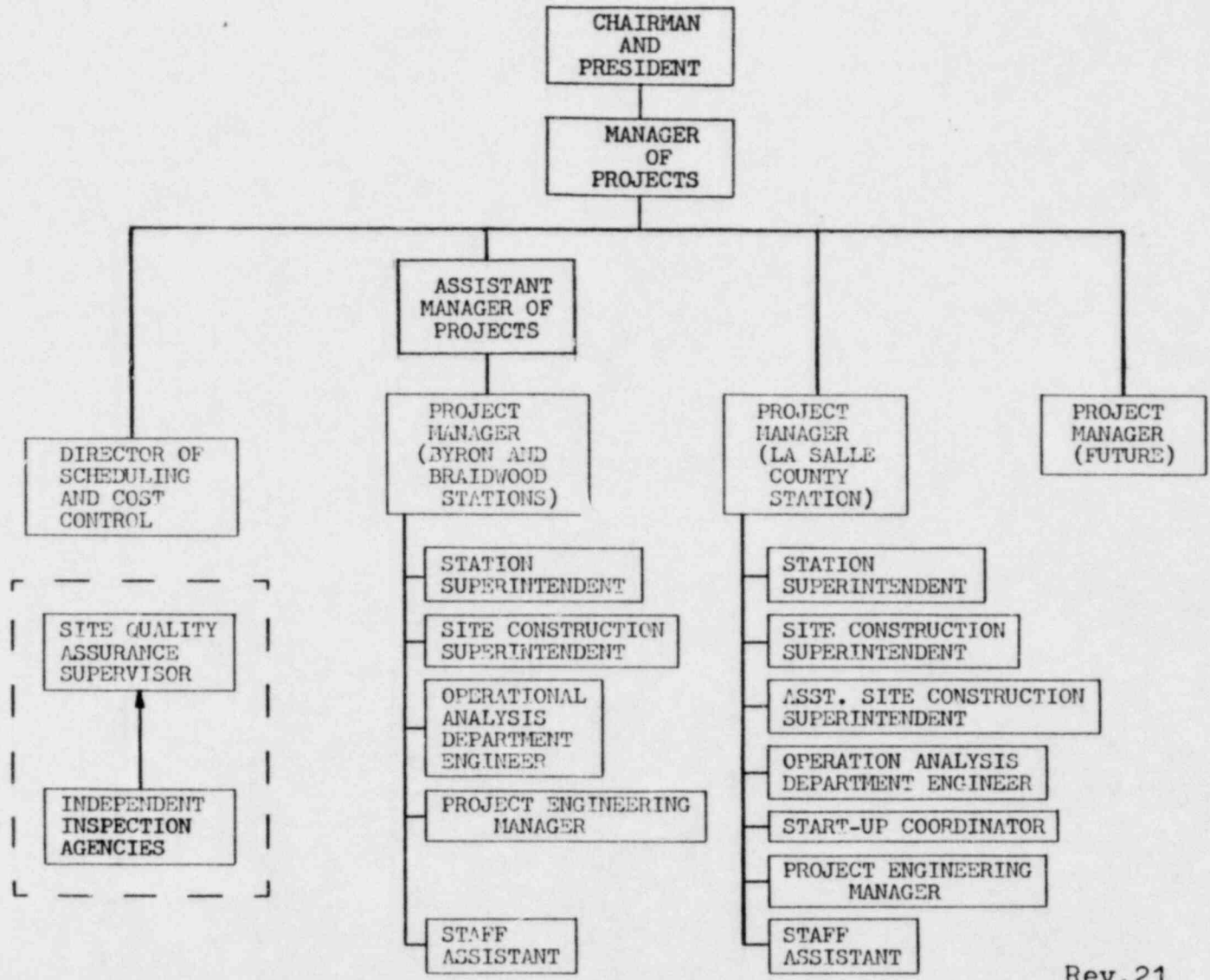
Rev. 15
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FIGURE I-2.1
C. E. CO. NUCLEAR GENERATING STATION
SITE ORGANIZATION
INTERFACE RELATIONSHIPS

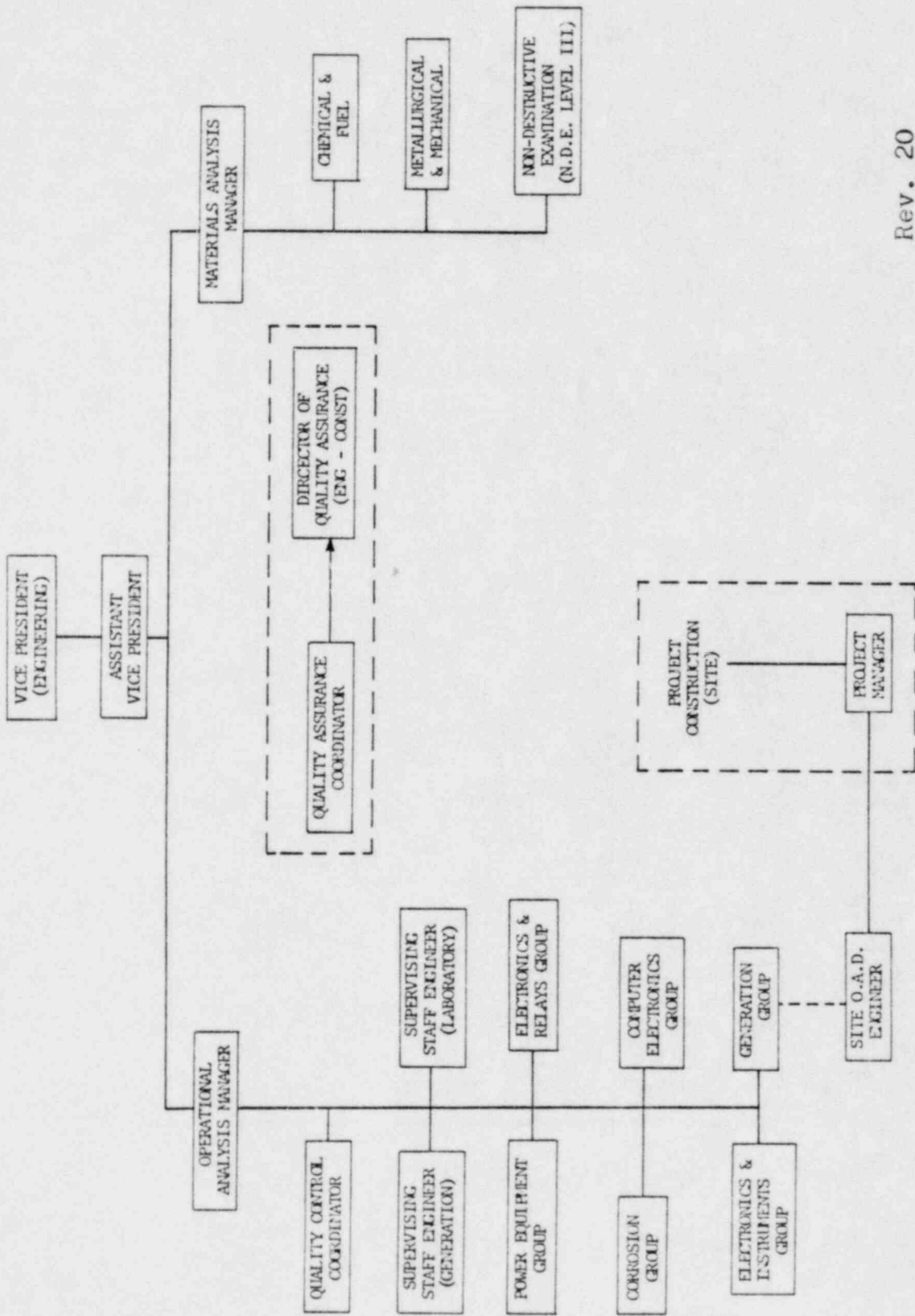


Rev. 17
7/10/81

FIGURE 1-3
STATION NUCLEAR
ENGINEERING
DEPARTMENT



Rev.21
6/6/82
FIGURE 1-4
PROJECTS
DEPARTMENT

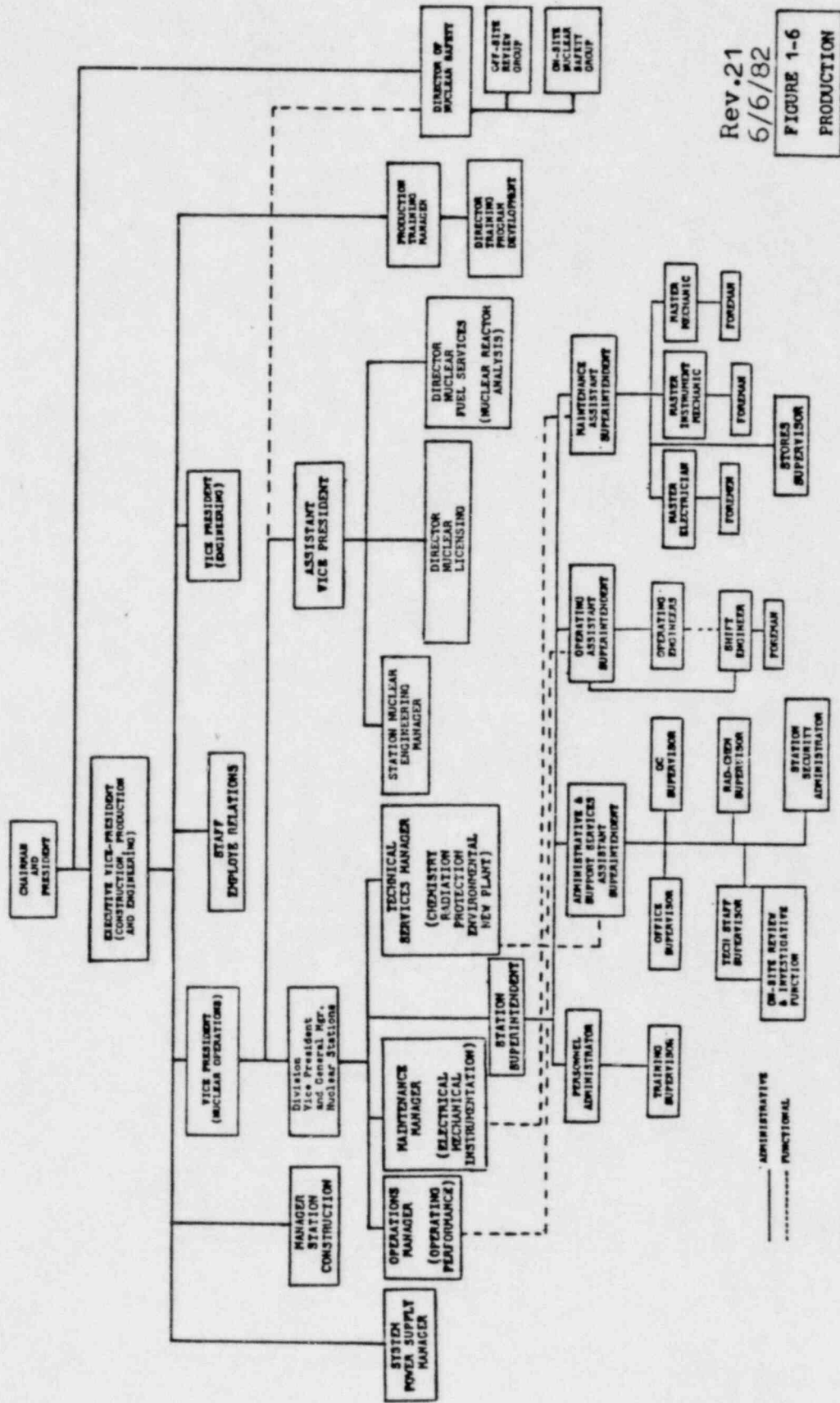


ADMINISTRATIVE

FUNCTIONAL

Rev. 20
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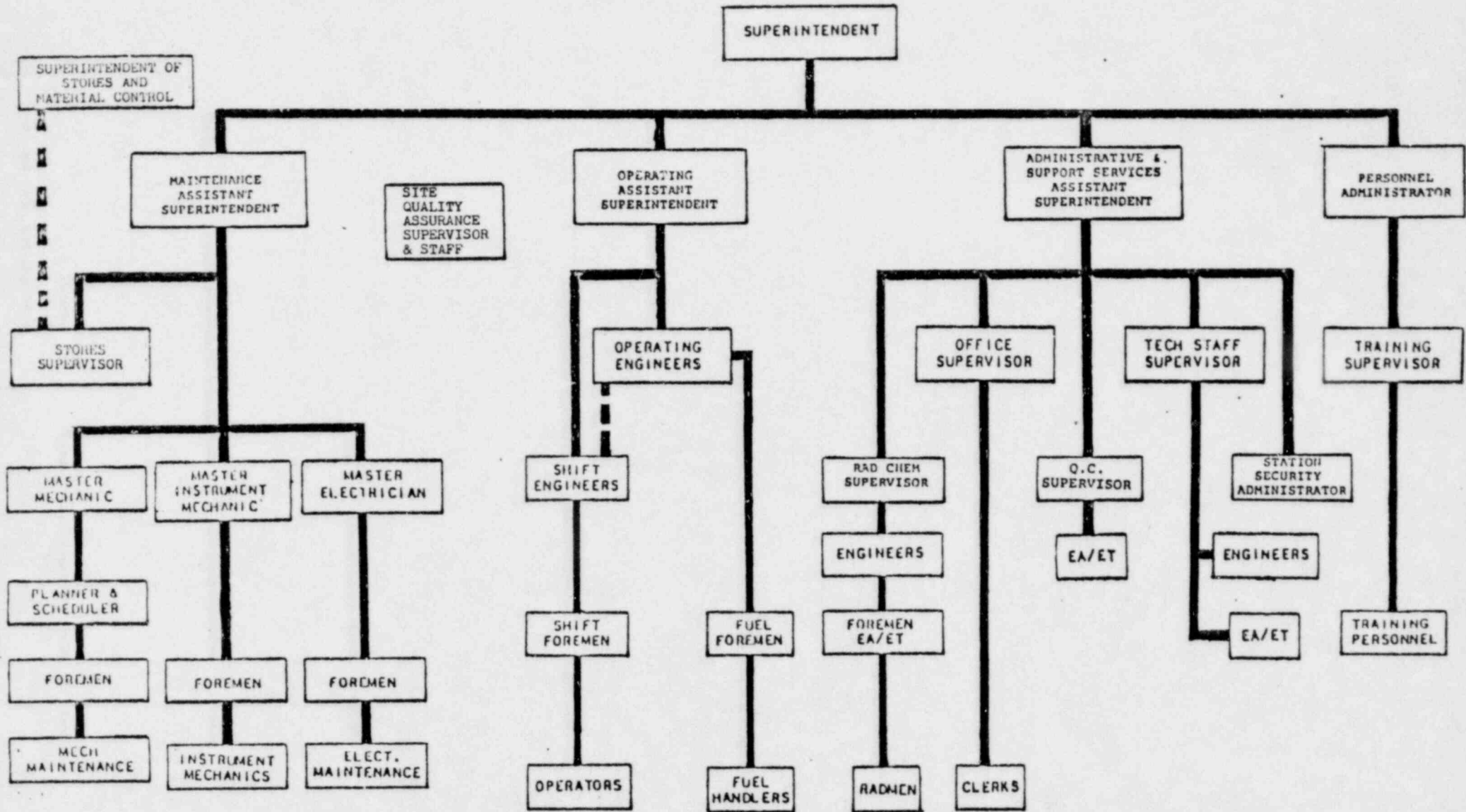
FIGURE 1-5
OPERATIONAL MATERIALS
ANALYSIS + ANALYSIS
DEPARTMENT DEPARTMENT



Rev.21
6/6/82

FIGURE 1-6
PRODUCTION

STATION PRODUCTION DEPARTMENT
ORGANIZATION



————— ADMINISTRATIVE
 - - - - - FUNCTIONAL

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 FIGURE 1-7
 REVISION 20

3. DESIGN CONTROL

3.1 General

The fundamental vehicle for design control involves multi-level review and/or evaluation of design documents by individuals or groups other than the original designer or designer's immediate supervisor whose authority and responsibility are identified and controlled by written procedures. Also, procedures are established to assure that verified computer codes are certified for use and that their use is specified. The design documents include, but are not limited to, system flow diagrams, design and construction specifications, load capacity data sheets, design reports, equipment specifications, process drawings. Design calculations are also subject to two or more levels of evaluation or review including that performed by the originator plus review and audit, as applicable, by Project Engineering or Station Nuclear Engineering for modifications where design work is performed by the Architect Engineer or other vendors or contractors.

These design evaluations or reviews are conducted to written procedures and include consideration of quality standards, quality assurance requirements, materials suitability, process suitability, interface control and suitability of analytical or testing requirements as appropriate. Also, design verification, except for ASME Code items, may be achieved under a test program by qualification testing of a prototype unit under adverse design conditions.

Responsibility for overall design and design control of mechanical, electrical, structural and nuclear related systems and components and compliance of responsibilities to Section III of the ASME Code is assigned to Project Engineering during the initial design and construction and to the Station Nuclear Engineering Department after plant start-up. Quality Assurance shall assure that design control requirements are fulfilled through review and audit.

The extent of the design review and evaluation of the original designs and modifications will be determined by the complexity of the system and any safety-related function to be performed by that system. Design evaluations of modifications will be commensurate with those applied to the original design. Review and evaluation by the Architect Engineer, the Nuclear Steam Supply System vendor, and/or Project Engineering or the Station Nuclear Engineering Department will assure that designs and materials will conform to the ASME and other applicable codes, standards, regulatory requirements, SAR commitments and appropriate quality standards, as applicable.

Project Engineering during initial design and Station Nuclear Engineering Department after plant start-up will review and evaluate the overall design for safety, reliability, inspectability, maintainability and constructability. The Division Vice President and General Manager, Nuclear Stations will be responsible for review of designs for operability, inspectability and maintainability. 21

Coordination of the design review and evaluation effort by Project Engineering or the Station Nuclear Engineering Department will be, in part, directed toward the identification and control of design interfaces, radiation and environmental requirements, functions and boundaries, and selection and application of materials, parts, equipment appurtenances and components.

Project Engineering or the Station Nuclear Engineering Department after plant start-up, with assistance from other organizations, contractors or vendors, shall apply, as applicable, design review and control measures to items such as: reactor physics; loads and loading combination, transient and accident analysis, compatibility of materials, structural support, accessibility for in-service inspection, maintenance and repair; and delineation of acceptance criteria for inspections and tests.

Project Engineering or the Station Nuclear Engineering Department after plant start-up, Architect Engineer or Nuclear Steam Supply System Supplier interpret applicable requirements, standards, guides or codes (including classification of ASME Section III items) and use them as a basis for classifying structures, systems and components and establishing boundaries of jurisdiction in each nuclear power plant.

Evidence of design evaluation and reviews and use of alternative calculational methods used to assure verification or checking of design adequacy will be documented and retained by Project Engineering and after plant start-up the Station Nuclear Engineering Department. Errors and deficiencies discovered shall be documented and appropriate corrective action shall be taken. The Project Engineering Manager and Station Nuclear Engineering Manager after

plant start-up for modifications or their respective agent or designee shall certify that a review has been conducted and the design drawings, stress calculations and Design and Construction Specifications and Reports do satisfy design requirements. Changes to drawings used for construction from the corresponding drawing used for stress analysis shall be certified, by the person or organization responsible for the stress analysis calculations, to have been satisfactorily reconciled with those calculations. Copies of the certification shall be attached to the copies of the Design Report, design drawings, stress calculations and Design and Construction Specifications and Reports which are made available, as applicable, to the Inspector for review and certification and the enforcement authorities having jurisdiction over the nuclear power plant installation as provided by ASME Section III of the Codes for Classes 1, 2, 3, CS, MC and CC.

3-2 Design Changes

Design changes are controlled through document revisions resulting from design change requests and/or design change notices and are reviewed and evaluated in the same way as the basic design documents. Site and Station design change requests will be reviewed by the Site Quality Assurance Superintendent or designee, Station Quality Assurance Engineer or Inspector, Technical Staff Supervisor, Project Engineering personnel or Station Nuclear Engineering Department personnel after plant start-up for plant modifications and/or Architect Engineer, as applicable, and will be approved by Product Engineering or the Station Nuclear Engineering Department after plant start-up for plant modifications after which the approved change will be incorporated in design documents, approved, released and distributed.

The extent of the evaluation will be determined by the complexity of the change and its safety-related function with respect to the original design. Coordination of review and evaluation of design changes will be by Project Engineering or the Station Nuclear Engineering Department after plant startup for plant modifications. The control of documents will be maintained within the system described in Quality Requirement 6.0, "Document Control."

Plant modifications will be evaluated in accordance with the requirements of 10CFR50.59 and to the requirements of the ASME Boiler and Pressure Vessel Code Section III and will be submitted to the Director Nuclear Safety/Supervisor Off-Site Review and the Station Superintendent. Also, for Code work the modification will be reviewed with the Authorized Nuclear Inspector who will then stipulate the inspections he intends to make prior to implementation of the modification work. The Station Superintendent authorizes the modification. The Technical Staff Supervisor reviews and approves

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the proposed modification and is responsible for verifying that operating procedure changes are accomplished as to station modifications. The Station Training Supervisor is responsible that required training concerning plant modifications is accomplished for responsible plant personnel where the performance of their duties may be affected. Quality Assurance assures such training is completed. The Supervisor Off-Site Review reviews and approves proposed modifications to plant systems and components involving a revision to the Technical Specifications or a previously unreviewed safety question. Evaluation and approval of the substitution of equipment is performed by the Technical Staff Supervisor and either the Operating Assistant Superintendent or Maintenance Assistant Superintendent. The Station Nuclear Engineering Department or equipment vendor provide engineering analysis as required by the design specification.

The Station Nuclear Engineering Department assigns an organization to verify installation of modifications in accordance with design and quality assurance requirements. When modifications cannot be completed in accordance with drawings and specifications, a review for disposition will be requested of the Station Nuclear Engineering Department. The verifying or checking of design features and modifications is done by qualified individuals or organization other than those who prepare the original design or design modification but who may be from the same organization.

The assigned installation department furnishes Project Engineering and, after plant start-up for modifications, the Station Nuclear Engineering Department as-built information to review as to correctness and to issue as-constructed drawings.

Test data required by Project Engineering involving initial construction and by the Station Nuclear Engineering Department involving modifications to verify the satisfactory installation of components is obtained by organizations designated by them.

After completion of construction, station operating personnel and Quality Control personnel verify the satisfactory final testing of systems required by Project Engineering or the Station Nuclear Engineering Department. Also, where applicable, before the component or appurtenance is placed in service, copies of the appropriate ASME Data Reports and Certified Design and Construction Reports and Design and Construction Specifications are filed at the location of the installation and made available to the Authorized Nuclear Inspector and to the enforcement authorities having jurisdiction (Superintendent of Boiler and Pressure Vessel Safety, Division of Boilers and Pressure Vessel Safety, Office of the State Fire Marshall). Completed Data Report Form N-3, however, shall be filed by CECo with such enforcement authority having jurisdiction.

4. PROCUREMENT DOCUMENT CONTROL

The procurement documents include equipment specifications or specifications for services, each of which are reviewed or evaluated as described in Section 3 for design and construction, and design and construction for modifications. Changes to procurement documents are subject to the same review and approval requirements as the original documents. Contract or purchase order documents are reviewed by the NSSS Supplier for NSSS items and by Edison and the Architect Engineer for non-NSSS items to insure that all requirements have been incorporated specifically or by reference.

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Records pertaining to the review and evaluation of procurement documents involving initial plant installations and plant modifications will include, in whole or in part, minutes of meetings, comment letters, design review records, project quality assurance audits and a copy of the original design document marked with comments or latest revisions. These records will be kept in vendor files and/or applicable Commonwealth Edison Company department files during the Engineering, Construction and Operation phases of the generating station.

The quality requirements for each item or service to be procured will be clearly stated in the bid package, contracts and purchase orders. Also, the review for suitability of application of standard "off-the-shelf" commercial or previously approved materials, parts and equipment that are safety-related will be imposed on vendors. Where material, equipment, systems or services require contractors to adhere to ASME Code requirements or have ASME Certificates of Authorization, these requirements will be contained in the procurement documents. Quality Assurance Program requirements are included as are regulatory, code, standard and design requirements. Similarly, the required methods of identification, preservation and packaging, and methods of controlling conformance to acceptance criteria are covered by these documents. Quality Assurance Program requirements are included in initial procurement contract and reviewed for acceptability by Quality Assurance to provide for implementation of the approved quality assurance program, vendor evaluation, inspection and test planning, vendor surveillance, witnessing of inspection control points and inspection documentation. Also, requirements for vendor documents, such as

instruction, procedures, drawings, specifications and vendor quality assurance records to be prepared, submitted or made available for review or approval are included. In addition, included in the procurement documents are provisions for right-of-access to vendors' facilities and work documents for inspection and audit and for vendor reporting and disposition of nonconformance from procurement requirements.

Basic procurement control is by CECO with procurement of major equipment and items being purchased by the General Office Purchasing Department and procurement of standard type materials and items being performed by its satellite purchasing organization at certain sites.

For procurements initiated by Project Engineering or the Station Nuclear Engineering Department, the Project Engineer, prior to submittal of the Engineering Proposal Request to the Edison General Purchasing Agent, prepares a suggested list of prospective bidders for each specification from the Approved Bidders' List and using input from the Architect Engineer and the cognizant Purchasing Department Buyer. This Bidders List is established using such factors as past experience, experience of other utilities, or specific qualification surveys (either desk or field surveys are used). For Code work, the desk survey shall be limited to determination that a supplier or contractor is the holder of a valid Certificate of Authorization for the scope of work involved or for determining if a supplier or contractor is potentially qualified. The final list of prospective bidders as well as the person agreeing to the list are indicated on the Nuclear Proposal Request (NUPR) Form and is approved by the Project Engineering Manager or the Station Nuclear Engineering Manager after plant start-up for modifications or designated alternates. The persons agreeing to the list are key representatives of Project Engineering and Project Construction or the Station Nuclear Engineering and Station Construction Departments after plant start-up for modifications, Production Department, Purchasing Department and, when requested, the Architect Engineer. Where bids are obtained from prospective bidders from other than those listed on the Approved Bidders' List maintained by the Purchasing Department, such bids shall be indicated as trial bids and treated as trial until the bidders are evaluated and approved as acceptable prior to award.

Upon completion of the evaluation of the proposals from approved bidders for either original plant or plant modification items or services, the responsible Project Engineer shall have prepared and, after final review and approval indication by the Quality Assurance Coordinator, shall have transmitted to the Purchasing Department a letter of recommendation and a purchase requisition. The purchase requisition and/or letter will

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incorporate, by reference, those documents such as specifications, drawings, proposals, supplementary proposals, etc., and any conditions of award which form the basis for the evaluation and award. Edison Purchasing, based on the recommendation letter, its own evaluation and the purchase requisition, shall conduct necessary negotiations and clarifications and make the award to a bidder on the Approved Bidders' List. Any changes evolving from the procurement activities involving technical or quality assurance matters, either for the original purchase or subsequent change orders, shall be approved by the originator of the purchase or change order requisition.

The Project Engineering Manager or the Station Nuclear Engineering Manager after plant start-up will assign authority for evaluation of the vendor quality assurance program, prior to final award of the contract or purchase order, to the responsible Project Engineer who will request such evaluation be undertaken by the Director of Quality Assurance (Engineering-Construction). Quality Assurance evaluates all such vendor quality assurance programs. The Quality Assurance Coordinator assigned to the Station Nuclear Engineering and Project Engineering Departments is responsible for assuring that the evaluation is carried out and for auditing the manuals of bidders being recommended as acceptable for award as to resolution of comments received by Engineering from Quality Assurance and others plus evaluation by Engineering. As part of the vendor quality assurance program evaluation, the Quality Assurance Coordinator will assure all vendor quality assurance program deficiencies are resolved. Concurrence by Quality Assurance shall be required. If the vendor program deficiencies are minor and/or may be corrected by specific procedures for the work to be done, the resolution may follow an award and shall be a condition of the award.

For procurements performed at certain construction sites by the Purchasing Department satellite organization involving safety- and Code-related items, the preparation of the necessary procurement documents is the responsibility of Project Construction. Procurements by the site Purchasing organization are under the control and management of the General Office Purchasing Department and associated procurement documentation packages are formulated from specifications and drawings issued and approved by Engineering. The cognizant Field Engineer prepares the suggested list of prospective bidders for each procurement package from the Approved Bidders' List with direction from the site Purchasing Department Buyers. The final list of prospective bidders and procurement bid package is approved by the Site Construction Superintendent or Project Engineer or their designated alternate. In addition, such procurement bid packages involving the purchase of ASME Code and safety-related materials

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and items are required to be reviewed and approved by the Site Quality Assurance Superintendent, or designated alternate, verifying that the necessary technical and Quality Assurance requirements are included and the proposed bidders are acceptable.

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The bids are evaluated by Project Construction and an award recommendation plus a purchase requisition is prepared and transmitted to Purchasing via the Site Quality Assurance Superintendent, or designated alternate for final review and approval indication. Site Purchasing, based on the recommendation of Project Construction, its own evaluation and the purchase requisition conduct necessary negotiations and clarifications and make the award to a bidder on the Approved Bidders' List. Any changes evolving from the procurement activities involving technical or quality assurance matters, either for the original purchase or subsequent change orders, shall be approved by the originator of the purchase or change order requisitions as well as Quality Assurance.

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The Vice President (Fuel & Budgets) is responsible for the preparation of nuclear fuel bid documents, for the evaluation of bids received and for the purchase of nuclear fuel. The Nuclear Fuel Fabrication Inspector provides quality assurance assistance. The Station Nuclear Engineering Manager and the Director Nuclear Fuel Services furnish technical assistance to the Nuclear Fuel Agent during the preparation of bid documents and the evaluation of bids.

When the Maintenance Assistant Superintendent or Technical Staff Supervisor orders spare parts, material and equipment for safety-related items to applicable engineering requirements, they specify the quality assurance documentation requirements equivalent to or better than the original installation. When spare parts, material and equipment are ordered by part number or nomenclature without special engineering requirements being specified, appropriate statements are included in the purchase order to assure quality equivalent to original equipment. The Quality Control Supervisor shall review and verify that quality assurance, specification, ASME Code and other applicable codes and standards requirements and special requirements are included in the Request for Purchase.

The procurement documents are reviewed and processed by the Production Stores Group. Coded part numbers are assigned to spare parts. The Production Stores Staff and the Manager of Quality Assurance, or their designees, review and approve that the quality assurance requirements for documentation of spare parts, welding materials, material and equipment as outlined above are included in the procurement request documents and that the items are ordered from the original equipment supplier or an evaluated and approved alternate supplier.

The bid package and the resulting contracts or purchase order will clearly reference applicable revision dates of appropriate drawings and specifications for the item or service being procured. Appropriate revisions of ANSI, ASME or other applicable codes and/or standards will be considered a part of the design requirements and be referenced in the bid package, contract or purchase order.

The bid package and resulting contract or purchase order will contain the requirements for inspection, testing and inspection documentation.

Commonwealth Edison Company, its contractors, subcontractors and vendors will be responsible for their respective programs by which an appropriate review and audit will determine that the requirements of this Section have been met.

Procurement documents will identify which records indicative of quality will be transmitted to Commonwealth Edison and the method of dispositioning those which the vendor retains.

The bid package and resulting contract or purchase order will contain, as applicable, the requirement for the contractor to have and implement a quality assurance program which has been approved by CECO for purchased safety-related and ASME Code materials, equipment and services to an extent consistent with their importance to safety and will state the controls which will exist between the purchaser and seller in requesting and accepting changes under the purchase order or contract. Also, revisions to such quality assurance programs shall be submitted to CECO for review and acceptance during the term of the contract or order.

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Procurement of spare parts or replacement items will be subject to controls at least equivalent to those used for the original equipment.

5. INSTRUCTIONS, PROCEDURES AND DRAWINGS

The quality assurance actions carried out for design, construction, testing, and operation activities will be described in documented instructions, procedures, drawings, specifications, or checklists. These documents will assist personnel in assuring that important activities have been performed. These documents will also reference applicable acceptance criteria which must be satisfied to assure that the quality related activity has been properly carried out.

Activities affecting quality are required by the Edison quality program to be prescribed by documented instructions, procedures or drawings. Procurement documents and the corporate quality assurance programs of Edison, the NSSS Supplier and Architect Engineer reflect this requirement. Each Edison Department involved in safety-related and ASME Section III Code work shall have documented procedures to implement their responsibilities.

Quality Procedures as part of the Commonwealth Edison Company Quality Assurance Manual will be written for design, construction, testing, operations, maintenance and repair activities. Where appropriate, these procedures will include checklists containing the necessary elements of operation to be observed or measured. These checklists will be used to the maximum extent practical to document the actions performed.

Generating Station operations, procedures and instructions will be provided by the Station Superintendent and will be included in the Station Procedures Manual in a timely manner consistent with NRC license requirements for administering the policies, procedures and instructions from the time that the Operating License is issued through the life of the Station. These procedures and instructions include: Administrative Procedures, Overall Station Procedures, System Operating Instructions, Chemical Control Procedures, Emergency Operating Procedures, Surveillance Procedures, Maintenance Procedures, Instrumentation Procedures, and Radiation Control Standards. Also, a Station Quality Assurance Program for Maintenance, Modification, In-Service Inspection and Stores Activities will be provided.

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The procedures include specifications and acceptance criteria as well as vendor documents. Complex procedures include checklists as part of the procedure and caution notes applicable to specific steps in the procedure are included.

The current revision of the Station Procedures Manual is available in the Station Control Room and is additionally provided to key operating and management personnel.

Maintenance and repairs to structures and equipment after construction and testing is completed are the responsibility of each Maintenance Assistant Superintendent and are performed in accordance with applicable drawings, procedures, instructions, and/or checklists for Code and safety-related work. When ASME Code work is involved, these documents shall be submitted to the Authorized Nuclear Inspector for insertion of his hold points. Drawings procedures, instructions and/or checklists are used for maintenance and repairs outside the scope of normal station craft maintenance capability. When procedures and/or checklists are not available for work outside the scope of normal station maintenance craft capability, an outline of the steps to be followed will be prepared to assure proper completion and testing of the maintenance or repair work. These procedures and/or checklists or outlines are supplemented as necessary by instructions from the personnel responsible for directing the specific maintenance or repair work. Maintenance, modification and inspection procedures and other quality assurance related documents are reviewed by Quality Assurance personnel to assure the need for inspection, identification of inspection personnel, and documentation of inspection results plus necessary inspection requirements, methods and acceptance criteria is provided.

Each Station Superintendent or his designee is also responsible for preparation of procedures to assure the safe operation and refueling of the Station in accordance with requirements of the NRC operating license. The Division Vice President and General Manager, Nuclear Stations provides direction for the preparation of necessary instructions and procedures to accomplish the Station activities in a uniform and systematic manner.

Procedures and instruction supplementing the Quality Procedures of the Quality Assurance Manual generally will be prepared, reviewed and approved within the individual departments, Generating Stations and Construction Sites responsible for the activities involved as the need arises and their use monitored by Quality Assurance Administration. Any CECo departmental group involved with nuclear plant design, procurement, construction or operation may propose procedures as necessary to meet regulatory, ASME Code or other applicable code requirements.

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The procedures will be independently reviewed and evaluated by other involved departments with interface responsibilities and the comments forwarded to the issuing department.

7. CONTROL OF PURCHASED MATERIAL, EQUIPMENT AND SERVICES

7.1 General

The control of the quality of purchased material, equipment and services is achieved through the evaluation of vendors, surveillance of their operations and required source inspection, documentation, receiving inspection and retention of quality records. Both Edison and the NSSS Supplier have direct procurement functions for the Station. The Architect Engineer offers recommendations to Edison on vendor selection and reviews vendor efforts as directed by Edison. Edison will inspect and audit the NSSS Supplier control of purchased material, equipment and services. Edison has the responsibility for on-site control of Edison and the NSSS Supplier purchased material, equipment and services.

Contractors and suppliers furnishing material, equipment and services to CECO for items within the jurisdiction of this Quality Assurance Program will be selected on the basis of demonstrated capability to provide a product, process or service in accordance with the design specifications and contract provisions.

The purpose of this Section is to define the quality system elements and related policies which assure the quality of purchased material, equipment and services through the evaluation of vendors, surveillance of their operations, required source inspection, documentation, receiving inspection and retention of quality records.

As applicable, the Project Engineering Project Engineer or the Station Nuclear Engineering Department Project Engineer in conjunction with Quality Assurance will require a Quality Assurance Program in accordance with ANSI N45.2 or ASME Boiler and Pressure Code Section III from vendors or contractors consistent with the importance of the procurement to station safety and operation and the requirements of ASME Section III and 10CFR50 Appendix B. In addition, Edison's procurement documents will provide notification to vendors and contractors that the provisions of 10CFR Part 21 apply.

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Control and approval of subcontractors quality assurance programs, procedures and personnel qualification, are the responsibility of the specific contractor involved. Such contractor actions are to be documented and will be subject to audit by CECO.

7.2 Evaluation of Vendors

An evaluation of vendor capability will be required for ASME Section III and safety-related items. Where valid records of vendor capability and quality performance are not available to CECO, a survey of the supplier's facilities, capabilities and quality assurance system will be made by CECO or its designated representative. For items requiring ASME Code conformance, vendors must be able to meet ASME Code requirements.

The Project Engineering and Station Nuclear Engineering Department Quality Assurance Coordinator will be responsible for assuring that vendor or contractor Quality Assurance Program evaluations are carried out. The Purchasing Department will maintain the Approved Bidders' List for contractors and suppliers of ASME and safety-related items. Addition of vendors to the Approved Bidders' List shall only be made upon approval by Station Nuclear Engineering Manager and the Manager of Quality Assurance, or their designees, as to meeting technical and quality assurance requirements. For vendors or contractors to be placed on the Company Approved Bidders' List on the basis of having an approved Quality Assurance Program for ASME or safety-related items or work, a controlled copy of their approved Quality Assurance Program shall be assigned to the CECO Manager of Quality Assurance.

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Section 9.0 of this report, "Control of Special Processes," establishes the evaluation and assessment of certain process and inspection capabilities of the vendor such as welding, heat treatment, and nondestructive examination.

Past performance of a contractor/vendor will be considered during procurement activities by CECO. Prior to contract or purchase order award, the bidder's capability and quality performance will be reviewed relative to the product, process, or service being procured. If records are inadequate, a survey of the bidder's facilities prior to award may be required. Surveys will include, as applicable, review of facilities, organization, quality assurance program and experience, existing controls, knowledge of special processes, possession of a current ASME Certificate of Authorization, and an understanding of, and a willingness to meet contractor or purchase order requirements.

7.3 Surveillance of Vendor Operations

Source surveillance will be carried out through notification points established as a condition of procurement of

safety-related or ASME Section III items. Special consideration will be given for surveillance during manufacture when one of the following is involved:

- a. Determination of conformance of the item to purchase order requirements at any other point would require uneconomic disassembly or destructive testing.
- b. Special instruments, gauges, or facilities required for inspection or test are more readily available at source and would be uneconomic to reproduce at the job site.
- c. A receiving inspection would destroy or require replacement of special preservation and packing.
- d. Quality Controls and inspections are integrated into production methods, and inspection at the suppliers plant is necessary to economically verify test reports, inspection records, certifications or other evidence of quality.

Source surveillance by Commonwealth Edison Company or its agents will not nullify the vendor's responsibilities for maintaining a quality control organization delivering items conforming to procurement requirements. Unless otherwise specified, acceptance by Commonwealth Edison Company will be at the nuclear generating station site in accordance with the terms of the contract. The administration, surveillance and inspection of off-site equipment and material vendors will be the responsibility of the Project Construction or the Station Construction Department, as applicable with final approval of inspection acceptance reports being vested in the Quality Assurance Department.

7.4 Receiving Inspection

Materials and articles received from vendors will be inspected upon receipt to assure physical integrity and identity plus documentation compliance with the procurement requirements. For items not source inspected, specific receipt inspection measures such as material and dimensional checks against approved drawings and specifications and assurance that ASME Code Data Reports are received will be performed by qualified personnel in accordance with the applicable CECO or contractor QA program and to checklists approved by appropriate Quality Assurance or Quality Control personnel to verify conformance to procurement requirements. Where receiving inspection requires the use of calibrated instruments and tools, the identity of such equipment shall be recorded on the applicable receiving inspection documents. CECO purchases Code items and turns them over to site Code contractors. In the case where receipt inspection is

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assigned to a site contractor, CECo provides them with applicable procurement documents, such as the Purchase Order, Specification, etc., required to assure that the CECo purchased items meet Code requirements and to perform receipt inspection. Also, for material supplied by non-Certificate holders, the CECo survey data covering such firms is made available to site Code contractors. When CECo performs receipt inspection of such purchases or when CECo upgrades stock material for ASME Code use, CECo provides these contractors with the applicable Certified Material Test Reports and/or Data Reports plus the Material Receiving Report to provide verification that the purchased items supplied by CECo meet Code requirements. Documented evidence that material or equipment conforms to procurement requirements including, for Code items, indication of their compliance to the specified quality program must be retained and available at the site prior to use or installation. Part of this evidence shall be in the form of acceptable documentation such as Certified Material Test Reports, Pressure Test Reports, Certificates of Conformance, etc. Documentation requirements will be delineated in the individual equipment specifications. The Construction Materials Receiving Coordinator or designee will be responsible for assuring that receiving inspection is completed where Project Construction or the Station Construction Department is responsible for the work; receipt acceptance approval will be by Quality Assurance or its designated agent. Where ASME Section III components and safety-related materials and equipment are received by the Station Stores Supervisor, Station Quality Control will be responsible for receiving inspection and the Quality Assurance Engineer or Inspector for Maintenance shall assure through audit and surveillance that the receiving inspection is complete and traceability is maintained. ASME Code material transferred from Stores or another CECo Station shall meet the requirements specified for the designated installation. Nonconforming equipment will be controlled.

7.5 Supplier Audit

Vendors of safety-related and/or ASME Section III items will be subjected to survey, audit or surveillance of their quality assurance system by CECo, or its agents, at intervals consistent with the importance to safety, complexity, and the quantity of the product or services being furnished in accordance with approved agenda and checklists to assure that the necessary manufacturing processes are being utilized and that quality controls are being maintained.

7.6 Spare Parts and Replacements

Spare parts and replacement items, equipment and components will be purchased to original or better design requirements in accordance with the controls herein. The applicable quality assurance requirements will be included in the procurement documents.

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Such spare parts and replacements from vendors will require documentation by item, component, equipment or part number for identification and traceability. Documentation for material will be in accordance with procurement order requirements. When the procurement order for ASME Section III components and safety-related spare parts, material, and equipment includes a specification or drawings, documentation will be received from the vendor which verifies conformance with those requirements.

In the case where the original part, item, component or equipment was procured with no specifically identified quality assurance program requirements, identical spare parts and replacement items, components or equipment may be similarly procured from the original equipment manufacturer, but care shall be exercised to assure at least equivalent performance: that is, a joint technical engineering-quality assurance documented evaluation shall be conducted to established requirements and controls. The evaluation shall assure that interfaces, interchangeability, safety, fit and function are not adversely affected or are contrary to applicable regulatory or code requirements.

In the use of procurements of safety-related materials, parts and items that are a manufacturer's standard product (commercial grade item), such commercial grade items shall be inspected as part of the receipt inspection function to assure that: (1) damage was not sustained during shipment; (2) the item received was the item ordered (i.e., it possesses the required attributes identical, as necessary, to the item specified); and (3) documentation, as applicable to the item, was received and is acceptable plus, after being received, such a commercial grade item shall be tested, where applicable to assure that it will perform its intended function (i.e., by means of bench testing and/or functional testing as required).

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A commercial grade item is one that is not subject to design, specification, or testing requirements by the supplier that are unique to nuclear power plants; is one that is used in numerous applications other than nuclear power plants; and it is one that can be ordered from the manufacturer/supplier on the basis of specifications set forth in the manufacturer's published product description (i.e., catalog) or on the basis of its manufacture to national standards.

When an item is purchased by specifying the manufacturer's catalog part number, when documentation is required beyond that indicated in the catalog, and when such documentation is not available for items with the same part number obtained from the manufacturer, the item does not meet the definition of a commercial grade item and shall not be treated as a commercial grade item.

The Station Stores Supervisor and Station Quality Control Supervisor are responsible for assuring that documentation for spare parts and equipment has been included as part of the shipment. The documentation for the purchased material, equipment, and/or services, after being reviewed and accepted by the Quality/Control Supervisor will be retained at the Station.

When required documentation is lacking for safety-related and/or ASME Section III components or spare parts, the Technical Staff Supervisor will verify that appropriate documentation is obtained or that suitable inspection and testing is performed to verify conformance to procurement requirements and that such items are treated as nonconformances. Receipt inspection of spare parts and equipment purchased to ASME Section III and safety-related requirements shall be accepted by the Station Quality Assurance Engineer or Inspector for Maintenance.

15. NONCONFORMING MATERIALS, PARTS OR COMPONENTS AND OPERATIONS

Items involving construction, maintenance and modifications which are found nonconforming to the engineering requirements or specifications, drawings and instructions for modifications or workmanship standards or which are lacking required documentation upon receipt will be controlled to prevent their inadvertent use or installation. Nonconforming items are identified, documented and segregated for disposition.

Technical evaluation will be performed by qualified personnel to determine whether a nonconforming item may be accepted "as-is" repaired to an acceptable condition, or whether the item must be rejected. Items may be reworked to conform with design and/or specification requirements without technical evaluation. When items are accepted "as-is," technical evaluation will be performed to assure that the final condition of nonconforming items will not adversely affect safety, Code requirements, operability or maintainability of the items, or of the component or system in which it is installed. Where ASME Code requirements are involved, disposition acceptance by the Authorized Nuclear Inspector shall be required.

Nonconforming items accepted "as-is," or reworked to an acceptable condition shall be identified through documentation records and in a manner that will establish the condition as installed. When the responsible CECO personnel authorizes acceptance of the item "as-is," or rework of the nonconforming item, the action will be documented. Such action involving vendor product prior to shipment to the site will be identified in shipping documents or certificates of conformance and reviewed and approved by the Site Quality Assurance Superintendent or the Station Quality Assurance Supervisor or their designees to assure that nonconformance has been resolved and corrective action completed.

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Rejected items shall be identified by tagging and immediately removed from construction or installation areas (unless physical size prohibits this) and segregated in a controlled area to prevent its uncontrolled use or installation.

Commonwealth Edison Company will make a technical evaluation of pertinent data relating to the nonconformity, including the cause, where known, and corrective action either taken or planned to prevent recurrence. Also, items which are found to contain defects which could create a substantial safety hazard will be reported in accordance with the provisions of 10CFR Part 21 and as provided in implementing procedures.

Construction deficiencies involving material or equipment are documented and reported to the Nuclear Regulatory Commission and to Commonwealth executive management. The Site Construction Superintendent or Project Engineer is responsible for this reporting.

The Station Superintendent is responsible for investigating and reporting operating occurrences. An Investigative Report is prepared for occurrences or departures from the safety limits prescribed in the Station Technical Specifications. Occurrences and departures from the safety limits are documented and reported to the NRC as required by the Technical Specifications.

The Station Superintendent appoints personnel to investigate the occurrence and issue an Investigative Report in accordance with the Technical Specifications and a Quality Procedure. This report is distributed to the Division Vice President and General Manager, Nuclear Stations and Station Superintendents. Reports of occurrences that result in significant damage or have significant safety implications are reviewed with the Vice President (Nuclear Operations) and then forwarded to the executive management. 21

The appointed personnel are responsible for determining the cause of the occurrence, developing recommendations intended to preclude recurrence and issuing a report which shall include: a detailed description of the occurrence, the findings and recommended measures for corrective action.

When deviation from accepted normal operation of a reactor and its associated equipment occurs, or when a reactor scram occurs (other than those associated with a reportable occurrence), the Station Technical Staff investigates the deviation and issues a Deviation Report covering the nature of the deviation (e.g., process difficulty, equipment inadequacy, procedure inadequacy), its cause, the hazard or potential hazard to operations and recommendations for corrective action.

The report documents the deviation and provides a record from which to establish a trend in the operation. Such reports are distributed to the Division Vice President and General Manager, Nuclear Stations, the Operating Assistant Superintendent, Technical Staff Supervisor and Manager of Quality Assurance. The Maintenance and Master Instrument Mechanic receive a copy of the deviation report if maintenance or instrumentation work is involved in the correction of the deviation.

Reports involving significant reactor safety considerations are reviewed with the Division Vice President and General Manager, Nuclear Stations and then forwarded to other executive management. Such deviations will be reported to the Nuclear Regulatory Commission as required by the Technical Specifications.

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During construction the Project Engineering Project Engineer and during plant modification, the Station Nuclear Engineering Department Project Engineer have responsibility for resolution of nonconformances and such resolution will be approved by the Site Quality Assurance Superintendent or designee at the construction site or by the Station Quality Assurance Supervisor or designee at the operating station.

Nonconformance to system operation and technical specification requirements will be resolved through actions by the Operating Assistant Superintendent with the approval of the Station Superintendent.

16.0 CORRECTIVE ACTION

A corrective action system will be used to assure that such items as failures, malfunctions, deficiencies, deviations, defective material and equipment and nonconformances which are adverse to quality and might affect the safe operation of a nuclear generating station are promptly identified and corrected.

Corrective action measures for nonconformances are included in the design, source fabrication and on-site construction, erection and operational phases. Corrective action measures involving design will be processed as design change requests. Corrective action measures in the source fabrication phase are required in the quality assurance programs of individual vendors including the NSSS Supplier.

For the Project Engineering-Construction phase and modifications undertaken by Station Construction, on-site corrective action measures shall consist of a program for: (1) reporting nonconformances to Engineering by Construction; (2) recording nonconformance reports (NCR's) in a log for follow-up by Quality Assurance as to resolution and satisfactory completion; (3) prompt resolution and approval of corrective actions by Engineering; (4) assurance by Construction that the corrective action has been taken; (5) sign-off approval and close-out of NCR's by Site Quality Assurance that satisfactory corrective action has been taken; and (6) issuance by Engineering of monthly reports indicating the status of all NCR's submitted for resolution.

Implementation of corrective action will be accomplished at the source of deficiency by appropriate contractor personnel as directed by cognizant Edison engineers. Project or Station Construction, as applicable has responsibility for implementation of the correction. Quality Assurance is responsible for follow-up and final approval that the nonconformances have been corrected satisfactorily.

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For corrective action nonconformances, the Edison Site Quality Assurance Superintendent or designee will establish and maintain a Nonconformance Report (NCR) Station Log to monitor the prompt resolution and closing of all NCR's plus maintain a file of all NCR's or equivalent documents that are submitted by the site for CECO resolution and approval.

The cumulative monthly deviation report, which indicates the NCR number, deviation description and resolution, such as reject, replace, use-as-is or repair, approval status, date of resolution and whether corrective action is completed, is distributed to involved corporate and line management for information, review and possible action. The responsible manager brings significant nonconformances to the attention of corporate management for action where satisfactory resolution cannot be achieved by Engineering with a contractor.

For Operations, corrective action identified from nonconformances, incidents and deviations, trend studies and audits are verified for satisfactory completion to preclude repetition.

When corrective action is required to correct nonconformance to Code requirements, such corrective action shall be made available to the Authorized Nuclear Inspector. Any revision to Travelers involved with corrective action related to nonconformance for station modifications shall be reviewed with the Authorized Nuclear Inspector for his review and insertion of hold points.

This system will provide follow-up to assure that corrective measures are effectively implemented. Also, significant conditions are reported by the responsible manager and nonconforming items are routinely reported by the responsible engineering organization to appropriate levels of management.

The Technical Staff Supervisor verifies completion of corrective actions for maintenance, repair, refueling and operation activities. The Station Quality Assurance Supervisor for maintenance and operating issue reports indicating the status of corrective action in progress. These reports are routed to the Division Vice President and General Manager, Nuclear Stations and the Manager of Quality Assurance and reviewed to assure prompt implementation of the corrective action.

Site contractors and off-site vendors will be required to follow-up on corrective action commitments within their quality program. The Site Quality Assurance Superintendent or designee will be responsible for surveillance of site corrective action. The Project Engineering Project Engineer is responsible for assuring that review and evaluation of nonconformance reports are carried out to determine the need of corrective action.

Required corrective action during Station operation which is due to equipment malfunctions and/ or abnormal occurrences will be incorporated into the Station maintenance and operating procedures in a timely manner to preclude repetition. The responsible Quality Assurance Engineer or Inspector assigned to the Station verifies and approves the completion of corrective actions by the Station. Deficiencies in implementing corrective actions will be brought to the attention of appropriate management levels for resolution.

13. AUDITS

Audits will be performed by Commonwealth Edison Company and/or its contractors, subcontractors and vendors to verify the implementation and effectiveness of quality programs under their cognizance. The number and experience of persons participating in audits will vary according to the nature and significance of the audit.

Audits under the responsibility of the Manager of Quality Assurance will cover quality systems for engineering, construction, modifications, maintenance, in-service inspection and Stores activities. Audits will be performed to evaluate the implementation of the quality assurance programs and the adherence to procedures and controls. Certifications and records will also be evaluated. Product audits assess the effectiveness of inspections and tests that are specific to the fabrication, installation, construction, testing and operation of an item.

The performance and compliance of each operating station to the Quality Assurance Program is assured through review surveillance and audit of operations by the Quality Assurance Engineer or Inspector under the direction of the Station Quality Assurance Supervisor who is responsible for operating quality assurance to the Director of Quality Assurance (Operating) and through review, surveillance and audit of maintenance, modifications, Stores and in-service inspection activities by Quality Assurance Engineers or Inspectors (Maintenance) under the direction of the Station Quality Assurance Supervisor who is responsible for such quality assurance activities to the Supervisor Quality Assurance (Maintenance).

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Audits will be conducted using checklists or an agenda approved by responsible Quality Assurance Department personnel and will be conducted to evaluate compliance with all aspects of the Quality Assurance Program. Audits will be initiated early to assure effective quality assurance during design, procurement, manufacturing, construction and installation, inspection and test and be performed efficiently in order to achieve a minimum of interference with work in progress and minimum disruption of

organizations being audited. An audit plan will be maintained in order to schedule audits of site contractors. Audits of off-site contractors generally will be conducted in conjunction with plant visits for witnessing inspection points by a qualified auditor. Also, periodically Quality Assurance will participate in such audits or perform independent audits to assure effectiveness of the program, compliance to the program and fulfillment of procurement requirements.

The elements in the quality program, in procurement documents and in related codes and standards, are subject to systems audits. Also, items received, fabricated and constructed or installed for use by Commonwealth Edison Company in its nuclear power plants are subject to audits.

Audits will be performed selectively at various stages of contracts on a varying frequency, based on the nature and safety significance of the work being done to verify compliance and determine the effectiveness of procedures, inspections, tests, process controls and documentation. For Code materials, when a Material Manufacturer or Material Supplier, as applicable, does not hold a Quality System Certificate (Materials), the CECo audit frequency shall be at least once annually during the interval in which CECo purchased material is being controlled by the Material Manufacturer or Material Supplier. In addition to these audits, Quality Assurance will conduct approximately annually, overall system audits of the NSSS vendor, the Architect Engineer, site contractors, and involved Edison Departments. Audits of CECo are also performed by the Authorized Inspection Agency as required by the ANSI N-626 series of Standards.

For operating stations, periodic Quality Assurance Department audits will be performed to verify compliance with, and the effectiveness of the program. Audits covering operating will be performed in accordance with the Technical Specifications under the direction and responsibility of the Director of Quality Assurance (Operating) independent of the Production Department. Surveillance, in-service inspection and Stores activities will be performed under the direction and responsibility of the Quality Assurance Supervisor (Maintenance). Audit results and recommendations of corrective action will be documented and reviewed with the management of the Station. Verification of the completion of corrective action recommended in audit reports will be performed by the Technical Staff Supervisor or Quality Control Supervisor. Follow-up of open station items is tracked by the Action Item Record's (AIR) System. Where an audit item is placed under the AIR system for tracking completion approval as to satisfactory completion of corrective action shall be obtained from the responsible station Quality Assurance Engineer or Inspector.

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Audits will be conducted by qualified personnel who are familiar with written procedures, standards and processes applicable to the area being audited, but who do not have direct responsibilities in the areas being audited.

A report shall be written for each audit. An audit report package consisting of Summary Sheet, Attachment Sheet, Checklists or Agenda and any additional pertinent details recorded on additional sheets necessary to support a finding(s) will be on file. The audit report shall be sent, as applicable, to the Executive Vice Presidents, Vice President (Engineering), Vice President (Nuclear Operations), Manager of Station Construction, Manager of Projects, the Station Nuclear Engineering Manager, Manager of Quality Assurance and the Directors of Quality Assurance and Division Vice President and General Manager, Nuclear Stations for management review and action. The above stated system audits are also sent to the Vice Chairman for review and evaluation and action as deemed necessary by the Manager of Quality Assurance. Also, monthly to bi-monthly periodic reports on quality assurance activities are submitted to top management. Such reports, in part, provide bases for periodic top management reviews and discussions of quality assurance activities, implementation status and effectiveness. Such reviews and discussions are held by the Vice Chairman with the Manager of Quality Assurance and with other executives.

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Audits shall be scheduled and follow-up review of deficient areas or adverse conditions and follow-up on corrective action commitments shall be performed by Quality Assurance to assure effective implementation has been carried out.

Deficiencies in the execution or implementation of corrective action will be brought to the attention of the person who is responsible in the area involved. Continued deficiencies, or failure to implement corrective action will be reported in writing by Quality Assurance to appropriate executives within Commonwealth Edison Company.