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**APPENDIX A, DEFINITIONS**

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Approved By

  
Nuclear Oversight Manager / Date 6/6/97

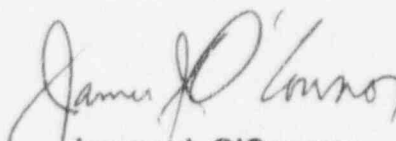
## **PREFACE/POLICY**

# **COMMONWEALTH EDISON QUALITY ASSURANCE MANUAL**

This Quality Assurance Manual has been prepared to delineate the requirements governing the Commonwealth Edison Company Quality Assurance Program for nuclear generating stations. Implementation of the program as described provides a degree of quality assurance commensurate with the requirements of the ASME Code Section III (Division 1 & 2 for Concrete Containment), the Code of Federal Regulations and the requirements of the Nuclear Regulatory Commission governing design, procurement, construction, testing, operation, refueling, maintenance, repair, modification, and decommissioning of nuclear power generation facilities. The execution of the Quality Assurance Program will assure that the plants are built and operated to the requirements and with the reliability and safety necessary to safeguard the general public and Company employees.

The Executive Vice President and Chief Nuclear Officer has overall responsibility for the Quality Assurance Program. Although specific positions and responsibilities are delineated in Section 1, the achievement of quality is the responsibility of each individual involved in Nuclear Operations.

The scope of this program covers the Quality Assurance Program for the life of all Commonwealth Edison nuclear generating plants except that the design, construction, testing and startup of Dresden, Quad Cities, and Zion was conducted in accordance with the quality assurance plans contained in the Dresden and Quad Cities FSARs and the Zion Quality Assurance Manual.



**James J. O'Connor**

Chairman and Chief Executive Officer  
Commonwealth Edison Company

## 1. POLICY

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This Section identifies those portions of the Commonwealth Edison Company, hereafter referred to as the Company or ComEd, organization as it applies to the Quality Assurance Program. This Section also defines responsibility and authority for establishing, executing and verifying the implementation of the Quality Assurance Program.

Each Officer, Manager, Superintendent, or Director identified in this Section is responsible for implementing the Quality Assurance Program in their assigned areas. They may delegate the performance of their duties to qualified personnel reporting to them. Although the individuals identified may be responsible for specific attributes, the achievement of quality in the performance of quality related activities is the responsibility of each individual involved in nuclear operations.

The Company may delegate the performance of work to Architect Engineers, NSSS Suppliers, contractors, consultants or others, but ComEd retains responsibility. The Nuclear Oversight (N.O.) Manager is responsible for Corporate quality assurance policy and Corporate nuclear safety policy. The N.O. Manager is assigned this responsibility by the Executive Vice President and Chief Nuclear Officer. The Nuclear Oversight Manager also verifies the implementation of the Quality Assurance Program for the design, procurement, construction, and operation of ComEd's nuclear power facilities. The N.O. Manager is independent of production.

Organizational charts, functional descriptions of departmental responsibilities or descriptions of key quality assurance positions document the lines of authority and responsibility for the Quality Assurance Program.

In general, the Quality Assurance Program provides that:

- a. Activities are verified as being correctly performed.
  - b. Quality verification activities are performed independent of the individual or group directly responsible for performing the activity.
  - c. Quality verification personnel have the responsibility, authority, and organizational freedom to:
    1. Identify quality problems
    2. Initiate, recommend, or provide solutions to quality problems through designated channels.
    3. Verify implementation of the solutions.
-

4. Assure that further processing, delivery, installation, or use is controlled until proper disposition of a nonconformance, deficiency, or unsatisfactory condition has occurred.
  5. Stop work on an operation or installation when a violation of the applicable QA Program, procedure, specification or drawing is identified.
- d. Following a Stop Work Order, work can resume only after verification of necessary corrective actions to bring the installation or operation into conformance.
  - e. Only the individual who places a Stop Work Order or a person of higher authority in his or her organization may release the Stop Work Order. The Nuclear Oversight Manager or the Manager of Quality and Safety Assessment, as appropriate, or their designee must concur with the release.

**NOTE: The use of "he" and its derivatives throughout this document is not gender specific; all such usage refers to specified individuals regardless of gender.**

## **2. RESPONSIBILITIES**

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This entire Section 1 defines responsibilities for ComEd personnel.

## **3. REQUIREMENTS**

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### **3.1 Organization**

ComEd is responsible for the assurance of quality in all phases of the design, procurement, construction, testing, operation, refueling, maintenance, repair, modification, and decommissioning of the nuclear stations. Management assigns areas of responsibility to organizational elements and individuals. The Company's Quality Assurance Program describes the policy and requirements to carry out this responsibility. This Quality Assurance Program is approved by the Nuclear Oversight Manager.

### **3.2 Delegation**

The Company may delegate certain phases of the work to contractors, Architect Engineers, or NSSS Suppliers, who act as the Company's agents in assigned areas. The Company may also assign the authority for certification and stamping in accordance

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with the ASME Code. The Company documents such delegation. Regardless of delegation, ComEd retains responsibility, in accordance with the ASME Code.

### 3.3 Functional Responsibilities

#### 3.3.1 NSSS Supplier

Responsibility for the Nuclear Steam Supply System is delegated to the NSSS Supplier. The NSSS Supplier shall:

- a. Provide the mechanical, structural and electrical design of the NSSS to the Nuclear Engineering Services organization or the site Engineering organization.
- b. Review their own designs.
- c. Evaluate the Architect Engineers' designs and perform other independent evaluations as requested.
- d. Document their reviews and evaluations and supply them to the Company.
- e. Establish and maintain procurement control for NSSS components.
- f. Furnish technical and quality control assistance for onsite activities relating to the NSSS.
- g. Furnish rough draft test procedures to ComEd.
- h. Evaluate final draft test procedures when requested.
- i. Work in accordance with a ComEd accepted quality program.

#### 3.3.2 Architect Engineers

Responsibility for the design of structures, systems, and components not within the scope of the NSSS Supplier may be delegated to an Architect Engineering firm. When delegated, the Architect Engineer shall:

- a. Provide the mechanical, structural and electrical design of a plant to the Nuclear Engineering Services organization or the site Engineering organization for their scope of responsibility.
- b. Review their own designs.
- c. Independently evaluate the NSSS Supplier's designs and perform other independent evaluations as requested.

- d. Document their reviews and evaluations and supply them to ComEd.
- e. Evaluate the NSSS Supplier procurement specifications.
- f. Provide specifications for procurement of non-NSSS components and services.
- g. Furnish rough draft test procedures to ComEd.
- h. Evaluate final draft test procedures when requested.
- i. Independently evaluate vendor proposals for equipment and services, designs, vendor and contractor procedures, test reports, and design reports.
- j. Perform document distribution when directed.
- k. Work in accordance with a ComEd accepted quality program.

### **3.3.3 Construction Contractors**

The Company hires contractors to supply labor and service for maintenance, modification, and new construction. These contractors shall work to a ComEd accepted quality assurance program. This program may be the contractor's or the contractor may work in accordance with ComEd's program. These contractors shall document their organization and any delegated responsibilities necessary to establish, execute, and verify their quality program.

### **3.3.4 Non-delegated Functional Requirements**

The following description of the Company's non-delegated functional requirements are separated into two sections: establishment and execution of the Quality Assurance Program, and verification that the Program has been implemented.

#### **3.3.4.1 Program Establishment and Execution**

In order to establish and execute an effective Quality Assurance Program, ComEd is organized to provide management services and administrative controls. These services and controls provide for effective management of all aspects of quality related activities. The Company administers contracts that affect quality.

##### **3.3.4.1.1 Design**

ComEd has engineering responsibility and design authority, makes final decisions on designs, and implements engineering designs. The Company has the responsibility to properly translate the applicable Safety Analysis Report (SAR), regulatory requirements, ASME Code requirements, and design bases into specifications, drawings, procedures

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and instructions. This is accomplished by qualified personnel performing detailed design activities or reviewing and controlling the design work involving electrical, mechanical, structural and instrumentation and control designs of the NSSS Supplier and Architect Engineer.

ComEd is responsible for design changes.

The Company performs detailed design activities and issues design documents in accordance with approved procedures. For operating plants, the Company supervises the electrical, mechanical, structural, instrumentation and control, and nuclear engineering activities involved in nuclear station modifications and maintains a configuration management program.

In addition, the site Engineering organization oversees the site Architect Engineer field group at those locations where one is established.

Finally, the Company notifies jurisdictional authorities of the location of ASME Code related permanent records.

#### **3.3.4.1.2 Procurement**

ComEd performs technical evaluations of service contractors for placement on the Company's Quality Approved Bidders List. The Company directly controls procurement of non-NSSS components and services based on specifications prepared by the Company and Architect Engineers. The Company receives and furnishes necessary storage facilities for designated items.

For operating plants, the Company prepares and processes Safety-Related and ASME Code specifications for the award of service contracts for maintenance or modification work.

#### **3.3.4.1.3 Construction**

The Company is responsible for construction quality assurance and manages all site construction activities.

The Company directs and manages contractors performing new station construction and maintenance and modification work at existing plants. Further, the Company develops craft labor specifications and provides estimating and quality control services as required.

The Nuclear Oversight Department establishes Quality Control Policy and administers the Quality Control Inspector Qualification and Certification Program.

The site QC Groups direct Inspection Agency inspection and testing activities performed for the Company. They coordinate Non-Destructive Examination certification programs with the System Materials Analysis Department.

For new plant construction, the Company has ASME Section III, Division 1 and 2, constructor responsibilities and maintains Level III personnel on staff. These individuals are responsible for personnel development, certification of inspectors and qualification of procedures, as required by rules established in ASME Section III.

Further, the Company is responsible for the Form N-3 Data Report and other Owner N-type Data Reports, including stamping responsibility for ASME Section III, Division 1 and Division 2.

#### **3.3.4.1.4 Operations Program**

ComEd controls pre-service testing (preoperational and start-up testing) and writes the final draft of pre-service tests.

For operating plants, the Company plans modification test programs and provides modification test acceptance criteria.

For operations, the program is planned and implemented to provide the Company with confidence that safety related systems, structures and components perform satisfactorily in service.

For new plants, the Company performs mechanical, electrical instrumentation and structural construction tests.

#### **3.3.4.2 Verification**

In order to verify and control the effectiveness of the Quality Assurance Program, the Company is organized to provide for audit, surveillance, review, inspection and testing. These verification methods assure that activities performed are correct for all aspects of quality related activities including design, procurement, construction and modification, testing, and operations.

If conditions that are adverse to quality and that require prompt action are found by Nuclear Oversight or site Quality and Safety Assessment personnel at locations where work subject to this QA program is conducted and required corrective measures cannot be agreed upon, the Nuclear Oversight Manager will be promptly notified. If necessary, the Executive Vice President and Chief Nuclear Officer will assure resolution in accordance with the ASME Code and this Program.

### 3.3.4.2.1 Design

ComEd reviews and accepts the specifications and drawings for electrical, mechanical, instrumentation, nuclear and structural material, equipment and erection work, prepared by the Architect Engineer and NSSS Supplier. The purpose of these reviews is to verify inclusion of inspection, testing and acceptance criteria. The Company reviews the Architect Engineer's evaluation of fabricator and erector's detailed designs, drawings and work instructions for reasonableness and completeness.

The Company assures that personnel certifying ASME Section III design activities are qualified Registered Professional Engineers in accordance with ASME N626.3-1988.

ComEd assures that Architect Engineers and NSSS Suppliers maintain procedures to assure that their personnel certifying ASME Section III design activities are qualified Registered Professional Engineers in accordance with ASME N626.3-1988.

The Company provides qualified personnel to review and approve the resolution of nonconformances relating to electrical, mechanical, instrumentation and structural portions of the plant and to evaluate discrepant modification test results for operating plants.

The Company audits the design review system of Architect Engineers, Nuclear Fuel Vendors and NSSS Suppliers.

### 3.3.4.2.2 Procurement

ComEd analyzes bids to assure that necessary quality requirements are included in purchase orders and contracts. The Company evaluates the NSSS Supplier procurement specifications and audits and inspects the NSSS Supplier's control measures.

Audits of offsite contractors are performed as required to assure quality functions.

At times, the Company may assign an Independent Inspection Agency to overview work occurring at offsite supplier's plants to verify that the Company's Quality Assurance and technical requirements are implemented.

### 3.3.4.2.3 Construction

The Company provides new project construction quality assurance.

Organizational elements are assigned to:

- a. Closely monitor the construction quality assurance activities of onsite contractors and others.

- b. Independently evaluate site contractor quality assurance programs.
- c. Verify that construction activities carried out by site contractors conform to procurement document requirements.
- d. Verify conformance and completeness of contractors' installation or erection to specification requirements.
- e. Review, comment, and approve onsite contractor quality instructions and procedures.
- f. Prepare checklists for witnessing inspection notification points at vendor plants.
- g. Inspect and designate status of incoming material at the site.
- h. Review inspection procedures.
- i. Monitor quality control activities of contractors at the site.
- j. Initiate those actions that are required to ensure that the assigned work is completed, in accordance with technical and design requirements.
- k. Provide performance assessments of contractor work.
- l. Audit and survey the compliance of the contractors to their accepted quality assurance program.

The Company has the functional responsibility to perform inspections of site construction activities, but may assign these responsibilities to an Independent Inspection Agency. If assigned, these activities shall include inspection and testing, and to determine and report whether items conform to design, test and specification requirements or to reject unsatisfactory materials, equipment or workmanship.

The Company shall take the necessary steps to assure repair, rework or processing of a nonconformance based on rejection by an Independent Inspection Agency.

For new project construction, the Company will establish a site Quality and Safety Assessment group. The Group will provide independent verification of program compliance by audit and surveillance. This group will be established similar to the site Quality and Safety Assessment Departments at operating sites. Sufficient qualified personnel are assigned to this Group to assure program compliance, but will average from one to twenty. This group may employ an Independent Inspection Agency to provide inspection and testing.

#### 3.3.4.2.4 Pre-Service Testing

During new project construction, the Company assures that an acceptable test program is implemented. Organizational elements are assigned to:

- a. Evaluate and independently confirm test results by internal evaluation.
- b. Manage and perform tests with technical assistance from the NSSS Supplier or the Architect Engineer as appropriate.

#### 3.3.4.2.5 Operations Verification

During operations, the Company assures that the Quality Assurance Program described in this document is acceptably established and executed. This is done by assigning organizational elements to:

- a. Establish and execute quality procedures to be used by the station staff, or those under their direction, for operating, maintenance, modifications, in-service inspection, refueling and stores activities.
- b. Assure that such procedures and instructions comply with the policies contained in this Quality Assurance Program.
- c. Review and approve station procedures and instructions and revisions thereto as provided for in the Technical Specifications.
- d. Make temporary changes to station operating procedures which do not change the intent of the original procedures as described by Technical Specifications. These changes are reviewed and approved in the same manner as the original procedure.

### 3.4 DESCRIPTION OF GENERAL RESPONSIBILITIES

The Company organization as related to Quality Assurance is shown in Exhibit 1.

Organizations that will be activated for future nuclear station construction are shown in Exhibit 2.

Brief descriptions of the duties and responsibilities of the personnel shown on Exhibit 1 follow.

**Note:** Minor variations may occur between the titles contained herein and those used in practice.

### **3.4.1 Chairman and CEO**

The Chairman and Chief Executive Officer (CEO) is responsible for overall Corporate policy. The Chairman promulgates Corporate policy through a staff that includes:

- President
- Vice Chairman
- Senior Vice President, Corporate Services
- Executive Vice President and Chief Nuclear Officer

#### **3.4.1.1 President**

The President is responsible for Supply Management, Corporate Relations, General Counsel and Information Services. The President fulfills assigned responsibilities through a staff that includes:

- Vice President, Supply Management

##### **3.4.1.1.1 Vice President, Supply Management**

The Vice President, Supply Management purchases non-fuel goods and services to specifications and contract requirements prepared by responsible originating departments.

#### **3.4.1.2 Vice Chairman**

The Vice Chairman is responsible for financial and accounting functions, customer operations and energy services, transmission and distribution functions, and bulk power trading. The Vice Chairman fulfills assigned responsibilities through a staff that includes:

- Vice President, Transmission and Distribution Operations

##### **3.4.1.2.1 Vice President, Transmission and Distribution Operations**

The Vice President, Transmission and Distribution Operations is responsible for the care and maintenance of the transmission and distribution systems. He fulfills these responsibilities through a staff that includes:

- Techlabs Manager

###### **3.4.1.2.1.1 Techlabs Manager**

The Techlabs Manager provides specialized field testing services through technical specialists. The Techlabs Manager provides calibration services traceable to National Standards for measuring and testing equipment. The Techlabs Manager maintains the

Company's electrical testing facilities and equipment required to fulfill assigned responsibilities. The Techlabs Manager retains supporting quality assurance documentation.

### **3.4.1.3 Senior Vice President, Corporate Services**

The Senior Vice President, Corporate Services has overall corporate responsibility for decommissioning activities, the safe storage of spent nuclear fuel for permanently shutdown nuclear power plants, and the implementation of the Quality Assurance Program for those plants. He is the single executive focal point for setting policies, objectives and priorities for permanently shutdown plants and the Corporate Services organization.

The Senior Vice President, Corporate Services is also responsible for the procurement of nuclear fuel and reprocessing services to specifications furnished by the Nuclear Fuel Services Department.

He fulfills these responsibilities through a staff that includes:

- Nuclear Fuel Buyers
- Manager of Decommissioning Projects

#### **3.4.1.3.1 Nuclear Fuel Buyers**

The Nuclear Fuel Buyers procure nuclear fuel and reprocessing services to specifications furnished by the Nuclear Fuel Services Department.

#### **3.4.1.3.2 Manager of Decommissioning Projects**

The Manager of Decommissioning Projects is responsible for decommissioning project activities at ComEd Nuclear Stations. Responsibilities include the safe storage of irradiated spent nuclear fuel for permanently shutdown plants; the authority to commit personnel and resources to execute decommissioning activities; reviewing and approving the Post Shutdown Decommissioning Activities Report revisions, proposed license amendments and revised technical specifications; site installation of spent fuel storage casks; cask loading; and long-term maintenance activities.

In addition, the Manager of Decommissioning Projects is responsible for the execution of the Company's Quality Assurance Program, compliance with applicable NRC licenses and governmental regulations, and compliance with appropriate ASME Code requirements.

The Manager of Decommissioning Projects shall maintain sufficient independence from cost and scheduling considerations when dispositioning quality assurance issues and

issues related to the safe storage of spent fuel. The independence is consistent with 10CFR50 Appendix B and 10CFR72 Subpart G requirements.

The Manager of Decommissioning Projects fulfills these responsibilities through a staff that includes:

Decommissioning Plant Manager

#### **3.4.1.3.2.1 Decommissioning Plant Manager**

The Decommissioning Plant Manager shall have day-to-day responsibility for the unit(s) undergoing decommissioning and shall have control over those activities necessary for operation and maintenance of structures and systems required for the safe storage of spent nuclear fuel.

He fulfills these responsibilities through a staff that includes the Decommissioning Operations Manager and a functional interface with the site's Engineering Manager and Operations Manager.

#### **3.4.1.3.2.1.1 Decommissioning Operations Manager**

The Decommissioning Operations Manager is responsible for the operation of dedicated systems for the unit(s) being decommissioned and serves as the interface with the Operations organization for operating units at the same site. He plans, directs and monitors the activities of decommissioning work groups to ensure that there is no adverse safety impact on the unit(s) prior to execution. He is responsible for assuring that the decommissioned unit's technical specifications are met.

#### **3.4.1.4 Executive Vice President and Chief Nuclear Officer**

The Executive Vice President and Chief Nuclear Officer (CNO) has overall corporate responsibility for the Quality Assurance Program and maintaining plant nuclear safety.

He brings all resources involved in operations and direct support of operations, for all twelve operating plants and the associated Corporate locations, under a single executive. He is the single executive focal point for setting policies, objectives and priorities for the Nuclear Operations organization.

Reporting to the Executive Vice President and Chief Nuclear Officer is a staff that includes:

Nuclear Oversight Manager  
Vice President, Nuclear Support  
Chief Nuclear Operating Officer

#### **3.4.1.4.1 Nuclear Oversight Manager**

The Nuclear Oversight Manager manages the Quality Assurance Program and Safety Review. He develops, maintains, and interprets the Company's quality assurance and nuclear safety policies, procedures, and implementing directives. He is responsible for the vendor audit program and for ensuring that audits of Corporate support functions are conducted. He is also responsible for conducting a periodic review of the site audit program to assure that oversight of QA Program implementation is effective.

He has the authority and responsibility to stop work, order unit shutdown, or request any other actions which he deems necessary to avoid unsafe plant conditions when a violation of the Quality Assurance Program, procedures, specifications or drawings is identified.

The Nuclear Oversight Manager and staff establish quality control policy and provide an offsite point of contact for Station Quality Control if offsite assistance is necessary for quality control activities.

He reports directly to the Executive Vice President and Chief Nuclear Officer and is independent of production.

The Nuclear Oversight Manager is the certifying authority for audit personnel.

The Manager must have at least four years experience in the field of quality assurance, or an equivalent number of years of nuclear power plant experience in a supervisory position or a combination of the two. The Manager shall have at least a baccalaureate degree in Engineering or related science. The Manager may have equivalent educational qualifications in accordance with paragraph 4.1 (items a-j) of ANSI/ANS 3.1.

The Nuclear Oversight Manager fulfills his responsibilities through a staff that includes:

- Director of Quality Programs
- Director of Safety Review
- Supplier Evaluation Services Director
- Corporate Audit Director
- Corporate Assessment Manager
- Safety Review Board Liaison
- Manager of Quality and Safety Assessment, Corporate Services

##### **3.4.1.4.1.1 Director of Quality Programs**

The Director of Quality Programs and staff establish, maintain and interpret Company quality assurance and quality control policies. He provides training to the Company on quality assurance subjects and establishes the requirements for auditor certification. He and his staff control and maintain the Quality Assurance Program.

The Director of Quality Programs is also responsible for the Employee Concerns Program.

#### **3.4.1.4.1.2 Director of Safety Review**

The Director of Safety Review and his staff provide the independent safety review function for station activities on a routine basis. He is the contact point for industry operating experience and lessons learned information.

#### **3.4.1.4.1.3 Supplier Evaluation Services Director**

The Supplier Evaluation Services Director and his staff audit external organizations as required by the Quality Assurance Program. He verifies that submitted vendors' quality assurance programs comply with Company requirements and approves applicable procurement plans. He has the authority and responsibility to stop work when a violation of the Quality Assurance Program, procedures, specifications or drawings is identified.

#### **3.4.1.4.1.4 Corporate Audit Director**

The Corporate Audit Director and staff audit Corporate functions and common programs and processes at the nuclear sites.

#### **3.4.1.4.1.5 Corporate Assessment Manager**

The Corporate Assessment Manager and staff conduct assessments of site activities through the use of peer supported assessments, emergent issue assessments, timed assessments, and quality function assessments. He is also responsible for mentoring the site and Corporate self-assessment processes and providing an integrated analysis of site and Division performance that is communicated to senior NOD management.

#### **3.4.1.4.1.6 Safety Review Board Liaison**

The Safety Review Board Liaison coordinates ComEd's Safety Review Board (SRB) Program and provides an interface between the SRBs and the NOD.

#### **3.4.1.4.1.7 Manager of Quality and Safety Assessment, Corporate Services**

The Manager of Quality and Safety Assessment (Q&SA), Corporate Services has a direct reporting relationship with the Nuclear Oversight Manager and a functional reporting relationship with the Manager of Decommissioning Projects. The Manager of Q&SA, Corporate Services provides oversight of decommissioning activities as they relate to quality assurance and nuclear safety policies.

The Manager of Q&SA, Corporate Services has sufficient organizational freedom, authority, and responsibility to identify quality and nuclear safety problems; to initiate, recommend, or provide solutions; to verify implementation of solutions; and to stop work or request any other action which he deems necessary to avoid unsafe plant conditions when a nuclear safety issue or a violation of the Quality Assurance Program is identified.

Significant safety or quality issues requiring prompt corrective action shall be reported to the Manager of Decommissioning Projects immediately. If corrective action cannot be agreed upon, significant safety or quality issues, requiring escalated action, will be directed through the Nuclear Oversight Manager to the Senior Vice President, Corporate Services.

#### **3.4.1.4.2 Vice President, Nuclear Support**

The Vice President, Nuclear Support is responsible for providing emergency planning, information services, health physics, low level radioactive waste, chemistry, personnel safety, and maintenance support to the nuclear stations and the Corporate Office. The Vice President, Nuclear Support fulfills these responsibilities through a staff.

#### **3.4.1.4.3 Chief Nuclear Operating Officer**

The Chief Nuclear Operating Officer (CNOO) is a Corporate Officer who fulfills his responsibilities through in-line interfaces with the Site Vice Presidents and senior managers who have an impact on day-to-day operations. The CNOO supports, coaches, and assists these Vice Presidents and managers in carrying out their responsibilities.

Reporting to the CNOO is an organization that includes:

- Generation Support Vice President
- Engineering Vice President
- Corporate Security Manager
- Site Vice Presidents

##### **3.4.1.4.3.1 Generation Support Vice President**

The Generation Support Vice President is responsible for providing support to the nuclear stations in the areas of operations, outage management, corrective action, training, and regulatory assurance. He is also responsible for the Peer Group initiative that improves ComEd performance by developing and implementing common processes that support safe and efficient operations across the Nuclear Division. The Generation Support Vice President fulfills these support responsibilities through a staff that includes:

- Nuclear Regulatory Services Manager

#### **3.4.1.4.3.1.1 Nuclear Regulatory Services Manager**

The Nuclear Regulatory Services Manager is the administrative liaison between the Company and regulatory bodies. He coordinates division-wide programs that support licensing or regulatory assurance initiatives, helps in developing positions and coordinates responses to regulatory inquiries and notifications. He fulfills these responsibilities through a staff.

#### **3.4.1.4.3.2 Engineering Vice President**

The Engineering Vice President provides engineering and construction support to the nuclear stations. He is responsible for design authority under the ASME Code, the configuration management control programs, and materials engineering. He provides generic programs for technical and licensing issues. He monitors fuel reliability, provides design for reload licensing and certain in-core components, provides the safety analysis for each reload, and provides support for reactor operation. The Vice President advises the CNOO on priorities for engineering and construction activities at the six stations. He notifies the Illinois Department of Nuclear Safety (the jurisdiction) of the location of required ASME Code records. The Engineering Vice President is the Chairman of the Engineering Management Team (EMT) that is comprised of himself, the six site Engineering Managers, the Materials Engineering Manager, and the Engineering Vice President's staff of Chief Engineers. The EMT has the responsibility to establish policies and procedures to ensure that design activities are conducted in compliance with regulations and the ASME Code in a manner that supports safe and reliable operation. He fulfills these responsibilities through a staff that includes:

- Chief Engineers
- Materials Engineering Manager

##### **3.4.1.4.3.2.1 Chief Engineers**

The Engineering Vice President maintains a staff of Chief Engineers to provide the necessary discipline and expert support for setting technical policy, developing design standards, and performing engineering discipline reviews. They are members of the Engineering Management Team. The Chief Engineers develop and support common approaches for technical and regulatory engineering issues, as well as develop and coach engineers.

##### **3.4.1.4.3.2.2 Materials Engineering Manager**

The Materials Engineering Manager is responsible for the central receiving inspection process and performance and certification of material testing, heat treating, upgrading stock materials, parts evaluation, nondestructive examination activities, and examination and tests in accordance with all applicable ASME Code and Federal regulations.

The Materials Engineering Manager fulfills these responsibilities through a staff that includes:

System Materials Analysis Manager

#### **3.4.1.4.3.2.2.1 System Materials Analysis Manager**

The System Materials Analysis Manager maintains the Company's offsite testing facilities and equipment for chemistry, metallurgy, nondestructive examination, and vibration analysis. The System Materials Analysis Manager fulfills these responsibilities through a staff that includes:

NDE Chief Level III

#### **3.4.1.4.3.2.2.1.1 NDE Chief Level III**

The NDE Chief Level III is responsible for personnel and procedure development and qualification to ASME Code requirements for nondestructive examination. The NDE Chief Level III is qualified and certified in accordance with SNT-TC-1A. This person may designate deputies for certification of personnel and procedures.

#### **3.4.1.4.3.3 Corporate Security Manager**

The Corporate Security Manager and staff is responsible for insuring that security programs at the nuclear stations effectively meet all commitments to, and the regulations of, the Nuclear Regulatory Commission.

#### **3.4.1.4.3.4 Site Vice Presidents**

Each Site Vice President is responsible for plant nuclear safety and the execution of the Company's Quality Assurance Program at his respective location. The Site Vice President is responsible for the station's compliance with its NRC operating license, governmental regulations, and ASME Code requirements.

The Site Vice President shall maintain sufficient independence from cost and scheduling considerations when dispositioning quality assurance and nuclear safety issues. The independence is consistent with 10CFR50 Appendix B requirements.

The Site VP fulfills these responsibilities through a staff that includes:

Station Manager (Braidwood, Byron, Dresden, & Quad Cities) or  
Plant General Manager (LaSalle & Zion)  
Regulatory Assurance Supervisor (Braidwood, Byron & LaSalle) or  
Regulatory Assurance Manager (Dresden, Quad Cities & Zion)  
Training Manager

Engineering Manager  
Business Manager (Braidwood, Byron, Dresden, & Quad Cities)  
Support Services Director/Manager (LaSalle & Zion)  
Manager of Quality and Safety Assessment

#### **3.4.1.4.3.4.1 Station Manager or Plant General Manager**

The Station Manager or Plant General Manager is responsible for the safe, reliable and efficient day-to-day operation of the station.

The Station Manager or Plant General Manager supervises the Station's onsite review function. During periods, that exceed three months, when the Station Manager or Plant General Manager is unavailable, he designates this responsibility to an established alternate who satisfies the ANS 3.1 experience requirements for plant manager.

The Station Manager (Braidwood, Byron, Dresden, & Quad Cities) fulfills these responsibilities through a staff that includes:

Operations Manager  
Work Control Superintendent  
Health Physics Supervisor  
Security Administrator  
Maintenance Manager

The Plant General Manager (LaSalle & Zion) fulfills these responsibilities through a staff that includes:

Plant Manager (LaSalle)  
Unit 1 and Unit 2 Plant Managers (Zion)  
Radiation Protection Manager  
Security Administrator (LaSalle)

#### **3.4.1.4.3.4.1a Plant Manager or Unit 1 and Unit 2 Plant Managers**

The Plant Manager or Unit Plant Managers are part of the organizations in place at LaSalle and Zion. They are responsible for the direct management of the operation, maintenance, and work control for their assigned unit(s). They fulfill their responsibilities through a staff that includes:

Operations Manager (LaSalle)  
Unit 1 or Unit 2 Operations Manager (Zion)  
Work Control Superintendent (LaSalle)  
Unit 1 or Unit 2 Work Control Manager (Zion)  
Maintenance Manager (LaSalle)  
Unit 1 or Unit 2 Maintenance Manager (Zion)

**3.4.1.4.3.4.1.1 Operations Manager or Unit Operations Managers**

The Operations Manager or Unit Operations Manager is responsible for the safe, reliable and efficient operations of assigned nuclear units. He fulfills these responsibilities through a staff that includes:

- Shift Operations Supervisor
- Assistant Superintendent of Operations (Zion)
- Operations Support Staff Supervisor (LaSalle)
- Operating Engineer(s) (Braidwood, Byron, and Quad Cities)

**3.4.1.4.3.4.1.1.1 Shift Operations Supervisor**

The Shift Operations Supervisor is, typically, the senior licensed individual, on site, who has the responsibility for the day-to-day operation of the nuclear unit(s).

These responsibilities are fulfilled through a staff that includes:

- Shift Engineer (Braidwood and Quad Cities) or
- Shift Manager (Byron, Dresden, LaSalle and Zion)
- Fuel Handling Supervisor (Dresden)

**3.4.1.4.3.4.1.1.1.1 Shift Engineer or Shift Manager**

The Shift Engineer/Manager is responsible for the overall command and control of shift operations. The Shift Engineer/Manager fulfills his responsibilities through a staff that includes:

- Unit Supervisors
- Shift Supervisors (Byron, Quad Cities & Zion)
- Field Supervisors (Braidwood & LaSalle)
- Radwaste Supervisors
- Licensed Reactor Operators, Equipment Operators, and Equipment Attendants

**3.4.1.4.3.4.1.1.1.1.1 Unit Supervisors**

The Unit Supervisors control unit operations, primarily from within the control room.

**3.4.1.4.3.4.1.1.1.1.2 Shift Supervisors or Field Supervisors**

The Shift/Field Supervisors coordinate and/or assist in the control of shift operations.

**3.4.1.4.3.4.1.1.1.1.3 Radwaste Supervisors**

The Radwaste Supervisors control low level radioactive waste operations.

**3.4.1.4.3.4.1.1.2 Fuel Handling Supervisor**

The Fuel Handling Supervisor manages the fuel handling process, including fuel receipt, fuel movement, and fuel storage. He supervises the Fuel Handlers.

**3.4.1.4.3.4.1.1.2 Assistant Superintendent of Operations**

The Unit Assistant Superintendent of Operations supports plant operations. Duties include managing the fuel handling process and supervising the fuel handlers.

**3.4.1.4.3.4.1.1.3 Operations Support Staff Supervisor**

The Operations Support Staff Supervisor supports plant operations.

**3.4.1.4.3.4.1.1.4 Operating Engineer(s)**

Operating Engineers support plant operations. They fulfill their responsibilities through a staff that includes:

Fuel Handling Supervisor (Byron & Quad Cities, see 3.4.1.4.3.4.1.1.2)

**3.4.1.4.3.4.1.2 Work Control Superintendent or Unit Work Control Manager**

These positions are responsible for coordinating, administering, executing and monitoring the daily work schedule.

**3.4.1.4.3.4.1.3 Radiation Protection Manager or Health Physics Supervisor**

The Radiation Protection Manager or the Health Physics Supervisor is responsible for directing health physics activities at his assigned station.

**3.4.1.4.3.4.1.4 Security Administrator**

The Security Administrator is responsible for ensuring compliance with all regulatory security requirements at his site.

**3.4.1.4.3.4.1.5 Maintenance Manager or Unit Maintenance Managers**

The Maintenance Manager or Unit Maintenance Managers manages the day-to-day repair activities for mechanical and electrical equipment and instrumentation. At some plants he may also provide construction services and have senior management responsibility for fuel handling.

The Maintenance Manager or Unit Maintenance Manager fulfills these responsibilities through a staff that at some locations includes:

Maintenance Staff Supervisor (Braidwood)

#### **3.4.1.4.3.4.1.5.1 Maintenance Staff Supervisor**

The Maintenance Staff Supervisor provides supervisory support for maintenance functions. He fulfills his responsibilities through a staff that includes:

Fuel Handling Supervisor (Braidwood, see 3.4.1.4.3.4.1.1.1.2)

#### **3.4.1.4.3.4.2 Regulatory Assurance Supervisor or Regulatory Assurance Manager**

These senior level managerial positions are responsible for maintaining an interface with and being a liaison between the station and Federal and state regulators. These Managers/Supervisors fulfill their responsibilities through a staff.

#### **3.4.1.4.3.4.3 Training Manager**

The Training Manager is responsible for providing training for all site personnel as required. The Training Manager fulfills his responsibilities through a staff.

#### **3.4.1.4.3.4.4 Engineering Manager**

The Engineering Manager provides design support, engineering, modification engineering, and at some locations, construction services to the station. He has responsibility and authority for all day-to-day design activities and is responsible for developing and implementing design policies and procedures as a member of the Engineering Management Team (EMT). He maintains plant configuration control. The Engineering Manager fulfills these responsibilities through a staff that includes:

System Engineering Supervisor (Braidwood, Byron, Dresden, LaSalle, &  
Quad Cities)

System/Component Engineering Manager (Zion)  
Engineering Design Supervisor

#### **3.4.1.4.3.4.4.1 System Engineering Supervisor or System/Component Engineering Manager**

These individuals provide technical support to maintain plant systems in an operational condition. System testing is included in this function. They or other comparably qualified individuals are designated as the senior participant to provide appropriate direction for the Onsite Review function.

**3.4.1.4.3.4.4.2 Engineering Design Supervisor**

The Engineering Design Supervisor provides detailed design engineering and implementation of modifications. He oversees Architect Engineer activities and is responsible for coordination of design with other plants.

**3.4.1.4.3.4.5 Business Manager or Support Services Manager/Director**

These positions provide materials management, information services, and office support to all organizations on site.

They fulfill these responsibilities through a staff that includes:

- Materials Management Supervisor

- Office Supervisor

- Security Administrator (Zion, see 3.4.1.4.3.4.1.4)

**3.4.1.4.3.4.5.1 Materials Management Supervisor**

The Materials Management Supervisor coordinates parts requirements, specifies and evaluates parts, procures all materials for the site, ships and receives material, and controls the onsite inventory.

**3.4.1.4.3.4.5.2 Office Supervisor**

The Office Supervisor is responsible for maintaining quality assurance records and providing clerical support to the station.

**3.4.1.4.3.4.6 Manager of Quality and Safety Assessment**

The Manager of Quality and Safety Assessment (Q&SA) reports directly to the Site Vice President for quality assurance and nuclear safety matters. The Manager of Q&SA also has a functional reporting relationship with the Nuclear Oversight Manager.

The Manager of Q&SA is responsible for conducting internal audits, surveillances, and assessments of station line activities to ensure compliance with quality assurance and nuclear safety requirements. The Manager of Q&SA monitors the day-to-day station activities involving operating, modification, maintenance, in-service inspection, refueling, and stores through onsite audits, field monitoring, safety reviews and quality control inspections.

The Manager of Q&SA provides the overall administration of the station's corrective action data bases including such functions as trending and analysis. He also provides for the administration of the station's self-assessment function including facilitating, mentoring, and auditing.

The Manager of Q&SA has sufficient organizational freedom, authority, and responsibility to identify quality and nuclear safety problems; to initiate, recommend, or provide solutions; to verify implementation of solutions; and to stop work or request any other action which he deems necessary to avoid unsafe plant conditions when a nuclear safety issue or a violation of the Quality Assurance Program is identified.

Significant safety or quality issues requiring prompt corrective action shall be reported to the Site Vice President immediately. If corrective action cannot be agreed upon, significant safety or quality issues, requiring escalated action, will be directed through the Nuclear Oversight Manager to the Executive Vice President and Chief Nuclear Officer.

Reporting to the Manager of Q&SA is a staff of supervisory, administrative and technical personnel that support the following functions:

- Audit
- Independent Safety Engineering
- Quality Control
- Integrated Analysis
- Corrective Action
- Self-Assessment functions.

## 4. REFERENCES

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The following references were used in the generation of this Section. The Company's commitment to particular revisions of these standards is contained in Section 2. Specific references for the requirements are contained in the Q.A. Program Database.

- |                                   |                 |
|-----------------------------------|-----------------|
| • 10CFR50 Appendix B              | • ANSI N45.2.4  |
| • ANSI/ASME NQA-1                 | • ANSI N45.2.5  |
| • ASME Code Section III, NCA-4000 | • ANSI N45.2.8  |
| • ANSI N45.2.1                    | • ANSI N45.2.9  |
| • ANSI N45.2.2                    | • ANSI N45.2.15 |
| • ANSI N45.2.3                    | • ANSI N45.2.20 |
| • ANSI 18.7                       |                 |

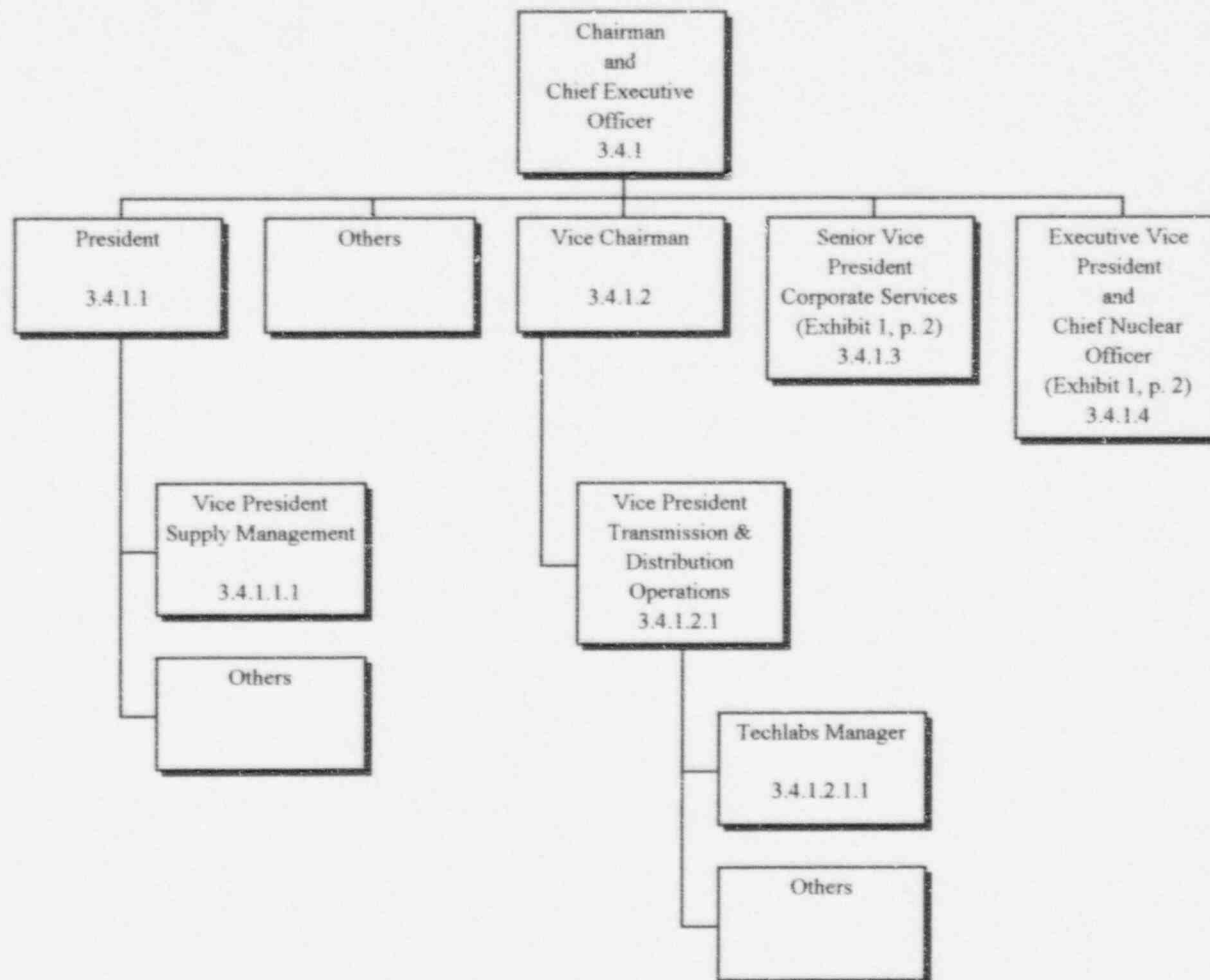


EXHIBIT 1  
Chairman and CEO  
Page 1 of 8

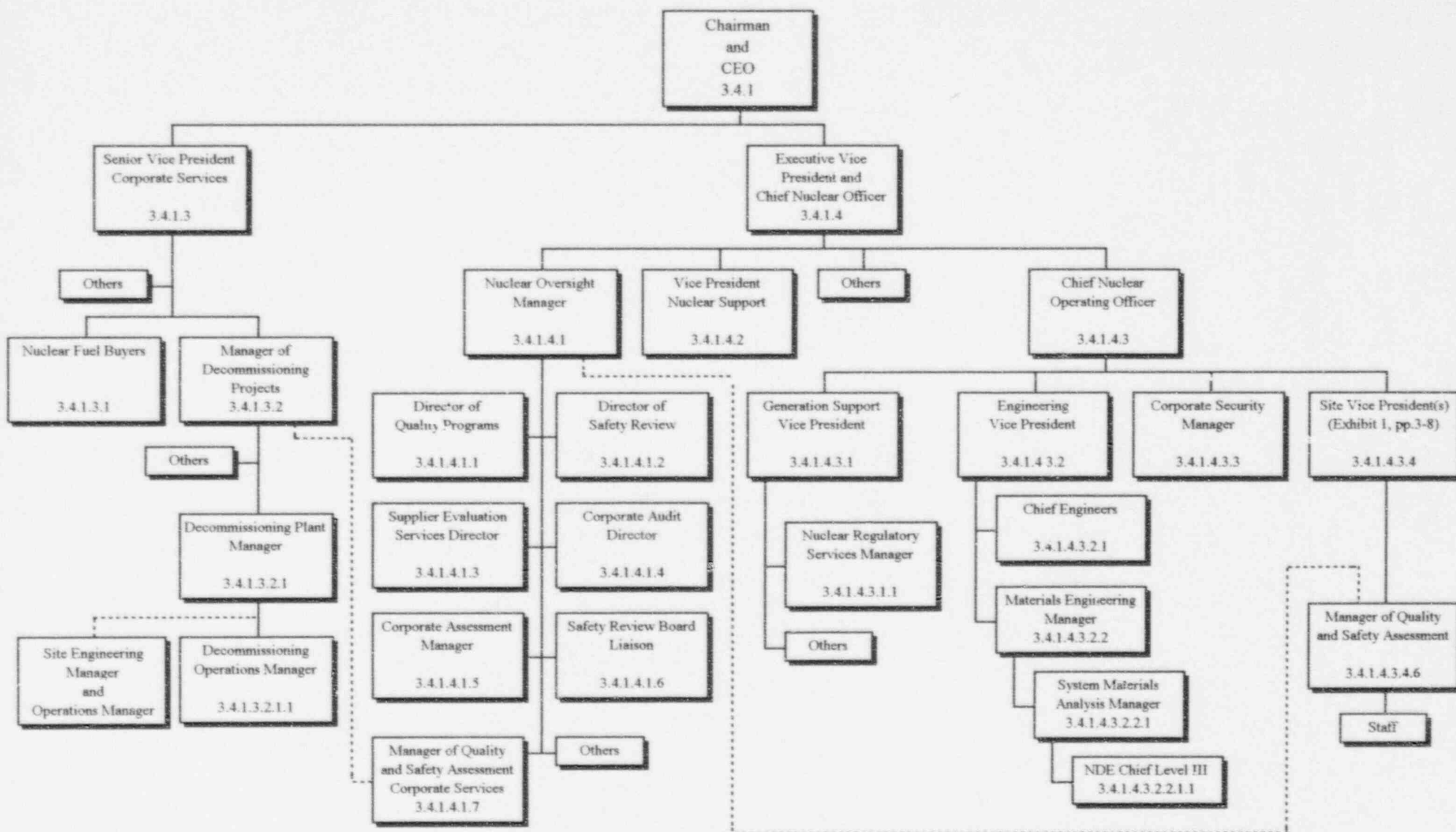


EXHIBIT 1  
Executive VP & CNO  
and  
Senior VP  
Page 2 of 8

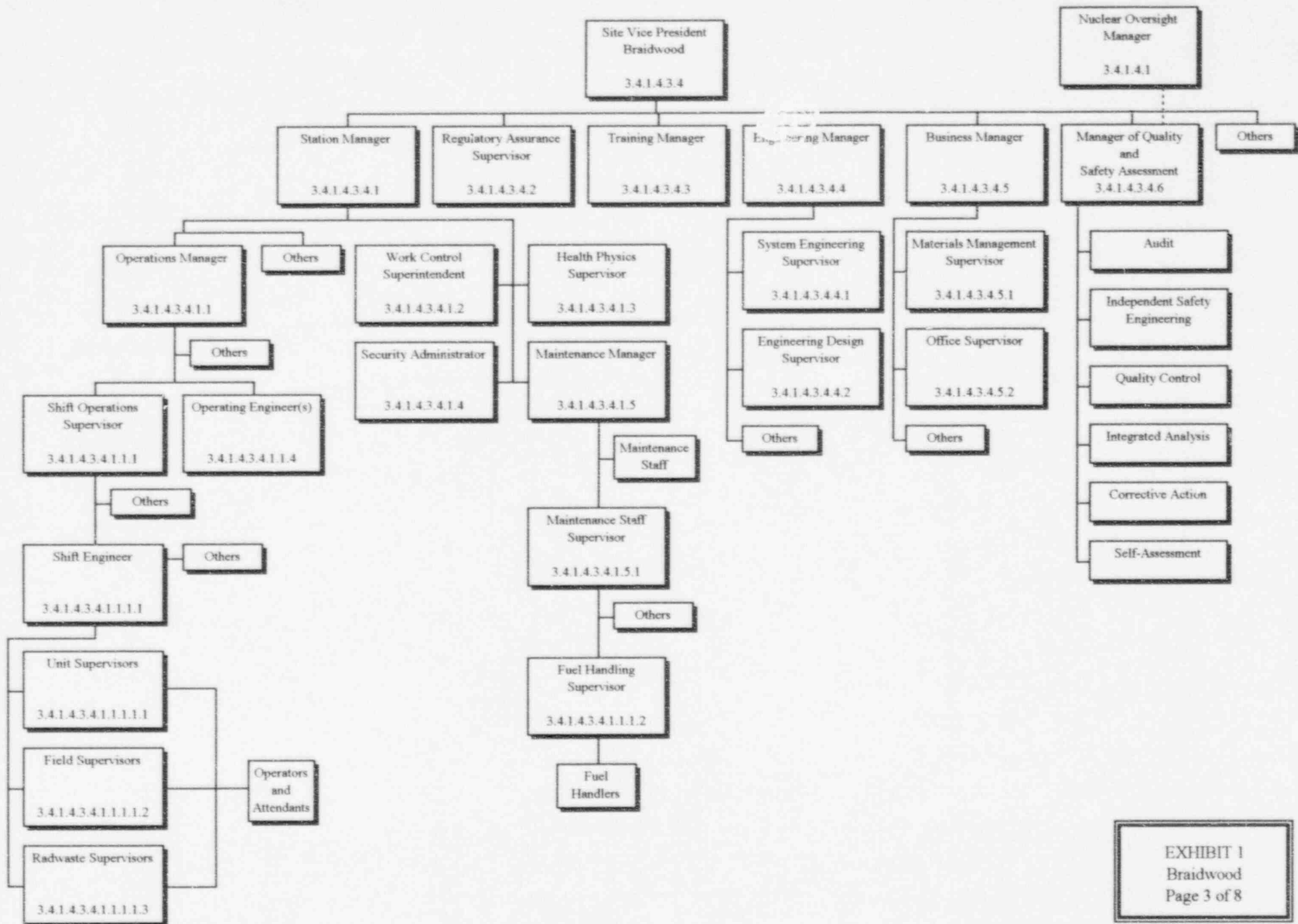
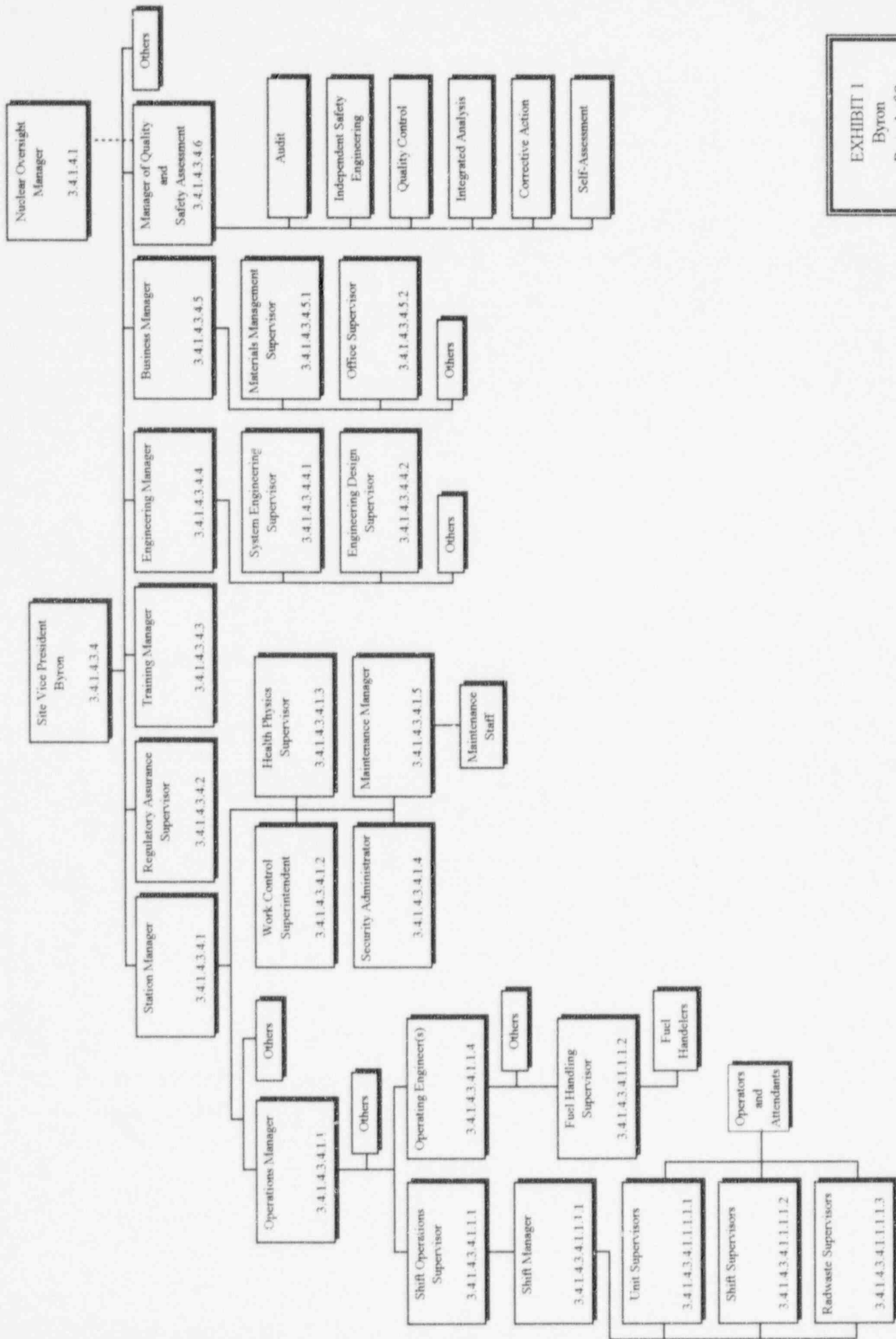


EXHIBIT 1  
Braidwood  
Page 3 of 8



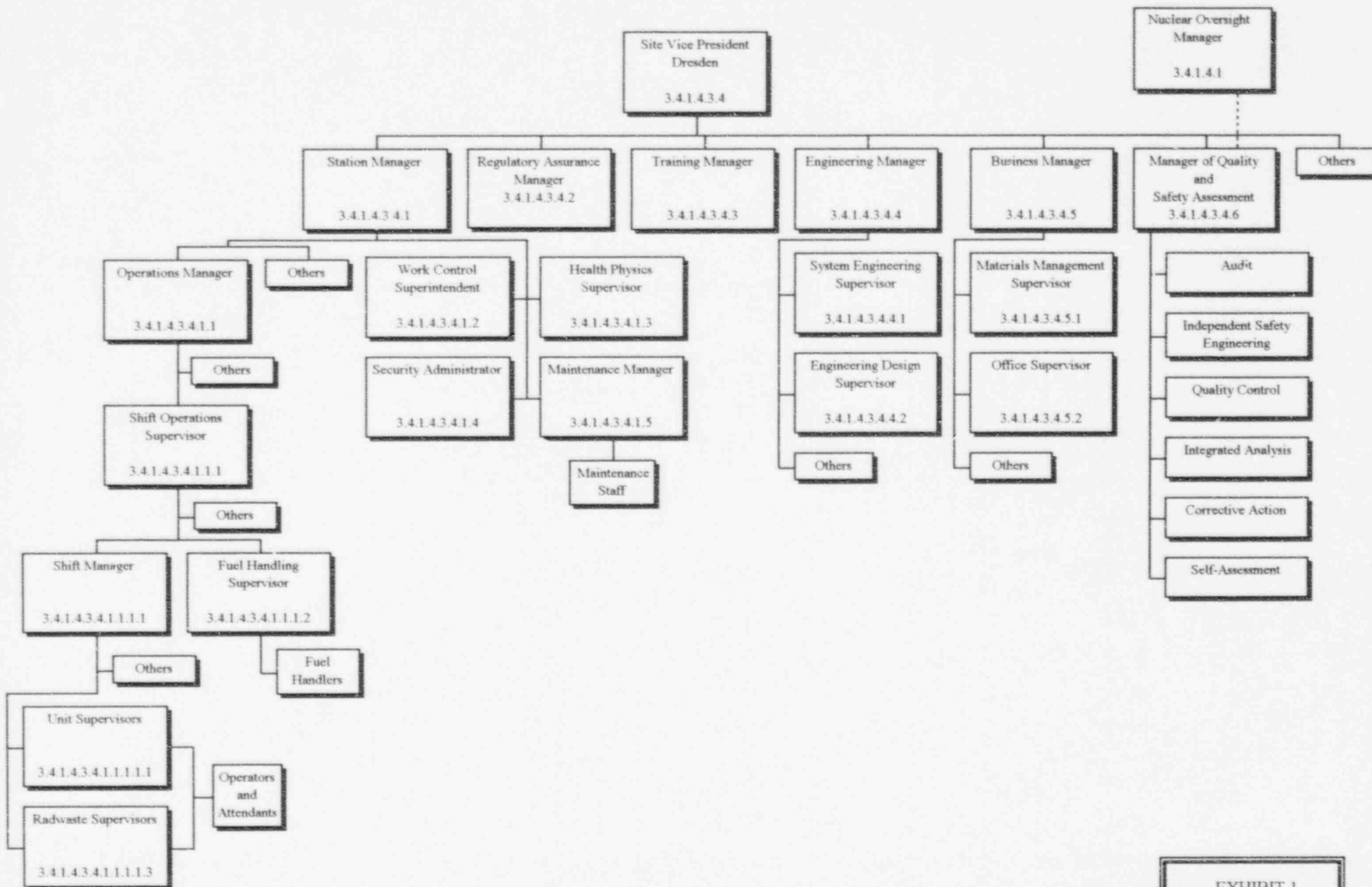


EXHIBIT 1  
Dresden  
Page 5 of 8

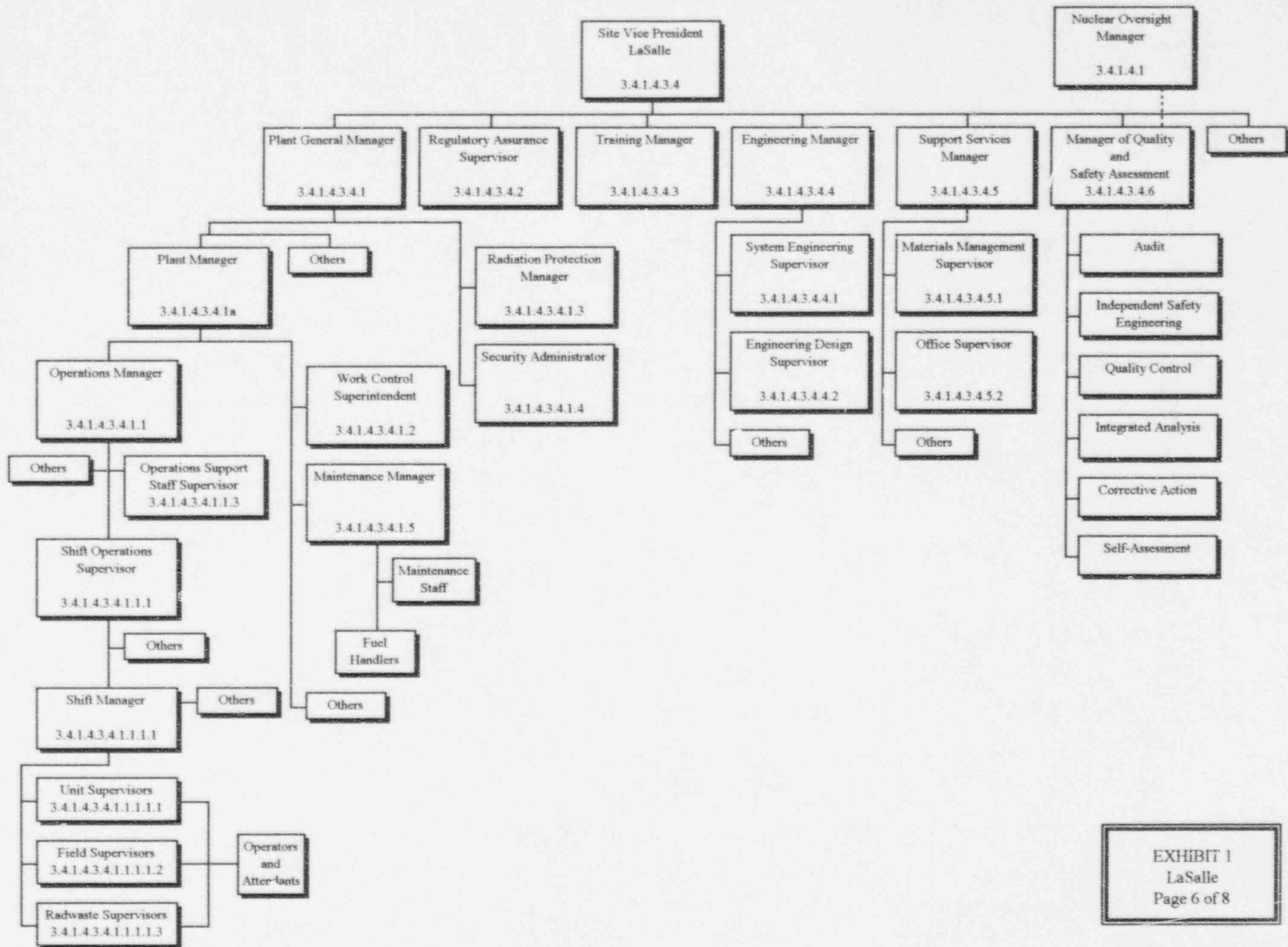
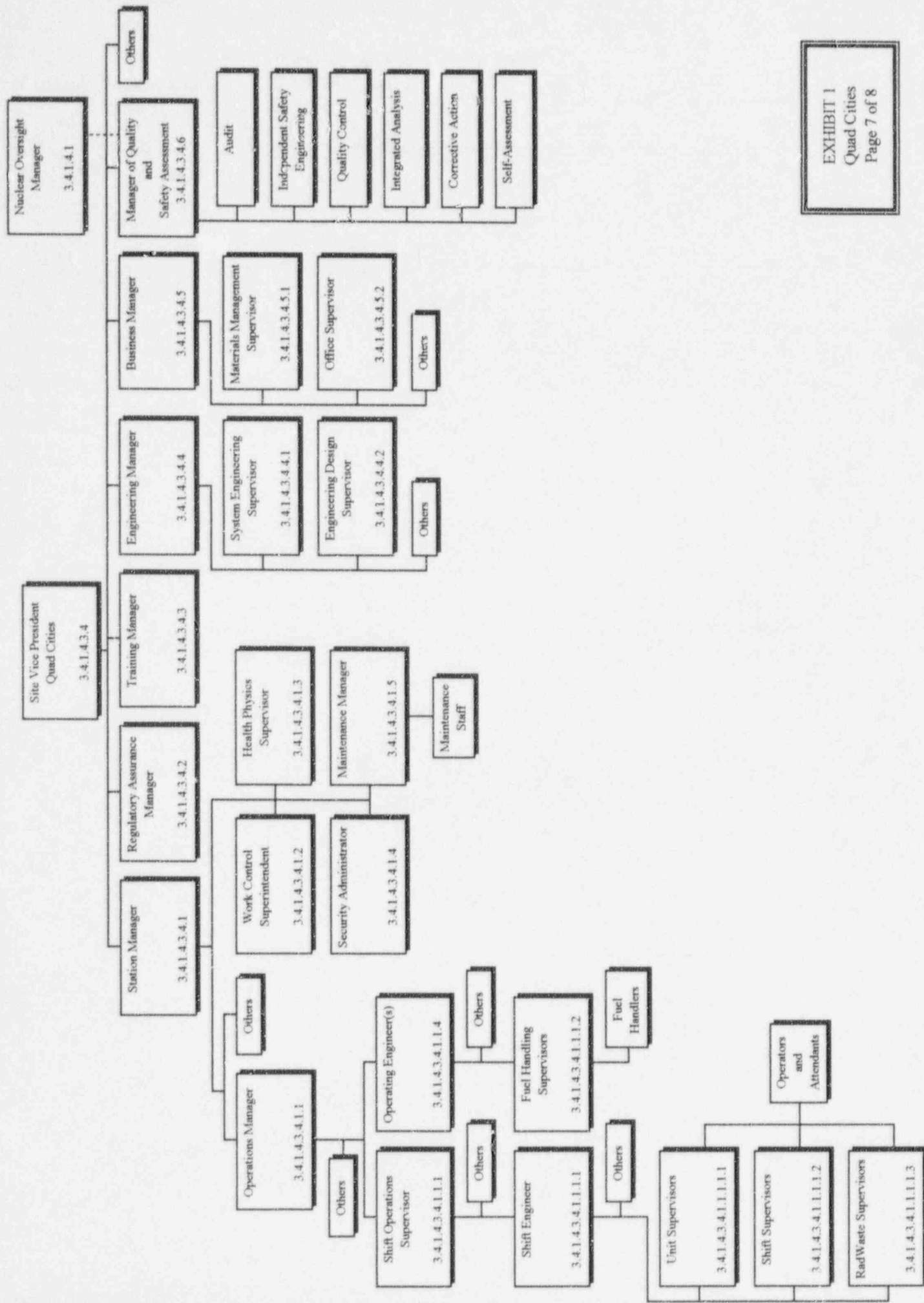


EXHIBIT 1  
LaSalle  
Page 6 of 8



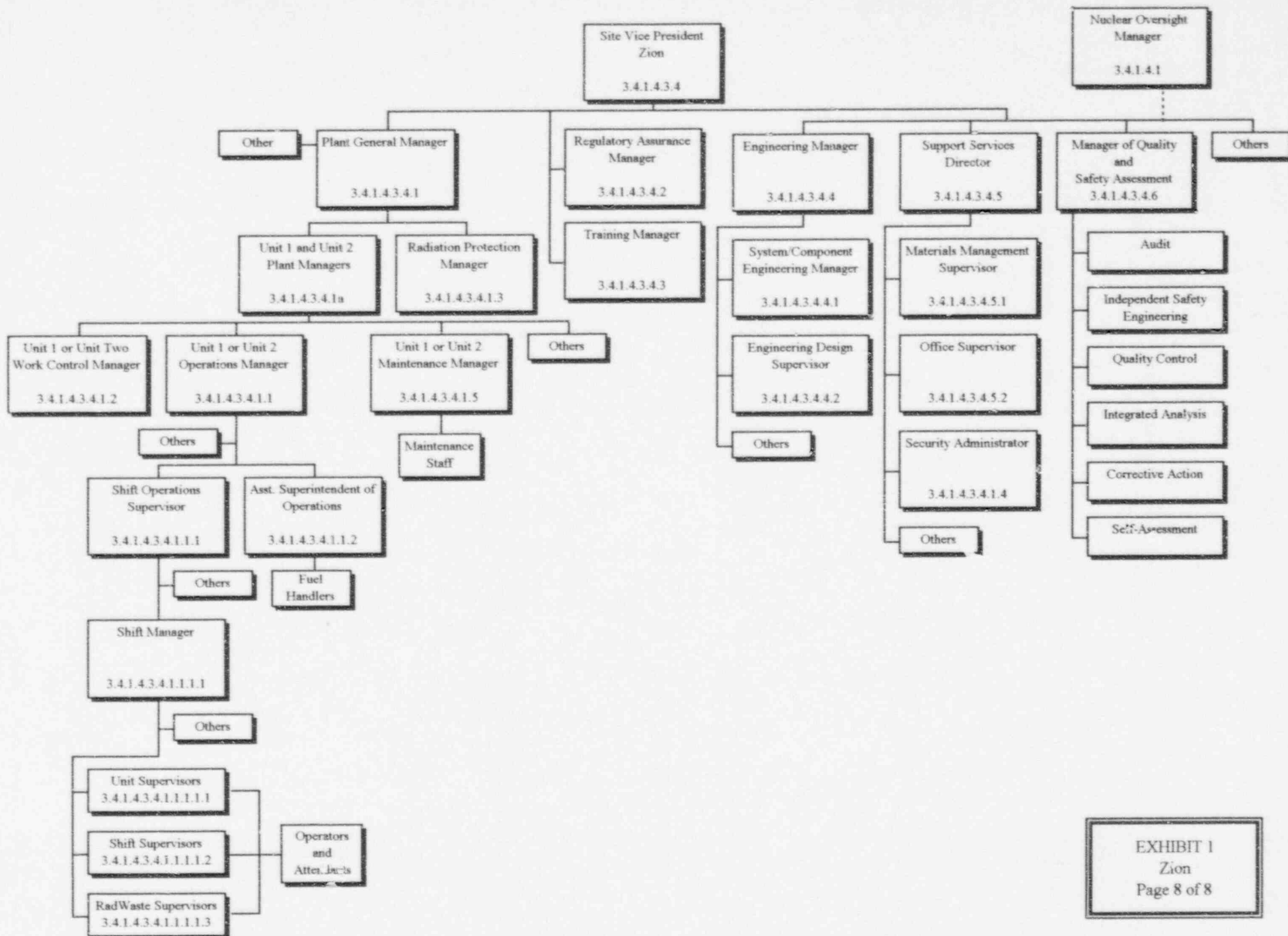


EXHIBIT 1  
Zion  
Page 8 of 8

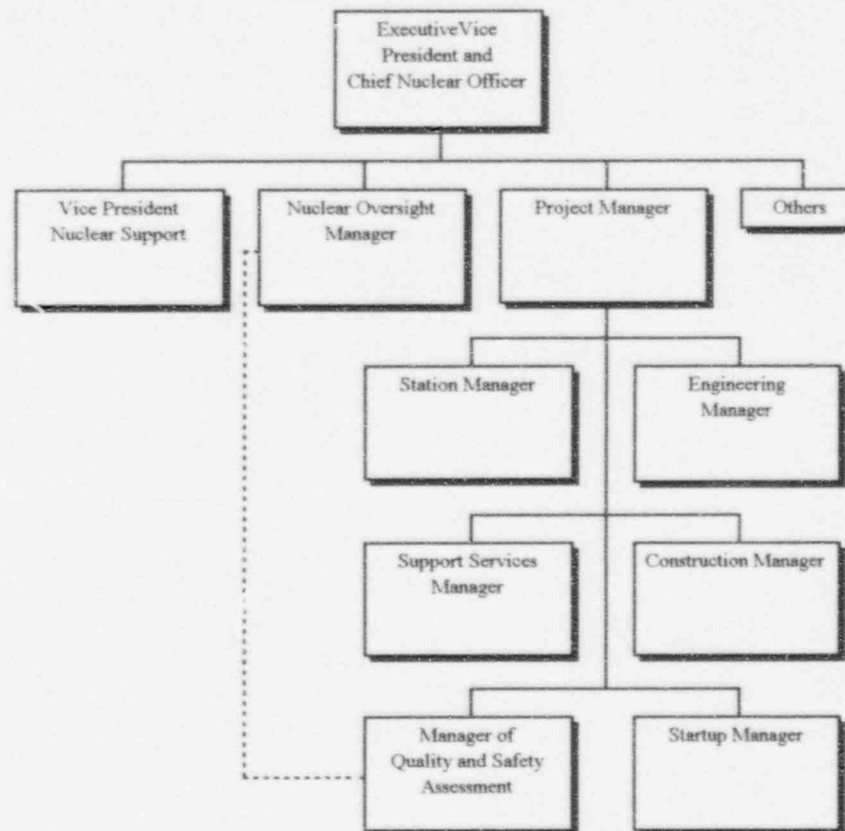


EXHIBIT 2  
New Plant Construction  
(Future)  
Page 1 of 1

## 1. POLICY

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It is the policy of Commonwealth Edison Company to have a Quality Assurance Program that:

- a. Complies with the ASME Code, Federal Regulations, and other requirements.
- b. Defines and documents the requirements and commitments that, when implemented, protect the health and safety of the public and our workers.
- c. Serves to protect the interests of ComEd.

## 2. RESPONSIBILITIES

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All organizations involved in the production of nuclear power are governed by this Program and are responsible for carrying out the requirements of this Section. These organizations include:

- Nuclear Operations
- Nuclear Stations
- Site Regulatory Assurance
- Site Material Management
- Site Engineering
- Nuclear Engineering Services
- Nuclear Support Organizations
- Nuclear Regulatory Services
- Nuclear Oversight
- Procurement
- Corporate Security
- System Materials Analysis
- Techlabs

## 3. REQUIREMENTS

---

### 3.1 General

Either regulation or ComEd, independent of the regulations, requires the activities of the Quality Assurance Program to be performed. As such, this Program meets the intent of the word "shall" as used in the regulations and ANSI and ASME documents.

This Program applies without limitation to safety related or ASME Code structures, systems, components, and activities. It also applies as described in Section 19 to

regulatory related structures, systems, components and activities to a degree consistent with their importance to safety.

This Quality Assurance Program is in effect during all phases of the design, fabrication, erection, testing, operation and decommissioning of ComEd's nuclear power plants. "Operation" includes operation, maintenance, repair, modification, refueling, and in-service inspection.

The Quality Assurance Program takes into account the need for special controls, processes, test equipment, tools, and skills necessary to attain the required quality and the need for the verification of quality by inspection and test.

This Quality Assurance Program complies with the quality requirements of:

- a. 10CFR50
  - 1. Paragraph 55a
  - 2. Paragraph 55(e)
  - 3. Paragraph 59
  - 4. Appendix A
  - 5. Appendix B
  - 6. Appendix R
- b. 10CFR21
- c. 10CFR71 Subpart H
- d. 10CFR72
- e. ASME Boiler and Pressure Vessel Code Section III (NCA 4000), Division 1 and Division 2, 1992
- f. ASME Boiler and Pressure Vessel Code Section XI, 1992
- g. ANSI/ANS 3.2, 1988
- h. ANSI/ASME NQA-1, 1989 (1a, 1b)
- i. ANSI/ASME NQA-2, 1989
- j. ANSI/ANS 3.1, 1981

This Quality Assurance Program complies with the programmatic quality requirements of the following standards. Specific work practices and acceptance criteria are reflected in implementing procedures.

- a. ANSI N101.4, 1972
- b. AWS D1.1-80
- c. IEEE Standard 323, 1974

Because of compliance with the above list of standards, this Quality Assurance Program also complies with the regulatory positions of the following Regulatory Guides:

- a. 1.26 Rev 3
- b. 1.28 Rev 3
- c. 1.29 Rev 3
- d. 1.33 Rev 2
- e. 1.54 (6/73)
- f. 1.68 Rev 2
- g. 1.143 Rev 1
- h. 4.15 Rev 1

ANSI/ASME NQA-1, 1983 and ANSI/ASME NQA-2, 1986 were written to replace ANSI N45.2 and selected daughter standards. Among these the Company had previously been committed to:

- |                              |                          |
|------------------------------|--------------------------|
| a. ANSI N45.2.1, (1973)      | f. ANSI N45.2.8, (1975)  |
| b. ANSI N45.2.2, (1972)      | g. ANSI N45.2.9, (1975)  |
| c. ANSI N45.2.3, (1973)      | h. ANSI N45.2.11, (1974) |
| d. ANSI N45.2.4, (1974)      | i. ANSI N45.2.13, (1976) |
| (IEEE STD 336)               |                          |
| e. ANSI/ASME N45.2.5, (1978) |                          |

Because this Program complies with NQA-1 and the general, programmatic quality requirements of NQA-2, the intent of the following Regulatory Guides is also met:

- |                |                 |
|----------------|-----------------|
| a. 1.30 Rev 0  | h. 1.88 Rev 2   |
| b. 1.37 Rev 0  | i. 1.94 Rev 1   |
| c. 1.38 Rev 2  | j. 1.116 Rev 0  |
| d. 1.39 Rev 2  | k. 1.123 Rev 1  |
| e. 1.58 Rev 1  | l. 1.144 (9/80) |
| f. 1.64 Rev 2  | m. 1.146 (8/78) |
| g. 1.74 (2/74) |                 |

ComEd's nuclear units have differing effective operating license dates. Each plant's SAR and/or technical specifications document the extent of commitments to the technical requirements of Regulatory Guides, Safety Guides and/or ANSI Standards. However, this Quality Assurance Program applies to all operations and includes those quality requirements contained in the documents listed in this section.

Also, ComEd requires that each of its vendors maintain a quality assurance program that satisfies the applicable portions of:

- a. ANSI/ASME NQA-1 and ANSI N45.2 Standards not covered by ANSI/ASME NQA-1 or the ANSI/ASME N45.2 series of standards for previously accepted, non-ASME quality programs.
- b. ANSI/ASME N18.7 Standards.
- c. ANSI/ASME N626.3, 1988, for firms supplying ASME Code design services.

## 3.2 Planning

### 3.2.1 General

All quality activities are planned to achieve their objectives. Such planning includes review of relevant requirements. Planning establishes the systematic, sequential progression of actions to meet the defined requirements.

ComEd documents these plans in appropriate communications, approvals, instructions, and procedures.

### **3.2.2 Controlled Conditions**

Activities described in this Program are accomplished under controlled conditions. Controlled conditions include appropriate equipment, qualified personnel, suitable environment, and use of appropriate procedures. Other sections of this Program describe these controlled conditions.

### **3.2.3 Program Planning**

An Audit Program is planned and conducted in accordance with Section 18 of this Program.

A Design Program is planned and conducted in accordance with Section 3 of this Program.

A Procurement Program is planned and conducted in accordance with Sections 4, 7, 8, and 13 of this Program.

## **3.3 Program Description**

ComEd's total program for providing administrative controls and quality assurance is incorporated in many diverse documents. This document is the QA Program and is the policy directive for Nuclear Quality Assurance. At the interdepartmental level, Nuclear Operating Directives, Nuclear Station Procedures, the Special Process Procedure Manual, and the Nuclear Oversight Procedures describe the implementation of the QA Program. At the departmental level, approved implementing procedures and instructions are written to the extent necessary to implement the quality requirements. Line, staff, administrative, and quality oversight organizations issue these implementing procedures. All activities affecting quality are described in sufficient detail to assure quality.

The implementation of the QA Program will be tracked by the Quality Assurance Database. The Quality Assurance Program Database summarizes the sources of requirements and the relationship among them and the QA Program.

## **3.4 Indoctrination & Training**

Personnel performing activities affecting quality are oriented, indoctrinated, and trained as necessary to assure achievement and maintenance of suitable proficiency. Training

programs are developed to indoctrinate, qualify and/or certify personnel in specific activities in which they will be engaged. These training programs include:

- a. Quality Assurance Program.
- b. Quality principles.
- c. Company policies.
- d. Implementing procedures.

Training is conducted in a time frame adequate to prepare personnel for their job responsibilities and is an extension of formal education or work experience. Training required for specific qualifications or certifications is conducted and documented in accordance with applicable regulations and requirements including the requirements of NQA-1. Qualification documents specify functions and basis of qualification. Personnel performing or verifying activities affecting quality are tested to determine if established levels of knowledge and proficiency are attained. Proficiency of personnel performing and verifying activities affecting quality is maintained by retraining, reexamining and/or recertifying as determined by management or required by the ASME Code.

Training and certification of personnel associated with nondestructive examination are carried out in accordance with the requirements of NQA-1 and ASME Section III, NX-5520. A Level III certified person administers all ASME Code examination activities.

Training and certification of personnel associated with concrete containment inspections is in accordance with Appendix VII of ASME Section III, Division 2. The period of qualification for concrete inspectors is three years.

Vendor personnel engaged in inspection, examination and testing activities will be trained, qualified and certified to perform their specific activity under the above requirements.

### **3.5 Program Review**

The Company regularly reviews the status and adequacy of the Quality Assurance Program. Reports to management described in Sections 1 and 18 of this Program fulfill this requirement. Vendors are required to perform regular reviews of the status and adequacy of their quality assurance programs. The Nuclear Oversight Department defines and measures the overall effectiveness of the Quality Assurance Program.

The independence of the Nuclear Oversight Department is described in Section 1 of this Program. Nuclear Oversight uses its own audits and evaluations in determining Quality Assurance Program and corrective action effectiveness as described in Sections 16 and 18 of this Program. Independent reviews of the Audit Program are described in Section 18 of this Program.

### 3.6 Quality Assurance Manual

The Company Quality Assurance Manual consists of this Quality Assurance Program document, and the Quality Assurance Program Database. The Quality Assurance Program Database contains:

- a. The Quality Assurance Program.
- b. The pertinent parts of source documents.
- c. Cross-references among these elements.
- d. Cross-references to the responsible departments and implementing procedures.

The QA Manual is made available to Company personnel, NRC personnel, the Authorized Nuclear Inspector, and other regulatory authorities. ComEd submits revisions to the Quality Assurance Program document (as the Topical Report) to the NRC for acceptance as follows:

- a. Programmatic changes which reduce commitments must be accepted prior to implementation.
- b. Substantive changes (organizational, operational, etc.) will be submitted within 30 days of effective date.
- c. Changes, editorial changes, reassignments which do not reduce commitments may not be submitted at the time of the change, but are submitted at least once every two years.

The Authorized Nuclear Inspector Supervisor accepts proposed changes before they are put into effect. Changes are distributed.

## 4. REFERENCES

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The following references were used in the generation of this Section. The Company's commitment to particular revisions of these standards is contained in this section. Specific references for the requirements listed in Article 3 of this Section are contained in the Q.A. Program Database.

- 10CFR50 APPENDIX B
- 10CFR72
- ANSI/ASME NQA-1
- ANSI N18.7
- ANS 3.2
- ANSI N45.2
- ANSI N45.2.11
- ANSI N45.2.9

- ASME Code Section III, NCA-4000
- ANSI N45.2.3
- ANSI N 101.4
- LaSalle Station FSAR 7/83
- Byron/Braidwood Stations FSAR 9/79
- ANSI N45.2.4
- IEEE N45.2.1
- ANSI N45.2.1
- ANSI N45.2.5
- ANSI N45.2.13
- ANSI N45.2.8
- Facility Operating Licenses (Technical Specifications).

## 1. POLICY

---

Design, design interfaces, and design changes shall be defined, controlled and verified.

## 2. RESPONSIBILITIES

---

The following organizations are responsible for carrying out the requirements of this Section:

- Nuclear Stations
- Site Material Management
- Site Engineering
- Nuclear Engineering Services
- Nuclear Oversight
- Procurement
- System Materials Analysis
- Techlabs
- Nuclear Fuel Services

The Company assigns responsibility for specific requirements through the Quality Assurance Program Data Base.

## 3. REQUIREMENTS

---

### 3.1 General

The Nuclear Engineering Services organization and the site Engineering organization are responsible, overall, for design and design control of mechanical, electrical, instrumentation and control, structural and nuclear related systems and components. The Nuclear Fuel Services Department is responsible for reactor core design analysis, core design specifications and design reviews, for nuclear fuel and in-core components. Design control activities include independent review and evaluation of design documents. Design reviews or evaluations are conducted to written procedures and include consideration of quality standards, quality assurance requirements, materials suitability, process suitability, interface control, analytical or testing requirements, design basis, and configuration management.

### 3.2 Design Input

Design inputs, such as design bases, performance requirements, regulatory requirements, codes, and standards shall be identified and documented. Their selection shall be reviewed and approved by the responsible design organization. The design input shall be specified and approved in a timely manner and be to the level of detail necessary to provide a consistent basis for making design decisions, accomplishing design verification, and evaluating design changes. Changes from approved design inputs, including the reason for the changes shall be identified, approved, documented, and controlled.

### 3.3 Design Process

The responsible design organization shall prescribe and document the design activities in a timely manner and to the level of detail necessary to permit verification that the design meets requirements. Included in this scope of activities are considerations for field engineering; physics; seismic, stress, thermal, hydraulic, and radiation factors; the safety analysis accident scenarios; and accessibility for inservice inspection, maintenance and repairs. Design documents shall be adequate to support facility design, construction, and operation. Selection of the appropriate quality standards shall be documented, reviewed and approved.

Reasons for changes from specified quality standards, shall be identified, documented, approved and controlled. Design methods, materials, parts, equipment, and processes that are essential to the function of the structure, system, or component shall be selected and reviewed for suitability of application. Applicable industry experience, as set forth in reports or other documentation, shall be made available to cognizant design personnel. The final design output documents and approved changes thereto shall be relatable to the design input by documentation in sufficient detail to permit design verification. The final design shall identify assemblies and/or components that are part of the item being designed. If materials, parts, equipment, or processes are different from the published vendor information, these differences shall be documented.

### 3.4 Design Analyses

Design analyses shall be performed in a planned, controlled, and documented manner. Design analysis documents shall be legible and suitable for reproduction, filing, and retrieval. They shall be sufficiently detailed as to purpose, method, assumptions, design input, references, and units such that a person technically qualified in the subject can independently review and verify the analyses and its results. Calculations shall be identified for retrievability by subject including structure, system, component, originator, reviewer and date or by other unique identifiers.

Computer programs may be utilized for design analysis without individual verification of the program for each application provided:

- a. The computer program has been verified to show that it produces correct solutions for the encoded mathematical model within defined limits for each parameter employed.
- b. And the encoded mathematical model has been shown to produce a valid solution to the physical problem associated with the particular application.

Computer programs shall be controlled to assure that changes are documented and approved. Verification shall be required for changes to previously verified computer programs including evaluation of the effects of these changes on (a) and (b) above.

Documentation of design analyses shall include:

- a. Statement of the objective of the analyses.
- b. List of design inputs and their sources.
- c. Results of literature searches or other applicable background data.
- d. List of assumptions and indication of those that must be verified as the design proceeds.
- e. List of any computer calculation and the bases for its use.
- f. Review and approval.

### 3.5 Design Verification

Design adequacy shall be verified by one or more of the following: performance of design reviews, use of alternate calculations, or performance of qualification tests. The design verification method(s) used shall be identified and documented. The results of design verification shall be documented including the identification of the verifier. Design verification shall be performed by competent individual(s) other than those who performed the original design. cursory supervisory reviews do not satisfy the intent of design verification.

Verification shall be performed in a timely manner. Design verification, for the stage of design activity accomplished, shall be performed prior to release for procurement, manufacture, construction, or release to another organization for use in other design activities provided sufficient data exists. Any unverified portion of the design shall be identified and controlled. In all cases the design verification shall be completed prior to relying upon the component, system, structure, or computer program to perform its function.

### 3.5.1 Extent of Design Verification

The extent of the design verification required is a function of the importance to safety, the complexity of the design, the degree of standardization, the state of the art, and the similarity with previously proven designs. Where the design has been subjected to a verification process, the process need not be duplicated for identical designs. For each application the applicability of standardized or previously proven designs for design inputs shall be verified. Known problems affecting the standard or previously proven designs and their effects on other features shall be considered. The original design and associated verification shall be adequately documented and referenced in subsequent applications. Design verification shall be required for changes to previously verified designs. This includes evaluation of the effects of those changes on the overall design and on any affected design analyses.

### 3.5.2 Methods

Acceptable verification methods include one or more of the following: design reviews, alternate calculations, and qualification testing.

#### 3.5.2.1 Design Reviews

Critical design reviews shall provide assurance that the final design is correct and satisfactory.

#### 3.5.2.2 Alternate Calculations

Calculations or analyses shall be made with alternate methods to verify correctness of the original calculations or analyses. The appropriateness of assumptions, input data used, and the computer program or other calculation method used shall be reviewed.

#### 3.5.2.3 Qualification Tests

When design adequacy is verified by qualification tests, the tests and test configuration shall be identified. Testing shall demonstrate adequacy of performance under conditions that simulate the most adverse design conditions. Where the test is intended to verify only specific design features, the other features of the design shall be verified by other means. Test results shall be documented and evaluated by the responsible design organization to assure that test requirements have been met. If qualification testing indicates that changes to the item are necessary to obtain acceptable performance, the change shall be documented and verified to assure satisfactory performance.

### 3.6 Change Control

Changes to final designs, field changes, modifications to operating facilities, and nonconforming items dispositioned use-as-is or repair shall be justified and subject to design control measures commensurate with those applied to the original design. These measures shall include assurance that the design analyses for the structure, system, or component are still valid. Changes shall be approved by the same affected groups or organizations which reviewed and approved the original design documents. In the case where the original organization is no longer responsible for design approval, then a new responsible design organization shall be designated. The designated organization shall have demonstrated competence in the specific design area of interest and have an adequate understanding of the requirements and intent of the original design.

When a design change is approved, other than by revision to the affected design documents, measures shall be established to incorporate, where appropriate, the change into these documents.

Where a significant design change is necessary because of an incorrect design, the design process and verification procedure shall be reviewed and appropriate action taken.

Plant personnel will be made aware of design changes/modifications which may affect the performance of their duties.

### 3.7 Interface Control

Design interfaces shall be identified and controlled. The Company shall coordinate design efforts among the participating organizations. Interface controls shall include the assignment of responsibility and the establishment of procedures among participating design organizations. Controls shall be for the review, approval, release, distribution and revision of documents involving design interfaces.

Design information transmitted across interfaces shall be documented and controlled.

### 3.8 Documentation and Records

Specific requirements are stated in Section 6 and Section 17.

#### **4. REFERENCES**

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The following references were used in the generation of this Section. The Company's commitment to particular revisions of these standards is contained in Section 2. Specific references for the requirements listed in Article 3 of this Section are contained in the Q.A. Program Database.

- 10CFR50 Appendix B
- ANSI N18.7
- ANSI/ASME NQA-1
- ASME Code Section III, NCA-4000

## 1. POLICY

---

This Section identifies the requirements for preparation, review and retention of procurement documents.

## 2. RESPONSIBILITIES

---

The following organizations are responsible for carrying out the requirements of this Section:

- Nuclear Stations
- Site Material Management
- Site Engineering
- Nuclear Engineering Services
- Nuclear Oversight
- Procurement
- System Materials Analysis
- Techlabs

The Company assigns responsibility for specific requirements through the Quality Assurance Program Data Base.

## 3. REQUIREMENTS

---

### 3.1 General

ComEd establishes procedures for the preparation and review of procurement documents. Procurement documents at all tiers include or reference requirements that are deemed necessary to assure adequate quality. These requirements include reference to 10CFR21 when applicable.

### 3.2 Supplier QA Program Requirements

Procurement Documents require:

- a. Each vendor who supplies safety related items or services to have and implement a quality assurance program that meets the requirements of 10CFR50 Appendix B.
- b. For purchases of ASME Code items or services, the vendor's quality assurance program is consistent with the applicable requirements of the ASME Code.

Section 7 contains specific exceptions to these requirements.

### **3.3 Content of Procurement Documents**

Procurement documents at all tiers include the following as deemed necessary by the Company.

#### **3.3.1 Scope of Work**

Procurement documents describe the scope of the items or services to be furnished by a vendor.

#### **3.3.2 Technical Requirements**

ComEd specifies technical requirements by reference to specific drawings, specifications, codes, standards, regulations, procedures, or instructions (including revisions thereto) that describe the items or services to be furnished. The procurement documents identify test, inspection and acceptance requirements. The procurement document identifies special instructions and requirements for such activities as designing, identification, fabrication, cleaning, erecting, packaging, handling, shipping, and extended storage.

#### **3.3.3 Extension of QA Program to Subtier Suppliers**

Procurement documents require the vendors to incorporate quality assurance program requirements in subtier procurement documents.

#### **3.3.4 Right of Access for Inspection and Audit**

Procurement documents provide for access to the vendor's facilities and records for inspection or audit by the Company or its designated representative.

#### **3.3.5 Nonconformances**

Procurement documents include requirements for reporting and approving the disposition of nonconformances.

#### **3.3.6 Documentation Requirements**

Procurement documents identify the documentation requirements including:

- a. Required quality assurance records.
- b. Those records to be transmitted to ComEd.
- c. Time of submittal.
- d. The retention time and method of disposition of those records the vendor retains.

### 3.3.7 Spare and Replacement Parts

The procurement documents require the identification of appropriate spare and replacement parts or assemblies and the appropriate delineation of the technical and quality assurance related data required for ordering these parts or assemblies.

### 3.4 Procurement Document Review

ComEd reviews procurement documents to assure that they include the necessary technical and quality requirements before release for bid and contract award. Records concerning the review and evaluation of procurement documents include, in whole or in part:

- a. Minutes of meetings.
- b. Comment letters.
- c. Design review records.
- d. Project quality assurance audits.
- e. A copy of the original design document marked with comments or latest revisions.

These records are kept in ComEd department files, vendor files, or both locations. Trained personnel who are qualified in QA practices and concepts review procurement documents for adequacy of the referenced quality requirements. They document concurrence in the adequacy of the specified quality requirements.

### 3.5 Control of Procurement Document Changes

Changes to procurement documents are subject to the same review and approval as the original documents. Procurement documents incorporate changes made because of bid evaluations or contract negotiations. The review of these changes and their effects are completed before contract award. The review of changes includes the following:

- a. The appropriate requirements specified in Article 3.3 of this Section.
- b. Determination of any additional or modified design criteria.
- c. Analysis of exceptions or changes requested by the vendor.
- d. Determination of the effects these changes may have on:
  - 1) the intent of the procurement documents or
  - 2) quality of the procurement documents or
  - 3) quality of the item or service to be furnished.

Reviews required by this section are done by personnel who have:

- a. Access to the pertinent information and
- b. Understanding of the requirements and intent of the procurement documents.

#### 4. REFERENCES

---

The following references were used in the generation of this Section. The Company's commitment to particular revisions of these standards is contained in Section 2. Specific references for the requirements listed in Article 3 of this Section are contained in the Q.A. Program Database.

- 10CFR50 Appendix B
- ANSI N18.7
- ANSI N45.2
- ANSI/ASME NQA-1
- ASME Code Section III, NCA-4000
- ANSI N45.2.13

## 1. POLICY

---

Activities governed by the Commonwealth Edison Company Quality Assurance Program shall be performed as directed by documented instructions, procedures, and drawings appropriate for the activity. The requirements for the use of these procedures shall also be prescribed in writing. These instructions, procedures, and drawings shall include acceptance criteria as applicable or appropriate for the activity.

Those participating in any activity shall be aware of and use the proper and current revision of instructions, procedures, drawings and engineering requirements for performing the activity.

## 2. RESPONSIBILITIES

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Nuclear Operations Directives are prepared and implemented as necessary to accomplish nuclear station activities in a uniform and systematic manner.

The Nuclear Stations provide operations procedures and instructions. These procedures will be consistent with NRC license requirements for administering policies, procedures, and instructions to assure safe operation from the time that the Operating License is issued through the life of the station.

Any ComEd organization involved with nuclear plant design, procurement, maintenance, modification, construction, or operation may propose procedures, as necessary, to meet regulatory, ASME Code or other applicable requirements. These organizations include:

- Nuclear Operations
- Nuclear Stations
- Site Regulatory Assurance
- Site Material Management
- Site Engineering
- Nuclear Engineering Services
- Nuclear Support Organizations
- Nuclear Regulatory Services
- Nuclear Oversight
- Procurement
- Corporate Security
- System Materials Analysis
- Techlabs
- Nuclear Fuel Procurement

The Company assigns responsibility for specific requirements through the Quality Assurance Program Data Base.

### 3. REQUIREMENTS

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#### 3.1 Preparation and Review

Procedures shall be prepared, reviewed, approved, and used as prescribed, in writing, and shall contain sufficient detail to perform the required actions. Where appropriate, these procedures will include checklists containing the necessary attributes to be observed or measured.

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

#### 3.2 General

Operation, maintenance, or modification of equipment shall be preplanned and performed in accordance with written procedures that are appropriate to the circumstances and that conform to applicable codes, standards, specifications and criteria. When ASME Code work is involved, these documents shall include applicable code requirements and shall be made available to the Authorized Inspector for review and insertion of hold points, as applicable.

Temporary procedures may be issued to provide guidance in unusual situations that are not within the scope of the normal procedures. Temporary procedures shall be subject to review and approval, and shall include designation of the time period during which they may be used. In the event of an emergency not covered by an approved procedure, authorized personnel shall provide appropriate direction to minimize personnel injury and damage to the facility and to protect the health and safety of plant personnel and the general public.

#### 3.3 Procedures and Programs

**NOTE:** The requirements contained in all articles and sub-articles of 3.3.1 and 3.3.2 apply to Dresden and Quad Cities stations. These requirements were transferred here from the Dresden and Quad Cities Technical Specifications to meet an administrative commitment resulting from the Technical Specification Upgrade Program. Similar requirements exist for Braidwood, Byron, LaSalle and Zion. Refer to the most recently approved amendment of these stations' Technical Specifications for applicable requirements.

### 3.3.1 Technical Review and Control

Procedures required by a station's Technical Specifications and other procedures which affect nuclear safety, as determined by the Station Manager or Plant General Manager, and changes thereto, other than editorial or typographical changes, shall be reviewed as follows prior to implementation, except as noted in 3.3.2.

- a. Each procedure or procedure change shall be independently reviewed by a qualified individual knowledgeable in the area affected other than the individual who prepared the procedure or procedure change. This review shall include a determination of whether or not additional cross-disciplinary reviews are necessary. If deemed necessary, the reviews shall be performed by the qualified review personnel of the appropriate discipline(s).
- b. Individuals performing these reviews shall meet the applicable experience requirements of ANSI 18.1, 1971, Sections 4.2 and 4.4, and be approved by the Station Manager or Plant General Manager.
- c. Applicable Administrative Procedures recommended by Regulatory Guide 1.33, Plant Emergency Operating Procedures, and changes thereto shall be submitted to the Onsite Review and Investigative Function for review and approval prior to implementation.
- d. Review of the procedure or procedure change will include a determination of whether or not an unreviewed safety question is involved. This determination will be based on the review of a written safety evaluation prepared by a qualified individual(s), or documentation that a safety evaluation is not required. Onsite Review, Offsite Review and Commission approval of items involving unreviewed safety questions shall be obtained prior to station approval for implementation.
- e. The department head approval authority shall be as specified in station procedures.
- f. Written records of reviews performed in accordance with this specification shall be prepared and maintained in accordance with 3.10 of Section 17.
- g. Editorial and typographical changes shall be made in accordance with station procedures.

### 3.3.2 Temporary Changes

Temporary changes to procedures required by 3.3.1 may be made provided:

- a. The intent of the original procedure is not altered.
- b. The change is approved by two members of the plant management staff, at least one of whom holds a Senior Reactor Operator's License on the unit affected.
- c. The change is documented, reviewed, and approved in accordance with 3.3.1 within 14 days of implementation.

## 4. REFERENCES

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The following references were used in the generation of this Section. The Company's commitment to particular revisions of these standards is contained in Section 2. Specific references for the requirements listed Article 3 of this Section are contained in the Q.A. Program Database.

- 10CFR50 Appendix B
- 10CFR50.55
- ASME Code Section III, NCA-4000
- ANSI/ASME NQA-1
- ANSI N18.7
- ANS-3.2 1988
- ANSI N45.2
- ANSI/ANS 3.2
- ANSI N45.2.11
- ANSI N45.2.13
- Facility Operating Licenses (Technical Specifications)

## 1. POLICY

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The preparation, issue and change of documents, (e.g., instructions, procedures and drawings) shall be controlled by the Company to assure that correct documents are used. For all activities affecting quality these controls include:

- a. A review for adequacy, completeness and correctness.
- b. An approval for release by authorized personnel.
- c. The distribution to, and use at, the location where the activity is performed.

## 2. RESPONSIBILITIES

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Any ComEd organization involved with the preparation, issue, and change of documents affecting quality for nuclear plant activities shall establish procedures necessary to implement the requirements of this Section. These organizations include:

- Nuclear Operations
- Nuclear Stations
- Site Regulatory Assurance
- Site Material Management
- Site Engineering
- Nuclear Engineering Services
- Nuclear Support Organizations
- Nuclear Regulatory Services
- Nuclear Oversight
- Procurement
- Corporate Security
- System Materials Analysis
- Techlabs

Individuals participating in any activity shall be made aware of and use proper and current documents

The Company assigns responsibility for specific requirements through the Quality Assurance Program Data Base.

### 3. REQUIREMENTS

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#### 3.1 Document Preparation, Review, Approval, Issuance and Distribution

Document control measures shall provide for:

- a. Identifying individuals or organizations responsible for preparing, reviewing, approving and issuing documents including revisions.
- b. Identifying and assuring that proper documents are used in performing this activity.
- c. Coordinating and controlling interface documents.
- d. Establishing lists of documents required to be controlled by organizations involved with activities affecting quality.
- e. Distributing documents approved for issuance in accordance with updated and current distribution lists.

#### 3.2 Document Changes

Changes to documents shall be reviewed and approved by the same organizations that performed the original review and approval unless delegated to another responsible organization. The reviewing organization shall have access to pertinent background data or information upon which to base their approval. Minor changes to documents, such as editorial corrections, may not require that the revised documents receive the same review and approval as the original documents. To avoid a possible omission of a required review, procedures are established to control minor changes.

#### 3.3 General

Procedures developed to control documents shall meet the requirements of ANSI N18.7.

Procedures shall be reviewed and approved prior to initial use. In place of the biennial review frequency, specified by ANSI N18.7-1976 and 1972, Commonwealth Edison has in place existing programmatic review controls which ensure that procedures are technically and administratively correct prior to use. These existing controls ensure that procedures are reviewed and revised when pertinent source material is revised, when the plant design changes, or when deficiencies are identified and corrected. Due to their importance to safety, biennial review of abnormal procedures (such as emergency operating procedures) shall continue.

The programs in place to accomplish the procedure reviews include: the plant modification program, the operational experience feedback program, the procedure feedback process, the integrated reporting/corrective action program, the technical specification and updated final safety analysis report revision programs, the vendor information program, and the commitment management and tracking process.

Provisions shall be established to ensure that infrequently used procedures are reviewed prior to use, unless they have been reviewed within the previous two years.

The reviews are accomplished by individuals other than the originator, knowledgeable in the area affected by the procedure.

Document controls required by ASME Section III, Division 1 and Division 2 are as stated in the ASME Code interface.

ASME Code documents are made available to the Authorized Nuclear Inspector.

Document control procedures shall assure that proper documents are accessible and are being used. Obsolete documents are recalled or identified.

The scope of the document control program is defined. Examples of documents that are controlled include, but are not limited to: as-built drawings, engineering calculations, design specifications, computer codes, purchase orders and related documents, audit and surveillance procedures, operating procedures, emergency operating procedures, technical specifications, nonconformance reports, corrective action reports, work instructions and procedures, calibration procedures, quality verification procedures, inspection and test reports, Safety Analysis Reports, and Topical Reports.

## 4. REFERENCES

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The following references were used in the generation of this Section. The Company's commitment to particular revisions of these standards is contained in Section 2. Specific references for the requirements listed in Article 3 of this Section are contained in the Q.A. Program Database.

- 10CFR50 Appendix B
- ANSI/ASME NQA-1
- ANSI N18.7
- ASME Code Section III, NCA-4000
- Letter dated December 20, 1994 from M. Ring (NRC) to Site Vice Presidents (ComEd)
- ANSI N45.2
- ANSI N45.2.11
- ANSI/ANS-3.2

## **1. POLICY**

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This Section establishes the quality system elements and related policies that assure the quality of purchased material, equipment and services.

## **2. RESPONSIBILITIES**

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The following organizations are responsible for carrying out the requirements of this Section:

- Nuclear Operations
- Nuclear Stations
- Site Material Management
- Site Engineering
- Nuclear Engineering Services
- Nuclear Oversight
- Procurement
- Corporate Security
- System Materials Analysis
- Techlabs

The Company assigns responsibility for specific requirements through the Quality Assurance Program Data Base.

## **3. REQUIREMENTS**

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### **3.1 Supplier Selection**

#### **3.1.1 General**

ComEd establishes measures to assure that purchased material, equipment and services conform to the procurement documents.

#### **3.1.2 ComEd Responsibilities**

The Company assigns responsibilities in the supplier selection process as listed below:

- a. The Nuclear Oversight Department evaluates the vendor's quality program.

- b. The following organizations, as appropriate, evaluate the vendor's technical capabilities:

- Nuclear Engineering Services
- Nuclear Stations
- Techlabs
- System Materials Analysis

### **3.1.3 Methods**

ComEd establishes measures for evaluation and selection of procurement sources. These measures include one or more of the following:

- a. Evaluation of the supplier's history of providing an identical or similar product that performs satisfactorily in actual use.
- b. Vendor's current quality records supported by documented qualitative and quantitative information that can be objectively evaluated.
- c. Vendor's technical and quality capability as determined by a direct evaluation of its facilities and personnel and the implementation of its quality assurance program.

The Company documents and files the results of these measures.

### **3.2 Bid Evaluations**

ComEd reviews and evaluates bids and awards contracts using written procedures. The results are documented.

The Company reviews bids to assure that they conform to the procurement document requirements. Individuals or organizations designated to evaluate the bids research the following subjects, as applicable, to the type of procurement:

- a. Technical considerations.
- b. Quality assurance requirements.
- c. Research and development effort.
- d. Supplier's personnel.
- e. Supplier's production capability.
- f. Supplier's past performance.
- g. Alternates.
- h. Exceptions.

ComEd obtains commitments to resolve unacceptable conditions resulting from the bid evaluation before award of the contract.

### **3.3 Supplier In-Process Control**

#### **3.3.1 General**

ComEd establishes measures to interface with vendors and to verify vendor performance. The measures include the following:

- a. Establishing an understanding between the Company and the vendor.
- b. Requiring the vendor to identify planning techniques and processes to be used in fulfilling procurement document requirements.
- c. Reviewing vendor documents that are generated or processed during activities fulfilling procurement requirements.
- d. Identifying and processing necessary change information.
- e. Establishing method of document information exchange between the Company and the vendor.
- f. Establishing the extent of source surveillance and inspection activities.

#### **3.3.2 In-Process Control and Verification Planning**

Depending on the complexity or scope of the item or service, the Company communicates with the supplier to establish:

- a. An understanding between the Company and the supplier of the procurement requirements.
- b. The intent of the Company in monitoring and evaluating the vendor's performance.
- c. The planning, manufacturing techniques, tests, inspections, and processes to be employed by the supplier in meeting procurement requirements.

The Company and the supplier mutually agree on notification points, including hold and witness points. They document this agreement. The Company generates and implements plans for the verification of the vendor's activities to assure conformance to

the purchase order requirements with Quality and Safety Assessment or Nuclear Oversight participation. The verification uses written procedures or checklists. Verification plans, as applicable to the method of procurement, provide for:

- a. Specifying the characteristics or processes to be witnessed, inspected or verified, and accepted.
- b. The method of surveillance and the extent of documentation required.
- c. Those responsible for carrying out the plan.
- d. Audits, surveillances, or inspections that assure that the supplier complies with the quality requirements.

### **3.3.3 Programmatic Verification**

The Company or its agents verify the effectiveness of the vendor's quality program by survey, audit or surveillance. The Company does these verifications at intervals consistent with the importance to safety, complexity and quality of the product or services furnished. The Company witnesses or observes activities when source verification is used. The Company conducts audits per the requirements established in Section 18. The Company conducts verification activities as early as practicable so that subsequent activities do not prevent disclosure of deficiencies. The Company's verification activities do not relieve the vendor of its responsibility for quality verification.

### **3.3.4 Quality Verification at Source**

Qualified personnel conduct verification activities at the vendor location per approved checklists or procedures. These activities verify conformance to identified technical and quality requirements.

### **3.3.5 In-Process Documentation Verification**

The Company establishes methods to control, handle and approve vendor documents. Vendors submit their documents per procurement requirements. The Company uses acceptance criteria for the acquisition, processing, and record evaluation of technical inspection and test data.

### **3.3.6 Documentation of Verification Activities**

The Company records activities done to verify vendor conformance to the requirements of procurement documents. The Company documents source surveillances,

inspections, audits, receiving inspections, nonconformances, dispositions, waivers and corrective actions concerning vendor activities. The Company evaluates the documentation to determine the vendor's quality assurance program effectiveness.

### **3.3.7 Control of Procurement Changes**

ComEd documents changes to procurement documents involving technical or quality assurance matters. These changes are subjected to the same review and approval process as the original procurement document.

## **3.4 Acceptance of Purchased Items and Services**

### **3.4.1 General**

The Company uses approved procedures to accept purchased items and services. The methods used to accept an item or service from a vendor include one or more of the following:

- a. Vendor Certificate of Conformance.
- b. Source verification.
- c. Receiving Inspection.
- d. Post installation testing.
- e. Product testing. (See Article 3.4.6 for acceptance of services.)

The vendor identifies procurement requirements that have not been met. The vendor explains the disposition of all nonconformances per Section 15.

### **3.4.2 Acceptance by Receiving Inspection**

Acceptance solely by receiving inspection is satisfactory only when the item or services are:

- a. Relatively simple and standard in design, manufacture and test; and
- b. Adaptable to standard or automated inspection or test of the product to verify quality characteristics after delivery; and
- c. Such that the receiving inspection does not require operations that could adversely affect the integrity, function, or cleanness of the item.

Note: Receipt inspection of an item supplied by a vendor that has been audited or surveyed and has supplied a certificate of conformance or compliance is over and above the meaning of "acceptance solely by receiving inspection."

When procurement documents require documentation to be furnished before the receiving inspection, the Company reviews such documentation during the receiving inspection. During the receiving inspection, the Company inspects, as necessary, to verify conformance to specified requirements. It takes into account source verification and audit activities and the demonstrated quality performance of the vendor. The Company does receiving inspections using procedures and inspection instructions to verify, by objective evidence, such features as proper configuration; identification; dimensional, physical and other characteristics; freedom from shipping damage; and cleanliness. The Company coordinates the review of vendor documentation with the receiving inspection when procurement documents require such documentation to be furnished prior to the receiving inspection.

### **3.4.3 Acceptance by Source Verification**

The Company considers acceptance by source verification when the item or service is:

- a. Vital to plant safety; or
- b. Difficult to verify quality characteristics after delivery; or
- c. Complex in design, manufacture and test.

Source verification activities (for receipt inspection) include the following, as applicable:

- a. The vendor has submitted documentation as required.
- b. Documentation provides verification of approvals, material, applicable inspections and tests.
- c. The Company has approved fabrication procedures and processes.
- d. The vendor has complied with fabrication procedures and processes.
- e. The applicable qualifications, process records and certifications are available.
- f. The vendor has inspected, examined and tested components and assemblies as required.
- g. Applicable inspection, test and certification records are available.
- h. The vendor has dispositioned nonconformances as required.
- i. The vendor has cleaned, preserved, packed and identified components and assemblies per specified requirements.

Upon acceptance by source verification, the Company furnishes documented evidence of acceptance to the receiving destination of the item, to the purchaser, and to the vendor.

#### **3.4.4 Acceptance by Certificate of Conformance**

When not precluded by other requirements, documentary evidence may take the form of written certificates of conformance that identify the requirements met by the procured items or services, provided means are available to verify the validity of such claims. Acceptance by this method is satisfactory when the item or service is of simple design and involves standard materials, processes and tests. If items are being procured, they may be fabricated subject to selected qualification, sample or batch testing to establish or maintain a minimum quality confidence level. When used, a certificate of conformance meets the following minimum criteria:

- a. The certificate identifies the purchased material and purchase order number.
- b. The certificate identifies the specific procurement requirements such as codes, standards or other specifications applicable to the purchased item. If applicable, the procurement requirements identified include any approved changes, waivers, or deviations that apply to the subject item. The procurement requirements specify supplemental documentation such as material certificates or test reports when necessary.
- c. The certificate identifies any procurement requirements that have not been met with an explanation and the means for resolving the nonconformances.
- d. The certificate is attested to by a person who is responsible for the quality function.

When certificates of conformance are used, approved procedures are used that describe the certification system, including the process to be followed in filling out a certificate.

The Company conducts audits, surveys, or surveillances of the supplier to verify the validity of supplier certificates and the effectiveness of the certification system at intervals commensurate with the supplier's past quality performance.

#### **3.4.5 Acceptance by Post-Installation Testing**

When post-installation testing is used, ComEd and the vendor mutually establish post-installation test requirements and acceptance documentation. Acceptance by this

method is satisfactory when performed following the accomplishment of at least one preceding method and when:

- a. It is difficult to verify the quality characteristics of the item without it being installed and in use; or
- b. The item requires an integrated system checkout or test with other items to verify its quality characteristics; or
- c. The item cannot prove its ability to perform its intended function except when in use.

#### **3.4.6 Acceptance of Services Only**

In cases involving procurement of services only, ComEd accepts the service by any of the following methods:

- a. Technical verification of data produced.
- b. Surveillance or audit of the activity.
- c. Review of objective evidence for conformance to the procurement document requirements such as certifications, stress reports, etc.

The Company performs a receiving inspection for items arriving back onsite that were sent offsite for repair, testing, or rework.

#### **3.4.7 Acceptance of ASME Code Items**

Personnel receiving ASME Code items use a checklist. The checklist includes the following:

- a. All characteristics that the material specifications require to be reported. (Receiving personnel examine each such characteristic using accepted procedures and record the results. Characteristics included on certified material test reports or certificates of compliance need not be duplicated in the checklists.)
- b. A record that the certified material test reports and certificates of compliance have been received, reviewed and found acceptable.
- c. Proper documentation of the results of the examination or test procedure conducted by the certificate holder when necessary to show compliance with material specifications or other requirements.

### **3.4.8 Commercial Grade Items**

Where the design utilizes commercial grade items, the following requirements are a permissible alternative for acceptance, to other requirements of this section:

- a. An approved design document identifies the commercial grade item. (An alternate commercial grade item may be applied, provided the cognizant design organization provided verification that the alternate commercial grade item will perform the intended function and will meet design requirements applicable to both the replaced item and its application.)
- b. The Company performs source evaluation and selection, where determined necessary, based on complexity and importance to safety.
- c. The Company identifies commercial grade items in the purchase order by the vendor's published product description.
- d. After receipt of a commercial grade item, the Company determines the following:
  - 1) Damage was not sustained during shipment.
  - 2) The item received was the item ordered.
  - 3) Inspection and/or testing is accomplished, as required by the purchaser, to assure conformance with the manufacturer's published requirements.
  - 4) Documentation, as applicable to the item, was received and is acceptable.

### **3.5 Presence of Documentary Evidence**

Documented evidence that material or equipment conforms to procurement requirements is present at the site before use or installation. This documentary evidence shall be retained at the nuclear power plant site and shall be sufficient to identify the specific requirements such as codes, standards or specifications met by the purchased material and equipment.

### **3.6 Spares**

#### **3.6.1 General**

Procedures control the procurement, storage and issuance of materials and components including spare and replacement parts. Procurement documents for these

items identify the appropriate technical and quality related requirements. The Company purchases spare parts and replacement items, equipment and components to original or better design requirements.

### **3.6.2 Equivalent Specifications and ASME Code Requirements**

ComEd purchases materials and components associated with safety-related structures or systems to specifications and codes equivalent to those specified for the original equipment, or those specified by a properly reviewed and approved revision. When the Company cannot obtain material that has been manufactured and supplied in conformance with ASME Section III requirements, the Company may procure stock material and upgrade it by appropriate tests. The Company provides certification covering such upgrading (i.e. providing a Certified Material Test Report) for all operations performed by the Company or their vendors. Where the QA requirements of the original item cannot be determined, qualified individuals conduct an engineering evaluation to establish appropriate requirements and controls. This evaluation insures that interfaces, interchangeability, safety, fit and function are not adversely affected or are contrary to applicable regulatory or ASME Code requirements. The evaluators document their results. Where the company procured the original item with no specifically identified quality assurance program requirements, or from an Original Equipment Manufacturer/Supplier (OEM/OES) who no longer is on the Quality Approved Bidders List, identical (like-for-like) items may be similarly procured from the OEM/OES through the use of procurement plans. In such cases, the Company conducts a joint technical engineering and quality assurance documented evaluation to established requirements and controls to assure at least equivalent product performance. The evaluation shall assure that interfaces, interchangeability, safety, fit and function are not adversely affected or are not contrary to applicable regulatory or ASME Code requirements. Procurement plans are approved by the Supplier Evaluation Services organization.

### **3.6.3 Procurement from Other Utilities**

Purchases of Safety Related items can be made from other utilities who have had an NRC approved QA Program in effect at the time of their procurement and receipt and such utility has maintained a Quality System Program for storage, handling and maintenance with documented traceability to the manufacturer of the items. Certificates of Conformance to the above requirements and associated required documentation are provided.

### **3.6.4 Equivalent Production/Fabrication Requirements**

Items associated with safety-related structures or systems are produced or fabricated under requirements at least equivalent to that of the original equipment, or those specified by a properly reviewed and approved revision.

### **3.6.5 Maintenance or Modification**

The Company performs maintenance or modifications that may affect the function of safety-related structures, systems, or components in a manner to assure quality at least equivalent to that specified in original design bases and requirements, materials specifications and inspection requirements.

### **3.6.6 Testing or Design for Equivalence**

Replacement items receive adequate testing or are of a design for which experience shows a high probability of satisfactory performance. The Company considers phased replacement to permit in-service performance of a new component to be evaluated. When used, this minimizes the possibility of a hidden deficiency producing a systematic failure.

## **4. REFERENCES**

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The following references were used in the generation of this Section. The Company's commitment to particular revisions of these standards is contained in Section 2. Specific references for the requirements listed in Article 3 of this Section are contained in the Q.A. Program Database.

- 10CFR50 Appendix B
- ANSI N18.7
- ANSI N45.2
- ANSI/ASME NQA-1
- ASME Code Section III, NCA-4000
- ANSI N45.2.13

## **1. POLICY**

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This Section establishes the requirements for identification and control of materials, parts, and components.

## **2. RESPONSIBILITIES**

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The following organizations are responsible for carrying out the requirements of this Section:

- Nuclear Stations
- Site Material Management
- Site Engineering
- Nuclear Engineering Services
- Nuclear Oversight
- Procurement
- System Materials Analysis
- Techlabs

The Company assigns responsibility for specific requirements through the Quality Assurance Program Data Base.

## **3. REQUIREMENTS**

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### **3.1 Identification and Traceability**

#### **3.1.1 General**

ComEd establishes procedures for the identification and control of materials, parts and components, including partially fabricated assemblies. The Company establishes procedures to control welding and brazing materials. The Company establishes controls to assure that only correct and accepted items are used or installed. The Company maintains identification on the items or in documents traceable to the items. The Company controls nonconforming items in accordance with Section 15. The Company maintains parts, material, and equipment in storage traceable to quality assurance documents.

### **3.1.2 Traceability**

Responsible organizations document and maintain identification and traceability of items (including partially fabricated subassemblies) throughout fabrication, installation and use of the items. Before use or installation of an item, the installer verifies that identification and traceability have been maintained. The Company reestablishes the identification before installation or use, if it has been lost. Audits and surveillances assure that an identification and traceability system is provided and maintained.

### **3.1.3 Identification Methods**

Identification is on the item where practicable. Identification is clear, unambiguous and indelible. Identification does not affect the function of the item. If the item cannot be practicably marked, the Company uses records traceable to the item for identification. If physical identification is either impractical or insufficient for proper control, the Company controls an item by physical separation, procedural control or other appropriate means.

### **3.1.4 Transfer of Markings**

Before cutting or dividing material, the Company transfers marks or coded markings to the unmarked portions. The Company independently verifies proper identification of each piece.

### **3.1.5 Limited Life Items**

The Company identifies and controls items having limited life to preclude use of items whose shelf life or operating life has expired.

### **3.1.6 Stored Items**

The Company uses procedures to assure proper control of identification for items in storage.

### **3.1.7 Special Materials**

The Company clearly identifies and marks special nuclear materials, radioactive sources and hazardous materials.

## 4. REFERENCES

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The following references were used in the generation of this Section. The Company's commitment to particular revisions of these standards is contained in Section 2. Specific references for the requirements listed in Article 3 of this Section are contained in the Q.A. Program Database.

- 10CFR50 Appendix B
- ANSI 18.7
- ANSI N45.2
- ASME Code Section III, NCA-4000
- ANSI/ASME NQA-1
- ANSI N45.2.4
- ANSI N45.2.8
- ANSI N45.2.13

## 1. POLICY

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When the quality of a process cannot be assured through observation of the final product, the process is referred to as a special process. The quality of such processes is assured through reliance on operator skill and in-process control. Examples of special processes include welding, brazing, heat treating, non-destructive examination (NDE), chemical cleaning, coating, and concrete placement. Special processes will be performed in accordance with applicable requirements. These requirements are defined in codes, standards, specifications, or special instructions.

## 2. RESPONSIBILITIES

---

The following organizations are responsible for carrying out the requirements of this Section:

- Nuclear Stations
- Site Material Management
- Site Engineering
- Nuclear Engineering Services
- Nuclear Oversight
- Procurement
- System Materials Analysis

The Company assigns responsibility for specific requirements through the Quality Assurance Program Data Base.

## 3. REQUIREMENTS

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### 3.1 General

The ComEd organization directing work during construction, repair, replacement, modification, or inservice inspection (ISI) activities is responsible for controlling special processes. Controlling includes:

- a. Procedure development and qualification
- b. Procedure implementation
- c. Personnel qualification
- d. Maintenance and retention of records

Special process controls are assured through audit or surveillance activities.

### **3.2 Procedure Qualification and Control**

Special processes are controlled by instructions, procedures, drawings, checklists, travelers, or other appropriate means. Special process controls specify the preparatory steps, processing details, conditions to be maintained during the process, equipment requirements, inspection and test requirements, acceptance criteria, and records requirements.

Special process procedures are written and qualified in accordance with applicable requirements.

Special process procedures are reviewed and approved as follows:

- a. Company heat treating, welding, brazing and other non-NDE procedures are reviewed and approved by the System Materials Analysis Manager.
- b. Company NDE, coating, and ASME Code concrete placement procedures are reviewed and approved by the appropriate ComEd Level III.
- c. Contractor and subcontractor Section III and XI and other ISI-related NDE procedures are reviewed and approved by the ComEd NDE Level III.
- d. Other contractor and subcontractor special process procedures are reviewed by the responsible ComEd engineering organization.

When permitted by applicable requirements, ComEd may direct contractors or subcontractors to use Company special process procedures.

The Company assures that qualification of Company, contractor, and subcontractor ASME Code NDE procedures is verified by the ANI or ANII.

When there is a specific reason to question whether special process procedure requirements are being met, the Company, the ANI, or the ANII may require re-evaluation of the procedure before work may proceed.

### **3.3 Personnel Qualification and Certification**

When required, ComEd, contractor, and subcontractor personnel performing special processes are trained, tested, qualified, or certified in accordance with a procedure that meets applicable requirements.

When permitted by applicable requirements, the Company may qualify and control contractor and subcontractor personnel.

ComEd assures that qualification of Company, contractor and subcontractor ASME Code NDE personnel is verified by the ANI or ANII.

When there is a specific reason to question the ability of an individual performing special processes, the Company, the ANI, or the ANII may require re-evaluation before that individual will be permitted to resume work.

Individuals failing any retest will be removed from applicable operations pending requalification.

### **3.4 Special Process Records**

Special process records provide evidence that special processes were performed in accordance with approved procedures by qualified personnel. These records are retained by the Company, or by the contractor or subcontractor as required by procurement documents.

Records are maintained for currently qualified personnel, processes, and equipment for each special process.

Completion of special process records is verified by station System Engineering, Station Quality Control, or by the responsible ComEd engineering organization.

## **4. REFERENCES**

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The following references were used in the generation of this Section. The Company's commitment to particular revisions of these standards is contained in Section 2. Specific references for the requirements listed in Article 3 of this Section are contained in the Q.A. Program Database.

- 10CFR50 Appendix B
- ANSI/ASME NQA-1
- ASME Code Section, NCA-4000
- ASME Sec. XI

## **1. POLICY**

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The Company plans and executes an inspection program to verify that activities affecting quality conform to documented requirements. The independent inspections described in this section are not intended to dilute or replace the clear responsibility of the first line supervisors for the quality of work performed under their supervision.

## **2. RESPONSIBILITIES**

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The following organizations are responsible for carrying out the requirements of this Section:

- Nuclear Stations
- Site Material Management
- Site Engineering
- Nuclear Engineering Services
- Nuclear Oversight

The Company assigns responsibility for specific requirements through the Quality Assurance Program Data Base.

## **3. REQUIREMENTS**

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### **3.1 General**

ComEd establishes controls for coordination and execution of inspection plans. Company quality control organizations or other qualified organizations are responsible for implementation of established inspection plans. If an inspection plan includes inspections by personnel other than those in a quality control organization, the inspection requirements, personnel qualification criteria, and inspector independence will be accepted by the responsible quality organization prior to implementation.

### **3.2 Inspection Plans**

The Company prepares documented inspection plans. Related codes, standards, specifications and design documents are used to develop the inspection plans. The plans identify:

- a. Activities to be inspected.
- b. Inspection characteristics.
- c. Inspection techniques/equipment (including accuracy requirements).
- d. Acceptance criteria.

- e. Responsible organizations.
- f. Qualification requirements.
- g. Provisions for the recording of inspection results.
- h. Provisions for inspection and test status.

The inspection plans may be separate documents or an integral part of approved instructions, procedures or drawings.

### **3.3 Inspection Personnel**

Inspections are performed by qualified personnel. Inspections for acceptance are performed by inspectors with valid certifications. Inspectors are independent, other than those who performed or directly supervised the activity being inspected. Inspection of operating activities may be conducted by second line supervisory personnel or other qualified personnel not assigned first line supervisory responsibility for the conduct of the work. Operating activities are defined as work functions associated with normal operations of the plant, routine maintenance, and certain technical services routinely assigned to the onsite operating organization. On-the-Job training and team inspections shall be performed under the direct supervision of qualified personnel.

### **3.4 Inspector Qualification**

A qualification program is established and documented to conform to applicable codes, standards, or licensing requirements. Qualifications and certifications are kept current.

### **3.5 Inspection Process**

Inspections are performed using approved instructions, procedures, process sheets, travelers, or checklists and applicable drawings.

#### **3.5.1 Inspection**

Inspections are performed for each work or operating activity where necessary to verify quality. Where inspection sampling is used to verify the acceptability of a group of items, the sampling procedure shall be based on recognized standard practices.

#### **3.5.2 Process Monitoring**

Process monitoring may be used when inspection of processed material or products is impossible or impractical. When necessary to ensure quality throughout the duration of the process, both inspection and process monitoring will be systematically used to verify conformance to requirements.

### **3.5.3 Hold Points/Witness Points**

When inspections must be performed before work can continue, hold points are established in appropriate documents. Consent to waive hold points are recorded prior to continuation of work. When inspection is desired, but not mandatory before work can continue, witness points are established. Completion of hold and witness points is documented.

### **3.5.4 Re-inspection**

When acceptance criteria are not met, corrected areas are reinspected. Changes to, or rework of, an item after inspection requires re-inspection of the affected areas.

### **3.5.5 Final Inspection Review**

A final evaluation is performed. Inspection results are reviewed to confirm that required inspections and quality records have been completed, identified nonconformances have been resolved and the item conforms to specified requirements. Final acceptance of the item is approved by authorized personnel.

### **3.5.6 Inspection Records**

Inspection records are of sufficient detail to confirm completion and, as a minimum, identify:

- a. Item inspected.
- b. Date of inspection.
- c. Inspector/Data recorder.
- d. Type of observation.
- e. M&TE used.
- f. Results or acceptability.
- g. Reference to action taken in connection with identified nonconformances.
- h. Authorized individual approving results.

When the inspection activity is performed using a separate procedure, the procedure and its revision is recorded.

## **4. REFERENCES**

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The following references were used in the generation of this Section. The Company's commitment to particular revisions of these standards is contained in Section 2.

Specific references for the requirements listed in Article 3 of this Section are contained in the Q.A. Program Database.

- 10CFR50 Appendix B
- ANSI/ASME NQA-1
- ANSI/ANS 3.2
- ASME Section III, NCA-4000

## **1. POLICY**

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This section identifies the requirements for the preparation, review, performance and documentation of testing at nuclear stations.

## **2. RESPONSIBILITIES**

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The following organizations are responsible for carrying out the requirements of this Section:

- Nuclear Stations
- Site Material Management
- Site Engineering
- Nuclear Engineering Services
- Nuclear Oversight
- Procurement
- System Materials Analysis
- Techlabs

The Company assigns responsibility for specific requirements through the Quality Assurance Program Data Base.

## **3. REQUIREMENTS**

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### **3.1 General**

#### **3.1.1 Testing Program**

ComEd's overall testing program falls into two broad categories described as the initial testing phase and the operational testing phase. The initial testing phase ends approximately at the time of fuel load (receipt of operating license). The operational testing phase begins at this time. Tests performed after fuel load and those tests which lead directly to and support fuel load fall in the operational testing phase. In traditional terms, start-up testing, surveillance testing, and post modification testing fall into the operational testing phase, while vendor testing, construction testing and preoperational testing fall into the initial testing phase.

The Company establishes and controls a test program to assure that design and performance criteria have been satisfied. The test program includes, as appropriate, procedures to ensure that structures, systems, subsystems and components will perform in service. See paragraph 3.1.2, Test Procedures, of this Section.

The test program covers all required tests including:

- a. Tests during design.
- b. Tests during fabrication.
- c. Tests during construction activities associated with plant maintenance and modification during the plant operational phase.
- d. The demonstration of satisfactory performance following plant maintenance and modifications or procedural changes.

The program includes, as applicable:

- a. Proof tests prior to installation.
- b. Construction tests.
- c. Preoperational tests.
- d. Start-up tests as required for a new plant.
- e. Operational tests.
- f. Those tests required by plant maintenance or modifications.
- g. Prototype qualification tests.
- h. Production tests.

### 3.1.2 Test Procedures

The program uses written test procedures which include the requirements and acceptance limits from applicable design documents. The Company reviews and approves test procedures. The Company reviews and approves changes to test procedures, including changes which alter test sequence, in a similar manner to the original.

The organization responsible for the design of the item to be tested establishes the test requirements and acceptance criteria. The Company bases test requirements and acceptance criteria upon specified requirements contained in applicable design or other pertinent documents. Test requirements include specific characteristics to be tested. The Company specifies specific test methods when they must be employed. The Company uses written procedures or checklists. It documents the status of equipment both before and after testing.

Test procedures include provisions to assure that:

- a. Proper calibrated inspection and test instruments are used.
- b. Equipment to be tested is properly released for testing.
- c. Inspections and tests are done under suitable environmental conditions. (See Article 3.1.2.1, Prerequisites, of this Section.)
- d. Data documentation is in compliance with test procedures.

- e. Retention control of test data documentation is adequate.

The Company may use appropriate sections of related documents, such as ASTM methods, supplier manuals, equipment maintenance instructions, or approved drawings or travelers with acceptance criteria in lieu of specially prepared written test procedures. Such documents must include adequate instructions to assure the required quality of work.

Test and inspection procedures contain:

- a. A description of objectives.
- b. Responsibilities.
- c. Test or inspection requirements contained in applicable design documents.
- d. Acceptance criteria or limits contained in applicable design or other source documents, such as vendor's literature, engineering drawings or plant specifications that will be used to evaluate results.
- e. Prerequisites for, or checks to be made prior to performing the tests or inspections including any special conditions to be used to simulate normal or abnormal operating conditions.
- f. Limiting conditions.
- g. Instructions or check-lists used to verify or document that affected plant systems are arranged in their correct lineup and for restoring the system to the condition consistent with the normal plant operating status.
- h. Any special equipment or calibrations required to conduct the test or inspection.

Where tests and inspections are to be witnessed, the procedure identifies hold points or witness points in the testing sequence to permit witnessing. The procedure requires appropriate approval for the test to continue beyond the designated hold point.

#### 3.1.2.1 Prerequisites

Prerequisites include the following, as applicable:

- a. Calibrated instrumentation, in accordance with Section 12, Control of Measuring and Test Equipment.
- b. Appropriate test equipment.

- c. Trained personnel.
- d. Condition of test equipment and the item to be tested.
- e. Suitable environmental conditions.
- f. Provisions for data acquisition.

Procedures ensure that prerequisite steps for equipment testing have been or will be performed.

Such steps include:

- a. Completion of necessary construction.
- b. Prior testing.
- c. Formal release for testing.
- d. Safety precautions.
- e. Measures to preserve equipment status.

A detailed prescribed physical inspection of equipment components and facilities is performed to ensure readiness for operation. Typical inspection items include:

- a. Cleanliness.
- b. Lubrication.
- c. Setting of limit switches.
- d. Calibration of instruments.
- e. Presence of safety devices.

### 3.1.2.2 Schedule

The Company provides a schedule to assure that all necessary tests are performed and properly evaluated on a timely basis. It schedules testing so that the safety of the plant is never dependent on the performance of an untested system.

### 3.1.3 Test Results

ComEd evaluates test results to assure conformance with design and performance requirements.

The Company documents inspection and test results in a test report or data sheet. Each report identifies the following:

- a. The item to which it applies.
- b. The procedures or instructions followed in performing the task.
- c. The identification of the conditions encountered which were not anticipated.
- d. Identity of inspector or tester.
- e. Completion date and other significant dates and times.

- f. Location where testing was performed or where test samples were taken.
- g. Measuring and test equipment used.
- h. The acceptability of the test.
- i. Any deviation of test results from acceptance criteria (nonconformance).
- j. The actions taken to correct the deviations noted.
- k. As-found condition.
- l. As-left condition.

### 3.1.4 Test Records

Test records include:

- a. Test procedures.
- b. Test results.
- c. Documents that provide acceptance criteria.
- d. Data sheets completed during the tests.

## 3.2 Initial Test Program

### 3.2.1 Construction Tests

The Company plans, executes, documents, and evaluates tests required to collect data, such as for site selection or design input.

Surveillance of construction activities includes tests to verify that items being installed and the installation comply with specified quality and performance requirements.

These tests are performed at appropriate points in the construction phase as access permits or when questions arise as to the quality of components or workmanship.

A component test is a functional, operational, or performance test of an individual piece of equipment or unit system under prescribed conditions. Typical parameters to be examined are:

- a. Direction of rotation.
- b. Bearing temperatures.
- c. Vibration.
- d. Time delays.
- e. Ability to operate with remote and local controls.

The Company performs hydrostatic tests of the reactor coolant system, including all or parts of connected systems which cannot be isolated from the test pressure, to verify conformance to specified requirements. The applicable test requirements are contained in Section III of the ASME Code.

Where preliminary operation of equipment, during construction, is utilized for a testing function, the Company clearly establishes and documents the purpose of the test, its scope, and results.

Tests are repeated if construction or associated activity affects the results of the tests. The need to repeat a test is ascertained at the time of preparing for post-construction testing.

Tests and shakedown runs are made on energized systems where necessary to evaluate operations and to properly condition for service (for example, the seating of brushes or bearings, the stabilization of instrumentation and burn-in of electronic devices).

The Company considers providing a run-in period to minimize early failures during operation of the plant, where appropriate.

#### **3.2.1.1 Coatings**

The company uses the specifications of ANSI N101.4-1972 for test requirements for applied coatings when these tests are required during design, manufacture, and installation.

#### **3.2.1.2 Compacted Fill**

The Company conducts in-process tests on compacted fill in accordance with ANSI N45.2.5.

#### **3.2.1.3 Concrete**

The Company conducts in-process tests on concrete and pre-stressed steels in accordance with ANSI N45.2.5.

#### **3.2.1.4 Instrumentation**

The Company tests instrumentation and control channels to assure that they are properly calibrated. In addition, the Company performs specific tests at critical levels such as "set points" in a manner simulating the approach toward the set point. These calibrations are made with the devices in their normal positions if the calibration is dependent upon location or attitude. The Company makes tests to determine that a proper response is obtained over the operating range of the device. It gives particular attention to verifying independence and dependence, as appropriate, of the elements of the systems. The Company tags or labels items after calibration indicating date of calibration and identity of the person that performed the calibration.

The Company prepares and documents installation, inspection and test procedures and work instructions for instrumentation and electrical equipment. These documents are kept current and revised as necessary to assure that installation, inspections and tests are performed in accordance with latest information. They include as appropriate:

- a. Installation specifications.
- b. Inspection and test objectives.
- c. Precautions to avoid component or system damage during testing or inspection.
- d. Inspection and test equipment required.
- e. Sequence of tests (if applicable).
- f. Sequential actions to be performed.
- g. Frequency of inspection or test.
- h. Prerequisites.
- i. Approvals.
- j. Data report forms.
- k. Identification of test equipment and date for required recalibration where required for interpretation of test results.
- l. Inspection and test acceptance limits.

### 3.2.1.5 Electrical Tests

Electrical tests include:

- a. Continuity tests, short circuit tests, polarity and rotational tests.
- b. Control system tests including indicating meters, recorders, transducers, targets and lamps, annunciators and alarms, controls and interlocks.
- c. Voltage breakdown tests on liquid insulation.
- d. Overpotential (HIPOT) tests as specified.
- e. Insulation resistance measurements as specified.

Overpotential tests conform to the applicable codes and standards. The manufacturer's recommendations are always considered.

### 3.2.1.6 Mechanical Tests

The Company performs mechanical tests to ascertain that electric and/or instrumentation components or systems can withstand system pressure ratings. As a minimum, the Company applies such tests to pressure sensing and transmitting devices operating in steam, hydraulic, and vacuum systems and their hydraulic or pneumatic interconnecting piping or tubing and associated instruments. Pressurized equipment that is part of electrical apparatus such as heat exchangers, circulating systems, actuating systems, and electric and instrumentation containment penetrations are likewise tested if site assembled or fabricated. If equipment is assembled at the

construction site, the Company conducts tests after the assembly is complete even though the components may have been tested previously. Manufacturer tests of fabricated items may be accepted for equipment not disturbed during the construction phase. The Company performs these tests in accordance with the applicable codes and standards.

### 3.2.1.7 Physical and Chemical Tests

Physical and chemical tests, in accordance with the applicable codes, include, as appropriate:

- a. Chemical analysis of fluids for oxygen or moisture content and purity.
- b. Radiation sensitivity testing to confirm that radiation sensors and controlling devices are properly functioning.

### 3.2.2 Preoperational Tests

Preoperational testing, when completed, involves the operation of all items in a system to assure that the operation of that system is in accordance with the design criteria and functional requirements. The preoperational phase demonstrates proper coordinated operation of the plant systems, to the extent feasible. The Company demonstrates required independence and dependence of subsystems. The Company tests to verify that the quality of installed equipment has not deteriorated during the construction phase.

Partial systems or more than one system, as defined by the test boundaries, may also be tested to assure that operation is in accordance with the design criteria and functional requirements. Where mechanical equipment and systems operation must coordinate with non-mechanical equipment or systems, the preoperational test performed includes verifying the compatibility of interfacing equipment and functions.

The Company designs preoperational tests to permit evaluation of system performance. They include, for example:

- a. The measurement of flow.
- b. The measurement of temperature.
- c. The measurement of pressure response time.
- d. The measurement of vibration.
- e. The transfer of the power supply to emergency power.
- f. The measurement of the accuracy and response of control devices.

Preoperational tests demonstrate, as nearly as can be practicably simulated, the overall integrated operation of the plant systems at rated conditions, including simultaneous operations of auxiliary systems. Preoperational tests require variation on

control parameters, such as pump stops, and restarts, cycling valves and varying flows so that system performance can be evaluated.

The test procedure identifies and describes any temporary or simulated conditions or equipment. If not previously planned, the Company prepares and issues a documented notice with approval of the responsible organization stating the substitutions that existed for the test. The Company provides written verification that temporary installations have been satisfactorily replaced by the permanent installations.

Preoperational testing includes, but is not limited to the following:

- a. System integrity.
- b. In-line instrument installation is consistent with specified flow directions.
- c. Sensing lines are phased correctly for in-line elements and sensors.
- d. Service requirements for initial operation such as flow alignments, limiting flow orificing and relief devices have been performed.
- e. Operation of controls, valves, dampers, operators, and load limiting devices.
- f. Rotating equipment (motors, pumps, blowers) for rotation, speed, vibration, noise, and no-load operation.
- g. Handling equipment, load-tests of cranes, hoists, conveyors, hooks, handling adapters, and accessories.
- h. Containment systems.
- i. Air handling systems.
- j. Fuel storage and handling systems.
- k. Reactor components handling systems.
- l. Instrument air systems.
- m. Fluid service systems.
- n. Waste effluent systems.
- o. Auxiliary building systems.

The final preoperational test includes the review of the construction tests made on assemblies and components with particular attention given to those construction tests that demonstrate functional or operational results. When these tests serve as a prerequisite or a part of the final system test, the Company reviews construction activities which may have affected the results.

Where necessary, the Company demonstrates freedom from unwanted or harmful effects of conducted or induced electrical noise.

The Company checks the suitability of plant operating procedures, to the maximum extent possible, during the performance of preoperational and start-up tests and where permitted at other times prior to fuel load.

Tests, or portions thereof, are repeated if construction or associated activities affect the results of the tests. The need to repeat a test is ascertained at the time of preparing for post-construction testing.

The Company rectifies the following before final testing:

- a. Temporary electrical connections.
- b. Temporary piping sections.
- c. Abnormal chemical solutions.
- d. Unspecified setting of devices.
- e. The fixing of a moving component.
- f. The effecting of any other abnormality.

Exceptions to these are cases where fuel loading or other critical operations prevent using the complete assembly for the test. In these instances, the Company documents the substitutions that existed for the test.

The Company uses normal system readout devices and installed transducers, as far as possible, to monitor the operation during the test. It uses special measuring instruments and simulating devices where the installed equipment is not adequate for the purpose of conducting tests.

Test equipment used has adequate capacity and is compatible with the system under test so that the results will not be distorted.

### 3.2.2.1 Cold Functional Tests

These tests follow preoperational testing of individual systems including reactor coolant systems. The Company performs this testing to obtain operational data on equipment with maximum allowable, simultaneous operation of interfacing systems and equipment and final verification of functional performance of these systems.

The Company tests the required individual systems to demonstrate cold functional operability of individual components, systems and subsystems, and to demonstrate compatibility with other systems. These tests, where appropriate, demonstrate the following:

- a. System pressure drop.
- b. Flow rate.
- c. Controls and throttling device settings.
- d. Function of interlocks, alarms and automatic features.
- e. Instrument calibration.
- f. Setting of meter biases.
- g. System stability.

- h. Adequacy of pipe and equipment support settings.
- i. Heat runs on rotating equipment.
- j. Adequacy of ventilation, lubrication and cooling systems under sustained operating conditions.
- k. Ability to meet water chemistry requirements.

### 3.2.2.2 Hot Functional Tests for PWR Plants Only

Hot functional tests for PWR plants usually follow cold functional tests and simulate plant operating conditions at elevated temperatures and pressures. All auxiliary and support systems exclusive of those required for pre-criticality testing must be available for these tests. If any of these systems are not available, the responsible organization specifically authorizes exclusion of these systems or subsystems from testing and documents those exceptions.

These tests include the following as a minimum:

- a. System pressure drop.
- b. Flow rate.
- c. Controls and throttling device settings.
- d. Function of interlocks, alarms and automatic features.
- e. Instrument calibration.
- f. Setting of meter biases.
- g. Systems stability.
- h. Adequacy of pipe and equipment support settings.
- i. Heat runs on rotating equipment.
- j. Verification of heat exchanger performance.
- k. Verification of boron control system performance.
- l. Thermal insulation effectiveness.
- m. Set points of temperature, pressure and level devices.
- n. System heatup tests.
- o. System cooldown tests.
- p. Hot flow tests.
- q. Setting protective devices.
- r. Hot clearances.
- s. Vibration measurements of major equipment and piping.

## 3.3 Operational Tests Program

### 3.3.1 Start-up Tests

Start-up tests demonstrate the performance of systems that could not be tested prior to operation and to confirm those physical parameters, hydraulic or mechanical characteristics that need to be known, but which could not be predicted with the

required accuracy, and to confirm that plant behavior conforms to design criteria. The Company plans the start-up test program to permit safe fuel loading and start-up; to increase power in safe increments; and to perform major testing at specified power plateaus. If tests require the variation of operating parameters outside of their normal range, the Company prescribes the limits within which such variation is permitted. The scope of the testing demonstrates, insofar as practicable, that the plant is capable of withstanding design transients and accidents.

The Company checks the suitability of plant operating procedures to the maximum extent possible during the performance of preoperational and start-up tests and where permitted at other times prior to fuel load.

### **3.3.2 Surveillance Tests**

The Company's test program covers surveillance testing during the operational phase to provide assurances that failures or substandard performance do not remain undetected and that the required reliability of safety related systems is maintained.

### **3.3.3 Maintenance or Major Procedure Change**

The Company performs tests following plant modification or significant changes in operating procedures to confirm that the modification or changes produce expected results. These tests also demonstrate that the change does not produce an unsafe operating condition.

## **4.0 REFERENCES**

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The following references were used in the generation of this Section. The Company's commitment to particular revisions of these standards is contained in Section 2. Specific references for the requirements listed in Article 3 of this Section are contained in the Q.A. Program Database.

- 10CFR50 Appendix B
- ANSI N18.7
- ANSI N45.2
- ANSI/ASME NQA-1
- ASME Code Section III, NCA-4000
- ANSI N45.2.5
- ANSI N45.2.13

## **1. POLICY**

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Measuring and test equipment (M&TE) will be calibrated and controlled to maintain its accuracy.

## **2. RESPONSIBILITIES**

---

The following organizations are responsible for carrying out the requirements of this Section:

- Nuclear Stations
- Site Material Management
- Site Engineering
- Nuclear Engineering Services
- Techlabs

The Company assigns responsibility for specific requirements through the Quality Assurance Program Data Base.

## **3. REQUIREMENTS**

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### **3.1 General**

The Techlabs Department is responsible for maintenance and calibration (traceable to National Standards) of ComEd M&TE.

Part or all of this responsibility may be delegated to the stations.

The stations are responsible for the control of station analytical chemistry instrumentation, radio-chemistry instrumentation, and standard solutions. The stations are also responsible for the maintenance and calibration of station M&TE.

The Nuclear Engineering Services organization is responsible for the establishment of accuracy requirements for M&TE. Excluded are analytical chemistry and radiochemistry M&TE. Normally, this will be the manufacturer's published accuracy. If such published accuracy is not required, accuracy requirements will be established by Nuclear Engineering. Nuclear Engineering Services is responsible for resolution of technical issues including when certification is required.

### **3.2 Control**

A control program specifies how M&TE is stored, handled, and used. As a minimum the following items are addressed:

- a. Environmental restrictions.
- b. Personnel qualifications.
- c. M&TE selection.
- d. Usage history.
- e. Certification requirements.
- f. Status.
- g. Damaged or suspect M&TE.
- h. Administrative controls.
- i. Repairs and maintenance.
- j. Items not requiring certification.

### **3.3 Accuracy**

M&TE is calibrated against standards at least four times more accurate than the item being calibrated. Deviation from this practice is controlled. The accuracy ratio of M&TE to the plant equipment being calibrated is determined by an engineering process.

Standards are calibrated against standards having a greater accuracy. When this is not possible, equal accuracy may be used if it is technically justified. Such deviations are controlled.

### **3.4 Traceability**

M&TE is calibrated against certified standards having valid relationships to nationally recognized standards.

### **3.5 Interval**

A calibration interval is established for all M&TE. The M&TE program specifies how this interval is established. "Upon Request", "Not To Be Calibrated", and "Before and After Use" are examples of acceptable frequencies.

### **3.6 ASME Code**

M&TE used in ASME Code applications meets all requirements of the applicable ASME Code sections.

### **3.7 Certified M&TE**

Certified M&TE is required for:

- a. Calibration of other M&TE.
- b. Verification of design parameters.

Certified M&TE is not required when the measurements do not require specific accuracy.

### **3.8 Corrective Actions**

When M&TE is found to be out of calibration, an evaluation is made of its previous uses to determine corrective action. Suspect equipment is identified and segregated to prevent inadvertent use.

### **3.9 Vendor Control**

Vendors supplying calibration services are on the Company Quality Approved Bidders List.

### **3.10 Commercial Devices**

Control measures are not required for rulers, tape measures, levels, and other such commercial devices, if such equipment provides adequate accuracy.

### **3.11 Records**

M&TE calibration records contain, as a minimum:

- a. Last calibration date.
- b. Next calibration date.
- c. Standards used.
- d. Serial number.
- e. Calibration data.
- f. As found/As left condition.
- g. Repairs (if any).
- h. Calibration procedure used.
- i. Individual performing calibration.
- j. Equipment location.
- k. Out of tolerance notification.
- l. Established accuracy.
- m. Results approval.

## 4. REFERENCES

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The following references were used in the generation of this Section. The Company's commitment to particular revisions of these standards is contained in Section 2. Specific references for the requirements listed in Article 3 of this Section are contained in the Q.A. Program Database.

- 10CFR50 Appendix B
- ANSI/ASME NQA-1
- ASME Code Section III, NCA 4000

## **1. POLICY**

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This Section identifies the requirements for material control. This includes handling, storage, shipping, cleaning and preservation of material and equipment.

## **2. RESPONSIBILITIES**

---

The following organizations are responsible for carrying out the requirements of this Section:

- Nuclear Stations
- Site Material Management
- Site Engineering
- Nuclear Engineering Services
- System Materials Analysis

The Company assigns responsibility for specific requirements through the Quality Assurance Program Data Base.

## **3. REQUIREMENTS**

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### **3.1 General Material Control**

ComEd uses written procedures or instructions to specify special protective conditions per the item's design and procurement requirements necessary to prevent damage or deterioration of materials, components, and systems during handling, preservation, storage, and shipping. These procedures include provisions for inspection, examination, testing and documentation. The vendor's quality program includes shipping procedures that provide for inspection and control of items leaving the vendor's plant. The Company establishes instructions for marking and labeling to identify, maintain, and preserve an item, including indication of the presence of special environments or the need for special controls. These requirements apply to the storage of chemicals, reagents, lubricants and other consumable materials.

### **3.2 Special Equipment and Environments**

When required, ComEd:

- a. Specifies special equipment (such as containers, shock absorbers and accelerometers).

- b. Specifies special protective environments (such as inert gas atmosphere, specific moisture content levels and temperature levels).
- c. Provides special equipment and special protective environments.
- d. Verifies the maintenance of special equipment and special protective environments.

### 3.3 Classification of Items

The Company classifies each item received into one of four levels established in ANSI N45.2.2. This classification considers the manufacturer's requirements. The Company packages, ships, receives, stores and handles items according to the established level or a higher level. When a package or assembly contains items of different levels, the Company classifies it to the highest level designated for any of the items contained.

### 3.4 Cleaning, Shipping, Storage and Preservation

ComEd uses written procedures or instructions for cleaning, packaging, shipping, storage and preservation. These procedures specify special protective conditions necessary to prevent damage or deterioration of materials and equipment.

### 3.5 Handling Tools and Equipment

The Company inspects and tests special handling tools and equipment using procedures at specified time intervals to verify adequate maintenance. The Company provides special handling procedures and instructions for items that are susceptible to handling damage. These procedures delineate acceptable techniques, necessary qualifications and precautions for maintenance and use. Operators of special handling and lifting equipment have experience or are trained in their usage.

### 3.6 Additional Requirements

The Company uses written procedures or instructions to specify detailed requirements for the following subjects:

- a. Storage of records.
- b. Access to storage areas.
- c. Housekeeping.
- d. Fire Protection.
- e. Removal of items from storage.

Vendors ship special nuclear materials and sources as specified in the NRC license and other regulatory requirements.

## 4. REFERENCES

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The following references were used in the generation of this Section. The Company's commitment to particular revisions of these standards is contained in Section 2. Specific references for the requirements listed in Article 3 of this Section are contained in the Q.A. Program Database.

- 10CFR50 Appendix B
- ANSI N18.7
- ANSI N45.2
- ANSI/ASME NQA-1
- ASME Code Section III, NCA-4000
- ANSI N45.2.2
- ANSI N45.2.4



## 1. POLICY

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This Section identifies the requirements for tracking the status of inspection and test performed on equipment at nuclear plants.

## 2. RESPONSIBILITIES

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The following organizations are responsible for carrying out the requirements of this Section:

- Nuclear Stations
- Site Material Management
- Site Engineering
- Nuclear Engineering Services
- Nuclear Oversight
- Corporate Security
- System Materials Analysis
- Techlabs

The Company assigns responsibility for specific requirements through the Quality Assurance Program Data Base.

## 3. REQUIREMENTS

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### 3.1 General

ComEd uses markings, tags, stamps, routing cards, labels, forms, or other means to identify the operating status of plant equipment. This identification helps avoid inadvertent bypassing of the inspections and tests required prior to its use. The Company provides control procedures which describe the use of such tags, stamps, routing cards, labels, forms, and other methods. The Company specifies the authority for application and removal of tags, markings, labels and stamps.

ComEd identifies items that are acceptable or unacceptable for installation by tagging, labeling, color coding, physical separation, or using an inventory system. When tags are used:

- a. The stock is made from material which will not deteriorate during storage.
- b. The stock used is not deleterious to the item.
- c. The tags are securely affixed to the items and displayed in an area that is readily accessible.

The Company indicates the date the item was placed in the acceptable or unacceptable installation status. The program for quality control regulates this activity. The Company conditionally releases items for installation pending subsequent correction of any nonconformances.

The Company maintains records and marks equipment to indicate calibration status. The Company clearly identifies test equipment found to be out of calibration.

The Company clearly identifies and documents all temporary connections, such as jumpers and bypass lines, and temporary set points of control equipment to allow restoration before placing the item in service.

The Company tags critical valves, controls and switches to prevent inadvertent actuation during flushing.

### **3.1.1 Procedures**

ComEd uses procedures for control of equipment to maintain personnel and reactor safety and to avoid unauthorized operation of equipment. These procedures require control measures such as locking or tagging to secure and identify equipment in a controlled status. The procedures require independent verifications, where appropriate, to ensure that necessary measures, such as equipment tagging, have been done correctly.

## **3.2 Operating Status**

### **3.2.1 Release for Maintenance**

Operating personnel, including a senior reactor operator, as applicable, may grant permission to release plant systems or equipment for maintenance or surveillance testing. Prior to granting permission, such operating personnel:

- a. Verify that the equipment or system can be released.
- b. Determine how long it may be out of service.
- c. Determine what functional testing or redundant systems are required prior to and during the out-of-service period.

The Company documents such permission. The Company uses independent verification to the extent necessary to ensure that the proper system was removed from service. The Company considers the degraded protection available when one subsystem of a redundant safety system has been removed for maintenance or surveillance testing.

### **3.2.2 Preparation for Work**

After permission has been granted to take the equipment out of service, measures provide for protection of equipment and workers. The Company clearly identifies the status of equipment and systems at any location where the equipment can be operated. The Company enforces strict control measures for such equipment. The operating staff can easily identify equipment which is in other than normal conditions.

In addition to the requirements of the technical specifications, conditions to be considered in preparing equipment for maintenance or surveillance testing include, for example:

- a. Shutdown margin.
- b. Method of emergency core cooling.
- c. Establishment of a path for decay heat removal.
- d. Temperature and pressure of the system.
- e. Valves between work and hazardous materials.
- f. Venting, draining and flushing.
- g. Entry into closed vessels.
- h. Hazardous atmospheres and ALARA considerations.
- i. Handling hazardous materials.
- j. Electrical hazards.

When entering a closed system, the Company prevents the entry of extraneous material and removes foreign material before reclosing the system.

Appropriate personnel inform control room supervision of changes in equipment status, including temporary modifications, and the effects of such changes.

### **3.2.3 Temporary Modifications**

ComEd controls temporary modifications, such as temporary bypass lines, electrical jumpers, lifted electrical leads, and temporary trip point settings with approved procedures. These procedures include requirements for the period of time when the temporary modification is in effect. They also include a requirement for:

- a. An independent verification by a second person of the proper installation or removal of the temporary modification, or
- b. A functional test which conclusively proves the proper installation or removal of the temporary modification.

The Company maintains a log or other documented evidence for the current status of such temporary modifications. The Company reviews temporary modifications periodically to assess their continued need and propriety.

### 3.2.4 Return to Service

When equipment is ready to be returned to service, operating personnel place the equipment in operation and verify and document its functional acceptability. The Company assures return to normal conditions including:

- a. Removal of electrical jumpers.
- b. Removal of signals used during testing.
- c. Returning valves, breakers, or switches to proper start-up or operating positions.
- d. Assuring that all alarms which are indicative of inoperative status are cleared.

A second qualified person verifies proper alignment of equipment unless:

- a. All equipment, valves and switches involved in the activity can be proven to be in their correct alignment by functional testing without adversely affecting the safety of the plant, or
- b. Such verification would result in significant radiation exposure.

The person who performs independent verifications is qualified to perform such tasks. When placed into service, equipment receives additional surveillance during the run-in period. The on-duty supervisor responsible for the unit formally accepts equipment which is returned to service.

## 4. REFERENCES

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The following references were used in the generation of this Section. The Company's commitment to particular revisions of these standards is contained in Section 2. Specific references for the requirements listed in Article 3 of this Section are contained in the Q.A. Program Database.

- 10CFR50 Appendix B
- ANSI N18.7
- ANSI N45.2
- ANSI/ASME NQA-1
- ASME Code Section III, NCA-4000
- ANSI N45.2.13

## **1. POLICY**

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This Section describes the identification, documentation, segregation, and evaluation of non-conforming items.

## **2. RESPONSIBILITIES**

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The following organizations are responsible for carrying out the requirements of this Section:

- Nuclear Stations
- Site Material Management
- Site Engineering
- Nuclear Engineering Services
- Nuclear Oversight
- Procurement
- System Materials Analysis
- Techlabs

The Company assigns responsibility for specific requirements through the Quality Assurance Program Data Base.

## **3. REQUIREMENTS**

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### **3.1 General**

ComEd uses written procedures to identify and control items, services or activities that do not conform to requirements. These procedures address:

- a. Identification of nonconforming items.
- b. Documentation of identified nonconformances.
- c. Segregation of nonconforming items.
- d. Disposition of nonconforming items.
- e. Notification of affected organizations.

Implementation of these procedures prevents the inadvertent use or installation of nonconforming items. The Company and its vendors establish and document measures for the identification, control and disposition of items and services that do not meet procurement document requirements. These measures provide for:

- a. Review of nonconforming items.

- b. A vendor to submit nonconformance notifications to the Company. These submittals include a vendor recommended disposition (e.g. "use-as-is" or "repair") and technical justification. The vendor submits nonconformances to the procurement document requirements or Company approved documents to ComEd for approval of the recommended disposition if:
  - 1) The vendor has violated a technical or material requirement, or
  - 2) The vendor has violated a requirement in vendor documents, which have been approved by the Company, or
  - 3) The vendor cannot correct the nonconformance by continuation of the original manufacturing process or by rework, or
  - 4) The item does not conform to the original requirement even though the item can be restored to a condition such that the capability of the item to function is unimpaired.
- c. Company disposition of a vendor recommendation.
- d. Verification of disposition for nonconformances.
- e. Maintenance of records for vendor nonconformances.

### **3.2 Identification**

The Company identifies nonconforming items by marking, tagging or other methods which do not adversely affect the end use of the item. The identification is legible and easily recognizable.

### **3.3 Segregation**

When practical, the Company segregates nonconforming items by placing them in a hold area until properly dispositioned. When segregation is impractical or impossible due to physical conditions such as size, weight or access limitations, other precautions are employed to preclude inadvertent use of a nonconforming item.

### **3.4 Disposition**

#### **3.4.1 Control**

ComEd uses written procedures to review and accept, reject, repair or rework nonconforming items. The Company controls processing, delivery, installation or use

of a nonconforming item pending an evaluation and an approved disposition by authorized personnel. The Company documents the ultimate disposition of nonconforming items.

### **3.4.2 Evaluation**

The Company has responsibility for resolution of Company nonconformances.

For items under a contractor's direct control, the Company may delegate to the contractor the authority to perform a technical evaluation of nonconformances, if the contractor has an acceptable procedure for handling nonconforming items. Where the Company delegates such authority, the contractor is responsible for establishing that:

- a. All actions fall within the requirements set by the Company.
- b. An accepted nonconformance meets the design intent.
- c. Personnel performing the evaluation meet the requirements of Article 3.4.3.
- d. ASME Code items meet the requirements of the ASME Code.

ComEd retains the responsibility for the satisfactory resolution of vendor nonconformances.

When a technical evaluation has not been delegated, the Company makes a technical evaluation of all pertinent data relating to the nonconformity, including the cause, where known, and the corrective action either taken or planned to prevent recurrence.

Where ASME Code requirements are involved, the Authorized Nuclear Inspector reviews and accepts or rejects the disposition and justification.

### **3.4.3 Personnel**

Personnel having expertise in the pertinent discipline determine whether a nonconforming item may be accepted "as-is," may be repaired to an acceptable condition, or must be rejected. These personnel have adequate competence and knowledge necessary to make this evaluation and have access to pertinent background information.

### **3.4.4 Documentation**

The Company identifies nonconforming items and documents their disposition (e.g. use-as-is, reject, repair, or rework). Each disposition is technically justified and traceable to each item. Appropriate documentation is retained.

Nonconformances to design requirements that are dispositioned as "use-as-is" or "repair" are subject to design control measures commensurate with those applied to the original design. The Company technically justifies dispositions designated "as-is," to assure that the final condition of any nonconforming item meets ASME Code requirements and will not adversely affect the safety, operability, or maintainability of the item, or of the component or system in which it is installed. The as-built records, if such records are required, reflect the accepted deviation.

If the nonconformance can be corrected after installation, the item may be released for installation on a conditional release basis. The Company documents the authority and technical justification for the conditional release of the item for installation and makes it part of the documentation.

### **3.4.5 Repaired, Reworked, or Scrapped Items**

The Company reexamines repaired or reworked items using procedures and the original acceptance criteria unless the disposition has established alternate acceptance criteria.

The Company reinspects items that have been corrected. The area of inspection may be confined to the area of the nonconformance. When it has been determined that the corrected item is satisfactory, the Company changes the status of the item to "acceptable." The Company makes an appropriate entry in the documentation after acceptance is determined.

The Company scraps, discards or transfers to training usage a nonconforming item that cannot be corrected or accepted "as-is".

## **4. REFERENCES**

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The following references were used in the generation of this Section. The Company's commitment to particular revisions of these standards is contained in Section 2. Specific references for the requirements listed in Article 3 of this Section are contained in the Q.A. Program Database.

- |                                   |                 |
|-----------------------------------|-----------------|
| • 10CFR50 Appendix B              | • ANSI N45.2.13 |
| • ANSI N18.7                      | • ANSI/ANS 3.2  |
| • ANS 3.2                         | • ANSI N45.2.4  |
| • ANSI N45.2                      | • IEEE STD 336  |
| • ANSI/ASME NQA-1                 | • ANSI N45.2.8  |
| • ASME Code Section III, NCA-4000 | • ANSI N45.2.2  |

## 1. POLICY

---

This Section describes the ComEd program to identify and correct occurrences adverse to quality.

## 2. RESPONSIBILITIES

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The following organizations are responsible for carrying out the requirements of this Section:

- Nuclear Stations
- Site Regulatory Assurance
- Site Material Management
- Site Engineering
- Nuclear Engineering Services
- Nuclear Oversight
- System Materials Analysis
- Techlabs

The Company assigns responsibility for specific requirements through the Quality Assurance Program Data Base.

## 3. REQUIREMENTS

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### 3.1 General

ComEd uses a corrective action system to promptly identify and correct items or occurrences that are adverse to quality or might adversely affect the safe operation of a nuclear generating station. Parts or all of this system may be electronically monitored and electronic records may be used as the sole record of such a system. These items or occurrences include failures, malfunctions, deficiencies, deviations, defective material and equipment, nonconformances and programmatic deficiencies.

For the procurement process, the Company uses procedures that include methods for the identification of conditions adverse to quality and methods for timely corrective action. The Company requires individual vendors and their contractors to include corrective action measures in their quality assurance programs.

The Company makes a thorough investigation of occurrences. It identifies corrective action to preclude the recurrence of an event. Events may include reactor trips, failed equipment, personnel errors, and procedural infractions. Assigned personnel are responsible for determining the root cause(s) of an event and developing

recommendations to preclude recurrence. These personnel report the results of their determination to appropriate station personnel and Company management. The report includes a detailed description of the occurrence, the findings of the investigation, and the recommended corrective measures. Formal reports are filed with the appropriate regulatory agency, when required.

The Company notifies the rest of the nuclear industry of any significant event and its circumstances to help preclude a similar event occurring at another plant.

### 3.2 Significant Conditions

The Company takes measures to assure that the cause of any significant condition adverse to quality is determined and takes corrective action to preclude repetition.

An independent review body reviews violations, deviations and reportable events, that are required to be reported to the NRC in writing within 24 hours, such as:

- a. Violations of applicable codes, regulations, orders, technical specifications, license requirements or internal procedures or instructions having safety significance.
- b. Significant operating abnormalities or deviations from normal or expected performance of plant safety-related structures, systems, or components.
- c. Events, as defined in the plant technical specifications.

This independent review includes the review of results of any investigations made and the recommendations resulting from such investigations.

For significant conditions adverse to quality that arise during the procurement process, the Company uses procedures to describe the method used to:

- a. Identify and document deviations and nonconformances.
- b. Review and evaluate the conditions to determine the cause, extent and measures needed to correct and prevent recurrence.
- c. Report the conditions and corrective action to the appropriate levels of management.
- d. Implement and maintain required corrective action.

For significant or recurring deficiencies (or errors), the Company follows written procedures to correct the deficiency (or error), determine the cause and make changes

in the design process and the Quality Assurance Program to prevent similar types of deficiencies (or errors) from recurring.

### 3.3 Design Errors

The Company detects deficiencies or errors in design or in the design quality assurance program by:

- a. Design verification measures.
- b. Personnel using the design documents.
- c. Audits.
- d. Tests conducted.
- e. Actual failure during operation.
- f. Other means.

When a significant design change is necessary because of an incorrect design, the Company reviews and modifies the design process and verification procedures.

### 3.4 Plant Hardware Malfunctions

The causes of malfunctions are promptly determined, evaluated and recorded. Experience with the malfunctioning equipment and similar components are reviewed and evaluated to determine if a replacement component of the same type can be expected to perform the function reliably. If evidence indicates that common components in safety-related systems have performed unsatisfactorily, corrective measures are planned prior to replacement or repair of all such components. Appropriate procedures are revised in a timely manner to prevent recurrence of equipment malfunction or abnormal operation.

### 3.5 Documentation and Reporting

The Company documents the identification of significant conditions adverse to quality, the cause of the condition and the corrective action taken. It reports these items to appropriate levels of management. The report is made immediately if prompt corrective action is required. If the nonconformity is not an indication of a significant failure in any portion of the Quality Assurance Program, the Company does not require reporting to management.

The Company keeps records to identify:

- a. Incidents (e.g., major damage, personal injury, major schedule delays.)
- b. Nonconforming items in accordance with Section 15, "Nonconforming Materials, Parts or Components."

- c. Unfavorable conditions and programmatic deficiencies identified in audit reports in accordance with Section 18, "Audits."
- d. Significant equipment failures and malfunctions that occur during station operation.

The Company tracks the completion of corrective action for nonconformances. It maintains records of nonconformances and their resolution. Periodic reports to management inform them of the status of nonconformances. The Company issues reports indicating the status of all corrective action in progress. These reports are routed to Company Corporate management. These periodic reports are reviewed to ensure prompt implementation of the corrective action. Nuclear Oversight routinely reports nonconforming items to appropriate levels of management. The following items are not reported:

- a. Minor weld inclusions, undercuts, or porosities, where the magnitude or frequency of occurrence is not indicative of a significant problem in design, procedures, materials or workmanship.
- b. Minor departures, except for ASME Code applications, from specified physical or chemical properties of materials that do not require extensive evaluation to determine adequacy of the materials.
- c. Minor structural departures from design requirements, such as low strength concrete or porosity of concrete, provided that an extensive evaluation is not required to determine adequacy of the structure or repairs.
- d. Minor departures from performance specifications, as demonstrated by acceptance of construction and preoperational tests, which do not require extensive evaluations of an item's performance capability or extensive redesign.
- e. The occurrence of a nonconformance that can and will be remedied through the use of established methods in applicable codes or approved procedures.
- f. The nonconforming item will have the capability of performing its intended function. The responsible department sends copies of the nonconformances to the cognizant quality area.

For construction or modification activities under Nuclear Engineering Services or site Engineering control, onsite corrective action measures consist of procedures for prompt resolution and approval of corrective actions by Nuclear Engineering Services or site Engineering. The responsible manager brings significant nonconformances to the attention of Corporate management for actions where satisfactory resolution cannot be achieved by Nuclear Engineering Services or site Engineering.

### 3.6 Verification and Follow-up

For construction or modification activities under site Engineering control, site Engineering assures that the corrective action has been taken. The Company requires contractors and vendors to follow-up on corrective action commitments within their quality programs.

Independent personnel follow-up and approve that nonconformances have been corrected satisfactorily.

For Operations, trend studies and audit results are evaluated to assure that corrective measures are implemented effectively and that actions to prevent recurrence are effective. The Company verifies completion of corrective actions for maintenance, repair, refueling and operation activities.

The Company performs surveillance of site corrective action. The Company is to track and verify completion of corrective action taken for audit deficiencies including programmatic deficiencies identified in audits. The Company verifies and approves the completion of corrective actions by the station.

The Company regularly reviews and analyzes records:

- a. To assure that the causes of nonconformities and the corrective action have been clearly described.
- b. To assure that the overall effect resulting from the use of nonconforming items has been evaluated by authorized ComEd personnel.
- c. To determine whether corrective measures will preclude recurrence.

Personnel performing the evaluation function are responsible for considering the cause and the feasibility of corrective action to assure that the necessary quality of an item is not deteriorated. Where it is determined that the cause cannot be corrected immediately, the effective date of corrective action will be determined during the review and evaluation. Evaluation may indicate the need for investigations to assure that corrective measures are considered complete. Evaluation may also indicate that the nature of the nonconformity is minor and does not require corrective action.

## 4. REFERENCES

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The following references were used in the generation of this Section. The Company's commitment to particular revisions of these standards is contained in Section 2. Specific references for the requirements listed in Article 3 of this Section are contained in the Q.A. Program Database.

- 10CFR50 Appendix B
- ANSI N18.7
- ANS 3.2
- ANSI N45.2
- ANSI/ASME NQA-1
- ASME Code Section III, NCA-4000
- ANSI N45.2.13
- ANSI/ANS 3.2
- ANSI N45.2.11

## 1. POLICY

---

The company establishes and implements a program to ensure that sufficient records of items and activities are generated and maintained in accordance with applicable requirements.

## 2. RESPONSIBILITIES

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The following organizations are responsible for carrying out the requirements of this Section:

- Nuclear Operations Division
- Nuclear Stations
- Site Regulatory Assurance
- Site Material Management
- Site Engineering
- Nuclear Engineering Services
- Nuclear Support Organizations
- Nuclear Regulatory Services
- Nuclear Oversight
- Procurement
- Corporate Security
- System Materials Analysis
- Techlabs

The Company assigns responsibility for specific requirements through The Quality Assurance Data Base.

## 3. REQUIREMENTS

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### 3.1 Program

The records program provides for:

- a. Administration.
- b. Receipt.
- c. Transmittal.
- d. Storage.
- e. Preservation.
- f. Safekeeping.
- g. Retention.
- h. Disposition.

### 3.2 Administration

The quality records program includes those record types, controls, and provisions for storage and preservation contained in NQA-1, Supplement 17S-1. Authority and responsibility for record control activities are delineated. Records are administered through a system which includes an index of record type, retention period, and storage location.

Records are legible, accurate, complete, identifiable, and retrievable. Records may be maintained in electronic media. Records are complete when dated and stamped, initialed, signed or otherwise authenticated. This may include electronic approval and authorization. Corrections, revisions, or supplements to completed records are reviewed and approved by an authorized individual in the originating organization. Such changes are dated and stamped, initialed, signed, or otherwise authenticated including the use of electronic approval and authorization. Procedures are established to assure that only those persons authorized to use electronic approval grant such approvals.

Measures are established for replacement, restoration, or substitution of lost or damaged records.

### 3.3 Receipt

A system for receipt control of records is established. Receipt control is required for records transferred:

- a. Between Company locations.
- b. Between vendors and the Company.
- c. From Company department files to final storage locations.

### 3.4 Transmittal

Systems are established to transfer records between Company locations and between vendors and the Company. Records transferred from Company department files to a final storage location are also under such systems.

The system includes:

- a. Inventory of transmitted records.
- b. Receipt acknowledgment.

### 3.5 Storage

Record storage facilities are established to meet regulatory requirements, including those of NQA-1, Supplement 17S-1 and ASME Code Section III, NCA 4134.17.

Storage systems provide for:

- a. Assignment of responsibilities.
- b. Control and accountability of records removed.

### 3.6 Preservation

In order to prevent deterioration, records are stored:

- a. In a manner to prevent damage from moisture, temperature, pressure, etc.
- b. In binders, folders, envelopes, or similar systems.

Manufacturers recommendations are followed for special recording media.

### 3.7 Safekeeping

Measures are established to prevent access to records by unauthorized personnel. These measures guard against theft and vandalism.

### 3.8 Retention

Record retention periods are established to meet regulatory requirements. The most stringent retention period is implemented when multiple requirements exist.

### 3.9 Disposition

Records will be dispositioned at the end of the prescribed retention period. A review of regulatory requirements will be performed prior to disposition to assure current requirements are satisfied.

### 3.10 Plant Operating Records

**NOTE:** The requirements contained in all articles and sub-articles of 3.10.1 and 3.10.2 apply to Dresden and Quad Cities stations. These requirements were transferred here from the Dresden and Quad Cities Technical Specifications to meet an administrative commitment resulting from the Technical Specification Upgrade Program. Similar requirements exist for Braidwood, Byron, LaSalle and Zion. Refer to the most recently approved amendment of these stations' Technical Specifications for applicable requirements.

**3.10.1 Records and/or Logs, 5 Year Retention**

Records and/or logs relative to the following items shall be kept in a manner convenient for review and shall be retained for at least 5 years:

- a. Records of normal plant operation, including power levels and periods of operation at each power level.
- b. Records of principal maintenance activities, including inspection and repair, regarding principal items of equipment pertaining to nuclear safety.
- c. Records and reports of reportable events.
- d. Records and periodic checks, inspection and/or calibrations performed to verify that the surveillance requirements of the Technical Specifications are being met. All equipment failing to meet surveillance requirements and the corrective action taken shall be recorded.
- e. Records of changes made to the equipment or reviews of tests and experiments to comply with 10CFR50.59.
- f. Records of radioactive shipments.
- g. Records of physics tests and other tests pertaining to nuclear safety.
- h. Records of changes to procedures required by a station's Technical Specifications and other procedures which affect nuclear safety, as determined by the Station Manager.
- i. Shift Manager/Engineers' logs.
- j. By-product material inventory records and source leak test results.

**3.10.2 Records and/or logs, Lifetime Retention**

Records and/or logs relative to the following items shall be recorded in a manner convenient for review and shall be retained for the life of the plant:

- a. Substitution or replacement of principal items of equipment pertaining to nuclear safety.
- b. Changes made to the plant as it is described in the Safety Analysis Report.
- c. Records of new and spent fuel inventory and assembly histories.

- d. Updated, corrected, and as-built drawings of the plant.
- e. Records of plant radiation and contamination surveys.
- f. Records of offsite environmental monitoring surveys.
- g. Records of radiation exposure for all plant personnel, including all contractors and visitors to the plant, in accordance with 10CFR20.
- h. Records of radioactivity in liquid and gaseous wastes released to the environment.
- i. Records of transient or operational cycling for those components that have been designed to operate safely for a limited number of transient or operational cycles.
- j. Records of individual staff members indicating qualifications, experience, training, and retraining.
- k. Inservice inspections of the reactor coolant system.
- l. Minutes of meetings and results of reviews performed by the Offsite and Onsite Review and Investigative Functions.
- m. Records for Environmental Qualification which are covered under the provisions of the station's Technical Specifications.

#### 4. REFERENCES

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The following references were used in the generation of this Section. The Company's commitment to particular revisions of these standards is contained in Section 2. Specific references for the requirements listed in Article 3 of this Section are contained in the Q.A. Program Database.

- ANSI/ASME NQA-1
- 10CFR50 Appendix B
- ASME Code Section III, NCA 4000
- ANSI N18.7
- ANS 3.2

## 1. POLICY

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A documented, comprehensive system of planned and periodic performance based audits and assessments of the Company and its vendors is conducted to verify Quality Assurance Program compliance, adequacy and effectiveness, and to assess conformance with management controls.

Audits are conducted in accordance with written procedures and to the requirements of NQA-1 to assist the audited organization and to assure completion of required corrective actions, commitments, or improvements.

## 2. RESPONSIBILITIES

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The following organizations are responsible for carrying out the requirements of this Section:

Nuclear Oversight  
Quality and Safety Assessment

The Company assigns responsibility for specific requirements through the Quality Assurance Program Data Base.

## 3. REQUIREMENTS

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### 3.1 Audits - General

#### 3.1.1 Responsibility

The Nuclear Oversight Manager has the responsibility for the performance of periodic audits to determine that Quality Assurance and Nuclear Safety Policy is being carried out. Nuclear Oversight's responsibilities include the vendor audit program; ensuring that audits of Corporate and site organizations, responsible for nuclear functions, are conducted to verify that the Q.A. Program is effectively implemented; the management assessment program; and participation in joint member groups. Nuclear Oversight is independent of production.

The Manager of Quality and Safety Assessment (Q&SA), located at the station, is responsible for conducting internal audits, surveillances, and assessments of Company stations. The Manager of Q&SA has sufficient organizational freedom, authority, and responsibility to provide an assessment of station line and support activities to ensure compliance with Quality Assurance and Nuclear Safety Requirements.

### 3.1.2 Scheduling

Planned and comprehensive performance based audits are performed to assure that safety related functions are fully evaluated.

Audits are performed to schedules that include the minimum audit areas and frequencies. They are approved by the Nuclear Oversight Manager or the Manager of Q&SA, as appropriate, or designated staff. Schedules are reviewed semi-annually and revised accordingly to assure that coverage is maintained current. Audits are initiated early to assure effective quality assurance during design, procurement, manufacturing, construction, installation, inspection, testing, and operations.

Additional unscheduled audits may also be performed at various stages of activities, based on the nature and safety significance of the work being done, to verify continued adherence to and effectiveness of the quality systems.

The Manager of Q&SA, the Corporate Audit Director, and the Supplier Evaluation Services Director, or designated staff, shall approve their respective agenda, checklist, findings, and report of each audit. Audits shall be conducted on a performance driven frequency, not to exceed 24 months, and in accordance with the Company Quality Assurance Program and procedures. Audits shall include the following safety-related functions:

- a. The conformance of unit operation to provisions contained within the technical specifications and applicable license conditions.
- b. The adherence to procedures, and training and qualification of the station staff.
- c. The results of actions taken to correct deficiencies occurring in facility equipment, structures, systems, components, or method of operation that affect nuclear safety.
- d. The performance of activities required by the Operational Quality Assurance Program to meet the criteria of Appendix B, 10CFR50.
- e. Onsite and offsite reviews.
- f. The facility fire protection programmatic controls including the implementing procedures by qualified Nuclear Oversight or station Quality and Safety Assessment personnel.
- g. The fire protection equipment and program implementation utilizing either a qualified offsite licensee fire protection engineer or an outside independent fire

protection consultant. An outside independent fire protection consultant shall be used at least every third year.

- h. The Radiological Environmental Monitoring Program and its results.
- i. The Offsite Dose Calculation Manual and implementing procedures.
- j. The Process Control Program and implementing procedures for the solidification of radioactive wastes.
- k. The performance of activities required by the Company Quality Assurance Program for effluent and environmental monitoring.
- l. Changes to the Decommissioning Plan (Dresden Unit #1 only)
- m. Randomly selected procedures to ensure that the programmatic control processes, used to assure that procedures are technically and administratively correct prior to use, are resulting in timely and accurate procedure revisions.

Each ongoing ASME Code activity is audited annually and results are made available to the Authorized Inspection Agency.

Material Manufacturers or Material Suppliers who are qualified under the Company's ASME "N" Certificate of Authorization and who are actively supplying ASME Code materials will be audited/surveyed annually. Vendors and their subtier suppliers are audited periodically, generally in conjunction with plant visits for witnessing inspection points. The Company's active participation in joint utility audit programs provides an alternative means to fulfilling its responsibility for auditing active vendors.

### 3.1.3 Preparation

A documented plan or an agenda identifies the audit scope, requirements, audit personnel, activities to be audited, organizations to be notified, applicable documents, and schedule. An approved checklist or procedure for each audit identifies the quality and technical elements of the area or items to be evaluated. Audit plans, agendas, checklists, and procedures are prepared in advance under the direction of the Audit Team Leader.

### 3.1.4 Personnel

Audits are performed by experienced personnel qualified in accordance with NQA-1 who are familiar with written procedures, standards and processes applicable to the area being audited. Audit personnel shall have sufficient authority and organizational freedom to make the audit process meaningful and effective and shall not have direct

responsibilities in the areas to be audited. The Audit Team Leader shall organize and direct the audit and ensure the audit team collectively has the required experience or training for the activities to be audited. The audit team may be supplemented by technical specialists to provide additional experience and competence.

### **3.1.5 Performance**

Performance based audits are conducted to assess specific activities, processes, and records on the basis of their impact and importance relative to safety, reliability, and functionality. Audits can be focused on areas most in need of improvement. Objective evidence shall be examined to the extent necessary to determine that a quality system is being effectively implemented.

### **3.1.6 Reporting and Follow-up**

An audit report includes the description of the audit scope, identification of the audit team and personnel contacted during audit activities, a summary of audit results (including a statement on effectiveness of the Quality Assurance Program elements), and a comprehensive description of each audit concern. Audit results are documented and distributed and shall be reviewed by the management having responsibility in the area being audited. Deficiencies requiring prompt corrective action are reported immediately to the management of the audited organization.

Recommendations and findings of each audit shall be reported to the Station Manager/Plant General Manager, the appropriate Site Vice President, and the Nuclear Oversight Manager. All findings of noncompliance with NRC requirements, and any significant nuclear safety or quality issue, requiring escalated action, will be directed through the Nuclear Oversight Manager to the Executive Vice President and CNO.

Responsible management shall take the necessary actions to correct the deficiencies identified in the audit. They will define the corrective action to be taken, actions which will prevent recurrence, and a schedule for implementing these actions.

These corrective action commitments will be evaluated by the Audit Team Leader. Recurring deficiencies or failure to implement corrective action will be reported to appropriate Company executives.

Copies of documentation, reports, and correspondence are kept on file at the appropriate location.

Verification of the completion of scheduled corrective action commitments is performed to assure deficiencies or adverse conditions are corrected. Previous deficient areas or adverse conditions are followed up upon to assure corrective action is effective and implementation continues.

### 3.1.7 Records

The audit plan, report, objective evidence, written replies, and the record for deficiency follow-up and the completion of corrective action is on file. Personnel qualification records for audit team members are established, maintained, and reviewed.

### 3.2 Independent Management Audit/Assessment

Audits of the Company are performed by the Authorized Inspection Agency as required by the ASME Code and ASME N626.0. A periodic review of the audit program is performed by an independent organization to assure that audits are being accomplished to program requirements. An annual report on the status, adequacy, and implementation of the Quality Assurance Program is submitted to the Executive Vice President and Chief Nuclear Officer by the Nuclear Oversight Manager.

## 4. REFERENCES

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The following references were used in the generation of this Section. The Company's commitment to particular revisions of these standards is contained in Section 2. Specific references for the requirements listed in Article 3 of this Section are contained in Q.A. Program Database.

- 10CFR50 Appendix B
- ANSI/ASME NQA-1
- ASME Code Section III, NCA-4000
- ANSI N18.7-1977
- ANSI/ANS 3.2-1988

## **1. POLICY**

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It is ComEd's policy to assure a high degree of availability and reliability for its nuclear plants while ensuring the health and safety of the public and its workers. Therefore, the Quality Assurance Program is applied in a graded manner to certain areas and activities that are not clearly defined as safety related or ASME Code related. The Company calls this application Augmented Quality.

## **2. RESPONSIBILITIES**

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The following organizations are responsible for carrying out the requirements of this Section:

- Nuclear Operations
- Nuclear Stations
- Site Material Management
- Site Engineering
- Nuclear Engineering Services
- Corporate Security
- Nuclear Support Organizations

The Company assigns responsibilities for specific requirements through the Quality Assurance Database.

## **3. REQUIREMENTS**

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The Company applies the Quality Assurance Program to certain systems, structures, components, and activities that are not safety related or ASME Code related to a degree consistent with their importance to safety. While there may be minor interfaces with additional sections of this manual, the following sections apply to the programmatic elements of the noted activities:

### **3.1 Health Physics and ALARA (As Low As Reasonably Achievable)**

Sections 3, 4, 5, 6, 15, 16, and 18 are applicable to this area.

### **3.2 Emergency Planning**

Sections 5, 6, 16, and 18 are applicable to this area.

### **3.3 Transport of Radioactive Waste**

Sections 4, 5, 6, and 17 are applicable to this area.

### **3.4 Security**

Security is controlled for each station by the station security plan that is prepared per NUREG 0908. This plan describes the applicable personnel organization, the keeping of records, audits, and the reporting of abnormal conditions. Sections 6 and 16 are applicable to this area.

### **3.5 Review of Class IE Equipment Qualification**

Sections 3, 5, 6, and 15 are applicable to this area.

### **3.6 Training**

Sections 4, 5, 6, 15, 17, and 18 are applicable to this area.

### **3.7 Environmental Monitoring**

Sections 17 and 18 are applicable to this area.

### **3.8 Meteorology**

Sections 17 and 18 are applicable to this area.

### **3.9 Fire Protection**

A quality assurance program is required for fire protection systems in Safety Related areas. Nuclear Engineering Services is responsible for determining the need for systems on a case by case basis.

The stations are responsible for determining the need for other fire protection equipment on a case by case basis. When required by these organizations, Sections 3, 4, 5, 6, 7, 10, 11, 14, 15, 16, 17 and 18 are applicable to this area.

### **3.10 Repairs and Alterations Subject to IDNS Jurisdiction**

Welded repairs and all alterations to non-ISI boilers and pressure vessels, as described in Sections 505.10 and 505.50(a) of the Illinois Department of Nuclear Safety (IDNS) Boiler and Pressure Vessel Safety Rules, and the repair of pressure relief valves, as described in Section 505.2500(a)(1)(b) of the rules, are to be conducted in accordance with Section 505.2500(a)(1)(a)(ii) of the Rules.

Section 505.2500(a)(1)(a)(ii) requires that the Company apply an approved QA Program to such repairs and alterations and describe how it is applied. The following describes the Company's application of these rules.

The Company has a QA Program that is reviewed and accepted by the NRC. In addition, the QA Program and the ASME [Section III] Interface are reviewed and accepted by an accredited Authorized Inspection Agency. Authorized Inspectors are present at each of the Company's plants while ASME Code work is in progress.

Section 1 of this QA Program describes the authority and responsibilities of the organization. It also describes the retention of responsibility when repair and modification activities are subcontracted.

Section 3 requires that designs and changes to designs be defined, documented, and controlled.

Section 5 requires that all work be accomplished in accordance with documented instructions and procedures and be subject to appropriate process controls. Specifically, the Company uses the Nuclear Work Request (NWR) to authorize, track, and control work in the plant. The NWR system includes provisions for specifying when work is ASME Code related and is not limited to any particular section of the ASME Code. It further provides for detailed instructions to accomplish the work. This includes the need for qualified inspectors, qualified welders, qualified procedures, special processes, required documentation, approved drawings, and post-maintenance/post-modification testing. NWR's marked as ASME Code work are offered to the AI for the insertion of hold and witness points.

Sections 4, 7, 8, and 13 address the procurement, receiving, handling, storage, disbursement, and marking of materials. Local implementing procedures establish traceability of materials to the procurement and receiving processes and provide assurance that only ASME Code acceptable materials are utilized. Any specific requirements for heat traceability will be in accordance with the applicable sections of the ASME Code being used.

Section 9 details the controls for special processes while Section 10 details those for inspection. This includes the requirement for the use of independent, qualified inspectors and examiners when required by the ASME Code, and invokes the Company's Special Processes and Procedures Manual (SPPM). The SPPM is also reviewed and accepted by the Authorized Inspection Agency.

Sections 6 and 17 require that documents and records be generated and maintained to satisfy the requirements of the ASME Code and the Jurisdiction.

Section 18 provides for overview and audit of ASME Code activities.

Repairs and alterations performed as described above meet the requirements of the approved QA Program and meet the requirements of the IDNS B&PV rules; regardless of the safety classification of the boiler or pressure vessel or pressure relief valve being repaired.

#### **4. REFERENCES**

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The following references were used in the generation of this Section. The Company's commitment to particular revisions of these standards is contained in Section 2.

Specific references for the requirements listed in Article 3 of this Section are contained in the QA Program Database.

- 10CFR21
- 10CFR50 Appendices A, B, and R
- 10CFR71 Subpart H
- 10CFR73
- ANSI/ASME NQA-2

## 1. POLICY

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Independent safety reviews of plant operations are conducted to ensure that day-to-day activities are conducted in a safe manner. Senior management is provided with overall assessments of facility operation and recommendations to improve nuclear safety margins and plant reliability.

## 2. RESPONSIBILITIES

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The following organizations are responsible for carrying out the requirements of this Section:

- Nuclear Operations
- Nuclear Stations
- Nuclear Oversight

## 3. REQUIREMENTS

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### 3.1 General

The Director of Safety Review shall be appointed by the Nuclear Oversight Manager responsible for nuclear activities. The corporate audit function shall be the responsibility of the Nuclear Oversight Manager and shall be independent of operations.

The Nuclear Oversight Manager reports to the Executive Vice President and Chief Nuclear Officer (CNO) and has the responsibility to set corporate policy for the areas of Quality Assurance and Nuclear Safety. The Nuclear Oversight Manager has the responsibility to determine that Nuclear Safety policy is being carried out. The Nuclear Oversight Manager has the authority to order unit shutdown or request any other action which he deems necessary to avoid unsafe plant conditions.

**Note:** The use of the term Offsite Review refers to the Offsite Review and Investigative Function. Onsite Review refers to the Onsite Review and Investigative Function. These terms, and the requirements that follow in this Section, were relocated here from each of the station's Technical Specifications.

### 3.2 Offsite Review and Investigative Function

The Director of Safety Review shall:

1. Provide directions for the review and investigative function and appoint a senior participant to provide appropriate direction.
2. Select each participant for this function.
3. Select a complement of more than one participant who collectively possess background and qualifications in the subject matter under review to provide comprehensive interdisciplinary review coverage under this function.
4. Independently review and approve the findings and recommendations developed by personnel performing the review and investigative function.
5. Approve and report in a timely manner all findings of non-compliance with NRC requirements to the Station Manager/Plant General Manager, Site Vice President, Nuclear Oversight Manager, and the Executive Vice President and CNO.

During periods when the Director of Safety Review is unavailable, he shall designate this responsibility to an established alternate, who satisfies the formal training and experience for the Director of Safety Review. The responsibilities of the personnel performing this function are stated below.

#### 3.2.1 Required Offsite Reviews

The Offsite Review and Investigative Function shall review:

- a. Safety evaluations for:
  1. changes to procedures, equipment, or systems that affect the description in the safety analysis report, and
  2. tests or experiments completed under the provision of 10CFR50.59 to verify that such actions did not constitute an unreviewed safety question.
- b. Proposed changes to procedures, equipment, or systems which involve an unreviewed safety question as defined in 10CFR50.59.
- c. Proposed tests or experiments which involve an unreviewed safety question as defined in 10CFR50.59.

- d. Proposed changes in Technical Specifications or NRC Operating License.
- e. Non-compliance with codes, regulations, orders, technical specifications, license requirements, or of internal procedures or instructions having nuclear safety significance.
- f. Significant operating abnormalities or deviation from normal and expected performance of plant equipment that affect nuclear safety as referred to it by an Onsite Review and Investigative Function.
- g. All reportable events, per 10CFR50.73.
- h. All recognized indications of an unanticipated deficiency in some aspect of design or operation of safety-related structures, systems, or components.
- i. All changes to the Generating Stations Emergency Plan prior to implementation of such change.
- j. All items referred by the Site Vice President; the Station Manager/Plant General Manager; the Supervisor of the System Engineering Function or the System/Component Engineering Manager; the Nuclear Oversight Manager; or Onsite Review.

### 3.2.2 Records

Records documenting the actions of Offsite Safety Review will be produced and maintained as follows:

- a. Reviews, audits, and recommendations shall be documented and distributed as covered in Section 20, Article 3.2 item 5.
- b. Copies of documentation, reports, and correspondence shall be kept on file at the appropriate station.

### 3.2.3 Procedures

Written administrative procedures shall be prepared and maintained for the Offsite Review and Investigative Function. These procedures will include the following:

- a. Content and method of submission of presentations to the Director of Safety Review.
- b. Use of committees and consultants.

- c. Review and approval.
- d. Detailed listing of items to be reviewed.
- e. Method of:
  - 1. Appointing personnel.
  - 2. Performing reviews and investigations.
  - 3. Reporting findings and recommendations of reviews and investigations.
  - 4. Approving reports.
  - 5. Distributing reports.
- f. Determining satisfactory completion of action required based on approved findings and recommendations reported by personnel performing the review and investigative functions.

#### 3.2.4 Personnel

The persons, including consultants, performing the Offsite Review and Investigative Function, in addition to the Director of Safety Review shall have expertise in one or more of the following disciplines as appropriate for the subject or subjects being reviewed and investigated:

- a. Nuclear power plant technology
- b. Reactor operations
- c. Utility operations
- d. Power plant design
- e. Reactor engineering
- f. Radiological safety
- g. Reactor safety analysis
- h. Instrumentation and control
- i. Metallurgy
- j. Any other appropriate disciplines required by unique characteristics of the facility

Individuals performing the Offsite Review and Investigative Function shall possess the minimum formal training and experience, as listed below, for each discipline.

- a. Nuclear Power Plant Technology - Engineering graduate or equivalent with 5 years experience in the nuclear field design and/or operation.

- b. Reactor Operations - Engineering graduate or equivalent with 5 years experience in nuclear power plant operations.
- c. Utility Operations - Engineering graduate or equivalent with at least 5 years of experience in utility operation and/or engineering.
- d. Power Plant Design - Engineering graduate or equivalent with at least 5 years of experience in power plant design and/or operation.
- e. Reactor Engineering - Engineering graduate or equivalent. In addition, at least 5 years of experience in nuclear plant engineering, operation, and/or graduate work in nuclear engineering or equivalent in reactor physics is required.
- f. Radiological Safety - Engineering graduate or equivalent with at least 5 years of experience in radiation control and safety.
- g. Reactor Safety Analysis - Engineering graduate or equivalent with at least 5 years of experience in nuclear engineering.
- h. Instrumentation and Control - Engineering graduate or equivalent with at least 5 years of experience in instrumentation and control design and/or operation.
- i. Metallurgy - Engineering graduate or equivalent with at least 5 years of experience in the metallurgical field.

The Director of Safety Review shall have experience and training which satisfy ANSI N18.1-1971 requirements for "Plant Managers."

### **3.3 Onsite Review and Investigative Function**

#### **3.3.1 General**

The Onsite Review and Investigative Function shall be supervised by the Station Manager/Plant General Manager. The Station Manager/Plant General Manager shall:

1. Provide directions for the Onsite Review and Investigative Function and appoint the System Engineering Supervisor or the System/Component Engineering Manager or other comparably qualified individual as the senior participant to provide appropriate directions.
2. Approve participants for this function.

3. Assure that at least two participants who collectively possess background and qualifications in the subject matter under review are selected to provide comprehensive interdisciplinary review coverage under this function.
4. Independently review and approve the findings and recommendations developed by personnel performing the Onsite Review and Investigative Function.
5. Report all findings of noncompliance with NRC requirements and provide recommendations.
6. Submit to the Offsite Review and Investigative Function for concurrence in a timely manner, those items described in Section 20, Article 3.2.1 which have been approved by the Onsite Review and Investigative Function.

### 3.3.2 Authority

The Onsite Review and Investigative Function shall:

- a. Advise the Station Manager/Plant General Manager on all matters related to Nuclear Safety.
- b. Recommend to the Station Manager/Plant General Manager the disposition of items considered under Section 20, Article 3.3.3, items 1 through 9 prior to their implementation.
- c. Include among its review conclusions for each item considered under Section 20, Article 3.3.3, items 1 through 4 a determination of whether or not the item involves an unreviewed safety question.
- d. Provide prompt notification to the appropriate Site Vice President and the Director of Safety Review of disagreement between the Onsite Review and Investigative Function and the Station Manager/Plant General Manager. The Station Manager/Plant General Manager shall follow the recommendations of the Onsite Review and Investigative Function or select a course of action that is more conservative regarding safe operation of the facility.

### 3.3.3 Responsibility

The Onsite Review and Investigative Function shall be responsible for conducting the following:

1. Review of all applicable Plant Administrative Procedures recommended in Appendix A of Regulatory Guide 1.33, Revision 2, February 1978 and changes thereto.
2. Review of Emergency Operating Procedures required to implement the requirements of NUREG-0737 and Supplement 1 to NUREG-0737 as stated in Section 7.1 of Generic Letter No. 82-33 and changes thereto.
3. Review of all proposed tests and experiments that affect nuclear safety.
4. Review of all proposed changes or modifications to plant systems or equipment that affect nuclear safety.
5. Review of proposed changes to the Fire Protection Program.
6. Review of the Station Security Plan and submittal of recommended changes to the Station Security Plan in accordance with station procedures.
7. Review of Emergency Plan and identification of recommended changes.
8. Review of changes to the Process Control Program and the Offsite Dose Calculation Manual.
9. Review of all proposed changes to the Technical Specifications or operating license, and any proposed change which involves an unreviewed safety question that is to be submitted to the Nuclear Regulatory Commission for approval.
10. Review of investigation results for all violations of the Technical Specifications, including the preparation and forwarding of reports covering evaluations and recommendations to prevent recurrence.
11. Review of investigation results for all Reportable Events and other significant operating abnormalities including the preparation and forwarding of reports covering evaluations and recommendations to prevent recurrence.
12. Review of investigation results for any accidental, unplanned, or uncontrolled radioactive release including the preparation and forwarding of reports covering evaluations and recommendations to prevent recurrence.

13. Review of unit operations to detect potential hazards to nuclear safety.
14. Review of changes to the Inservice Inspection Program for Post Tensioning Tendons (LaSalle only).
15. Performance of special reviews and investigations and reports thereon as requested by the Director of Safety Review.

#### **3.3.4 Records**

Reports, reviews, investigations, and recommendations prepared and performed for Section 20, Article 3.3.3 shall be documented and forwarded to the Director of Safety Review unless otherwise specified.

Copies of all records and documentation shall be kept on file at the station.

#### **3.3.5 Procedures**

Written administrative procedures shall be prepared and maintained for conduct of the Onsite Review and Investigative Function. These procedures shall include the following:

- a. Content and method of submission and presentation to the Station Manager/Plant General Manager, Site Vice President, and Director of Safety Review.
- b. Use of committees.
- c. Review and approval.
- d. Detailed listing of items to be reviewed.
- e. Procedures for administration of the quality control activities.
- f. Assignment of responsibilities.

#### **3.3.6 Personnel**

The personnel, including consultants, performing the Onsite Review and Investigative Function, in addition to the Station Manager/Plant General Manager, shall have expertise in one or more of the following disciplines as appropriate for the subject or subjects being reviewed and investigated:

- a. Nuclear power plant technology

- b. Reactor operations
- c. Reactor engineering
- d. Chemistry
- e. Radiological controls
- f. Instrumentation and control
- g. Mechanical and electrical systems

Personnel performing the Onsite Review and Investigative Function shall meet minimum acceptable levels as described in ANSI N18.1-1971, Sections 4.2 and 4.4.

#### **4. REFERENCES**

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The following references were used in the generation of this Section.

- Facility Operating Licenses (Technical Specifications)
- Letter dated October 20, 1994 from G.F. Dick (NRC) to D.L. Farrar (ComEd)

## **1. GENERAL**

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This Appendix to the Quality Assurance Manual consists of definitions for words or phrases found in the Commonwealth Edison Company Quality Assurance Program. The purpose of this definition section is to provide a common basis for understanding those words or phrases that may have a different meaning when used elsewhere.

All words and phrases are subject to review and revision as circumstances require.

**- A -**

### **Approval**

Approval as used herein means by signature or initialing and date by an authorized individual.

### **ASME Boiler and Pressure Vessel Code, Section III, Division 1 and Division 2 for Concrete Containment**

Refers to ASME Section III, Division 1 and Division 2 for Concrete Containment; ASME Section III; ASME Code; ASME; or Code.

### **ASME Boiler and Pressure Vessel Code, Section XI**

Refers to ASME Section XI; Section XI; or Code.

### **Audit**

A planned and documented activity performed to determine by investigation, examination, or evaluation of objective evidence the adequacy of and compliance with established procedures, instructions, drawings, and other applicable documents, and the effectiveness of implementation. An audit should not be confused with surveillance or inspection activities performed for the sole purpose of process control or product acceptance.

### **Audit Team Leader**

An individual appointed to lead an Audit Team. The Audit Team Leader coordinates the preparation of the audit report.

**Auditor**

One qualified and authorized to examine quality assurance practices and verify whether requirements are being met.

**Authorized Inspector or AI or ANI**

As used herein is meant to mean Authorized Nuclear Inspector. An Authorized Nuclear Inspector is an employee of an Authorized Inspection Agency who has qualifications for and has been properly accredited for Division 1 or Division 2.

**Authorized Nuclear Inservice Inspector or ANII**

As used herein is meant to mean the Authorized Nuclear Inservice Inspector. An ANII is an employee of an Authorized Inspection Agency who has qualifications for and has been properly accredited for ASME Section XI.

**- B -****Balance of Plant**

Generating station items and equipment not designed, furnished or installed as a part of the Nuclear Steam Supply System. Balance of Plant items include safety-related and ASME Code items, such as the containment as well as non safety-related and non-ASME Code items.

**Basic Component**

"Basic component", when applied to nuclear power reactors means a plant structure, system, component or part thereof necessary to assure (1) the integrity of the reactor coolant pressure boundary, (2) the capability to shut down the reactor and maintain it in a safe shutdown condition, or (3) the capability to prevent or mitigate the consequences of accidents which could result in potential offsite exposures comparable to those referred to in 10CFR100.11 Chapter 1 (1-1-87), Part 21.

**Bid Package**

The total of drawings, specifications, codes, standards, quality and other requirements that describes the task on which a prospective contractor/supplier will bid.

**- C -****Calibration**

A method of assuring accuracy of gauges and instruments used for measuring and testing by comparing with recognized standards.

**Certificate of compliance**

A written statement, signed by a qualified person, attesting that the materials or items are in compliance with the purchasing documents.

**Certified Personnel**

Personnel who have passed a formal training program and a formal proficiency test for special processes such as welding, plating and nondestructive testing.

**Certified Standards**

Standards of measurement whose accuracy can be traced to standards at the National Institute of Standards and Technology or established standards.

**Certified Material Test Report**

A document attesting that material is in accordance with specified requirements including the actual results of all required chemical analyses, tests and examinations.

**Change Order**

A formal award to a vendor or contractor covering revision(s) to the original Purchase Order or Change Order, involving but not limited to quantity, technical requirements, quality assurance requirements or scope of work.

**Change Order Requisition**

A document describing revisions to be made to the original Purchase Order or subsequent Change Order and which is converted into a Change Order.

**Characteristic**

Any property or attribute of an item, process or service that is distinct, describable and measurable, as conforming or nonconforming to specified quality requirements. Quality

characteristics are generally identified in specifications and drawings which describe the item, process or service.

**Code**

See ASME Boiler and Pressure Vessel Code, Section III or Section XI, whichever is applicable.

**code**

A recognized standard for using or processing materials, or for the skill involved in use or processing.

**Cognizant Engineer**

The engineer assigned a specific task or area of responsibility in the design or testing of a component or system.

**ComEd**

Defined as the Commonwealth Edison Company and referred to frequently as the Company.

**Company**

Defined as Commonwealth Edison Company, and referred to variously as ComEd, Edison or Company.

**Company Level III**

Chief Level III (NDE) for the Company

**Component**

ASME Code items such as vessels, concrete containments, piping systems, pumps, valves, core support structures and storage tanks which will be combined with other components to form an assembly or installation of a nuclear power plant.

**Component Identification Number**

An identification number assigned (where appropriate) to an item for use throughout its lifetime.

**Construction**

Activities at the building site necessary to erect, inspect and accept a power generating station and its associated installation. This definition applies unless otherwise indicated.

Construction (ASME Section III Div. 1) comprises all activities relating to materials, design fabrication, examination, testing, inspection and certification required in the manufacture and installation of items.

Construction (ASME Section III Div. 2) includes all those operations required to build the component and its parts in accordance with the Design Drawings and Construction Specification which have been prepared by the Designer (AE).

**Construction Tests**

Those tests necessary to verify that the installation of each component of a system is complete and complies with the applicable specifications, standards, codes, drawings and engineering information.

**Contract (including purchase order)**

A binding agreement between two or more persons or companies.

**Contractor**

Any organization under contract for furnishing items or services. It includes the terms vendor, supplier, subcontractor, fabricator and subtier levels of these where appropriate.

Code contractor is a contractor holding a valid ASME Section III Certificate of Authorization.

**Control Point**

In a sequential operation, a checkpoint at which certain data are taken, inspections are made or approval is required.

**Corrective Action**

Measures taken to rectify conditions adverse to quality, and, where necessary, to preclude repetition.

**- D -****Department**

When a responsibility is given to a department in this Manual it is meant that the department head has the responsibility.

**Design Change**

Any change in design that may affect functional requirements, operating conditions, safety-, regulatory-, reliability-, and ASME Code-related requirements, performance objectives, plant reliability or design life and would require that affected documentation be changed.

**Design Controls**

Methods for assuring that basic design requirements are formalized and translated to design documents with proper review to assure the scheduled release of a valid design.

**Design Criteria**

Statements of the form, function and interface requirements within well defined limitations.

**Designer (Division 2)**

As used in ASME Code Division 2 construction, the Designer (AE) is the organization responsible for the preparation and completion of the Design Report, design drawings, and construction specifications for applicable items.

**Design Requirements**

Documents that set the functional requirements, operating conditions, safety requirements, performance objectives, design margins and design life. Included are any special requirements for size, weight, ruggedness, materials, fabrications or constructions, testing, maintenance, operating environments, safety margins and derating factors.

**Design Review**

An analysis of design with respect to technical adequacy, interface control, inspectability, maintainability and conformance to applicable codes, standards, regulations and design criteria.

**Design Specification**

A document that sets the functional requirements; design requirements; environmental conditions, including radiation; ASME Code classification; definition of the boundaries; and material requirements. Sufficient detail shall be contained within the document to provide a complete basis for design.

For Section III ASME Code, Division I: A document prepared by the owner or owner's designee which provides a complete basis for construction in accordance with the ASME Code, Section III.

**Desk Survey**

An evaluation of a supplier's quality control capability made from documented procedures and records of past performance.

**Destructive test**

A test to determine the properties of a material or the behavior of an item which results in the destruction of the sample or item.

**Deviation**

A nonconformance. Departure of a characteristic from specified requirements.

**Discrepancy**

A nonconformance.

**Documentation**

Any written or pictorial information describing, defining, specifying, reporting or certifying activities, requirements, procedures or results.

**Drawing Manifest**

A document for transmitting drawings, released for construction to an engineering, construction and/or production organization.

**- E -****Erector**

An organization involved in assembling and building equipment or structures at the site.

**Examination**

Specific actions by qualified personnel using qualified procedures to verify that items and fabrication processes are in conformance with specified requirements. This term, when used in conjunction with qualification of personnel to perform quality-related activities shall mean a written examination.

**- F -****Fabricator**

An organization involved in the manufacture of equipment.

**Fabricator (ASME Section III Div. 2)**

The NPT Certificate holder

**Final Safety Analysis Report (FSAR)**

A finalization of the preliminary safety analysis report prepared for the Nuclear Regulatory Commission prior to issuance of an operating license.

**First Level Design Review**

A review conducted by the responsible project engineer within the design agency for a specific design discipline.

**Flow Chart**

A representation of the sequence of activities such as procurement, fabrication, processing, assembly, inspection and test, or the sequence of individual operations within one or more of those functions.

**- H -****Hold Point**

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

**- I -****Incident**

Occurrence of major damage, serious personal injury or significant schedule delay.

**Inspection**

A phase of quality control that, by means of examination, observation or measurement determines the conformance of materials, supplies, components, parts, appurtenances, systems, processes or structures to predetermined quality requirements.

**Inspection and Test Plan**

A listing, with optimum sequencing, of all the inspections and tests required to be performed for a specific item, component, structure or service.

**Interface control**

Consideration that components and structures are geometrically and functionally compatible and that materials are compatible with both process and environment.

**Item**

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

When ASME Code items are referenced, this means products constructed under a certificate of authorization and material.

**- J -****Jurisdictional Boundaries**

The physical limits of an ASME Code item which are identified to determine the applicability of ASME Code rules for that item.

**- L -****Lifetime Record**

A record that meets one or more of the following criteria:

- a) those that would be of significant value in demonstrating capability for safe operation;
- b) those that would be of significant value in maintaining, reworking, repairing, replacing, or modifying an item;
- c) those that would be of significant value in understanding the cause of an accident or malfunction of an item;
- d) those that provide required baseline data for inservice inspections.

**Like-for-Like Replacement**

The replacement of an item with an item that is identical in all physical and performance characteristics.

**Local Purchase Order**

A purchase order initiated through the computer by a station for the purchase of only Company Stores Coded items.

**- M -****Maintenance**

Repair, rework, or replacement of a structure, system or component with equipment of the same design, i.e., meeting the same engineering requirements.

**Maintenance/Modification Work Package**

The complete set of documentation that enables the station to fabricate, examine, test and install ASME and safety-related items. The work package consists of the work request, provisions for station traveler, document checklist and maintenance/modification procedures and supporting information such as, but not limited to, approved drawings, design specifications, and special process procedures.

**Material**

A substance or combination of substances forming components, parts, pieces and equipment. (Intended to include such things as machinery, castings, liquids, formed steel shapes, aggregates and cement.)

When ASME Code material is referenced, this refers to metallic materials which are manufactured to an SA, SB or SFA Specification or any other material specification permitted by Section III of the ASME Code. For Division 2, refers to metallic materials, as well as to nonmetallic materials, conforming to the specifications permitted in Section III of the ASME Code.

**Material Supplier**

An organization which supplies material produced and certified by Material Manufacturers, but does not perform any operations that affect the material except when agreed upon by the Certificate Holder who uses the material in ASME Code construction or when so authorized by a Quality System Certificate (Materials). The Material Supplier may perform and certify the results of tests, examinations, repairs, or treatments required by the material specification that were not performed by the Material Manufacturer.

**Modification**

A change to an item made necessary by, or resulting in, a change in design requirements. (ASME-NCA 9000)

A planned change in plant design or operation and accomplished in accordance with the requirements and limitation of applicable codes, standards, specifications, licenses and predetermined safety restrictions.

- N -

**National Standards**

Standards maintained at or issued by the National Institute of Standards and Technology (NIST) or other designated institutions, and the values for natural physical constants and conversion factors recommended by NIST.

**Nonconformance**

A deficiency in characteristic, documentation or procedure that renders an item or activity unacceptable or indeterminate. Examples of nonconformances include: physical

defects, test failures, incorrect or inadequate documentation and deviation or variation from prescribed processing, inspection or test procedures.

**Nonpermanent Record**

A record that is required to show evidence that an activity was performed in accordance with the applicable requirements but do not meet the criteria for a lifetime record.

**NQA-1 (ANSI/ASME NQA-1-1989 Edition)**

Quality Assurance Program Requirements for Nuclear Facilities. For ASME Section III activities, NQA-1 is as modified by the ASME Code.

**Nuclear Steam Supply System (NSSS)**

That portion of the nuclear generating plant which provides steam from nuclear heat. It includes the reactor, its control systems, main coolant and steam generation systems, fuel handling equipment, emergency core cooling system and other safeguards, associated electrical equipment, instrumentation, spent fuel handling and radioactive waste disposal system.

- O -

**Objective Evidence**

Any statement of fact, information or record, either quantitative or qualitative, pertaining to the quality of an item or service based on observations, measurements or tests which can be verified.

**Offsite Review**

The offsite review and investigative function required by the Technical Specifications.

**Onsite Review**

The station review and investigative function required by the Technical Specifications.

**Operational Tests**

Tests that are performed during the operations of the plant to verify continued satisfactory performance of safety-related structures, systems and components.

**- P -****Phased replacement**

Where several identical items are to be replaced with a new model, they are replaced a few at a time to allow monitoring of the new items.

**Preliminary Safety Analysis Report (PSAR)**

The initial detailed safety evaluation prepared for the U.S. Nuclear Regulatory Commission prior to issuance of the site construction permit. The PSAR delineates design, normal and emergency operation, potential accidents and predicted consequences of such accidents and the means proposed to prevent such accidents and/or reduce their consequences to acceptable levels.

**Preoperational Testing**

Preliminary testing prior to fuel loading and plant operation to assure that construction and installation are complete and to verify design and system functions.

**Procedure**

A controlled document that specifies or describes how an activity is to be performed. It may include methods to be employed, equipment or materials to be used, accept/reject criteria and sequence of operations.

**Proprietary Designs**

Designs engineered, produced and sold by manufacturers in accordance with their criteria and warranty.

**Purchase Requisition**

The basic document describing a material, component or service that is converted into a purchase order for procurements.

**- Q -****Quality Assurance**

All those planned and systematic actions necessary to provide adequate confidence that an item or a facility will perform satisfactorily in service. For the ASME Code, Quality Assurance comprises all those planned and systematic actions necessary to provide

adequate confidence that all items designed and constructed are in accordance with the applicable ASME Code.

**Quality Control**

Those quality assurance examinations and actions that provide a means to control and measure the characteristics of an item, process or facility to determine or establish conformance to acceptance standards and specified requirements.

**Quality Receipt Inspection Report**

A form utilized by station Quality Control to document technical receipt inspection of ASME Code and safety-related items received by the station.

**- R -****Receiving Inspection Notice (RIN)**

A form initiated by the station upon receipt of ASME Code or safety-related items to record inspection for damage, to record receipt of documentation and to notify station Quality Control that item(s) are available for technical receipt inspection.

**Record**

A completed document that:

- a) furnishes evidence of the quality of items or activities
- b) furnishes evidence of compliance with regulations or requirements
- c) is required by Technical Specifications.

Included are such related documents as drawings, specifications, procurement documents, procedures, operating logs, and reportable occurrences.

Such documents may be originals or reproduced copies.

**Registered Professional Engineer (RPE)**

A person competent in the applicable field of design and qualified in accordance with the requirements of ANSI/ASME 626.3-1988.

**Repair**

The process of restoring a nonconforming characteristic to a condition such that the capability of an item to function reliably and safely is unimpaired, even though that item still may not conform to the original requirements. For ASME Section III items, repair is the process of physically restoring a nonconformance to a condition such that an item complies with ASME Code requirements.

**Request for Bid**

Invitation made to suppliers or contractors to bid on a specific task for materials, goods and services.

**Request for Purchase**

A generating station's document originated by foremen, supervisors or department heads that designates the required items and services and delineates the design specifications, applicable codes and standards, as well as, any special requirements. This document is the basis of initiating a Purchase Requisition.

**Rework**

The process by which a nonconforming item is made to conform to a prior specified requirement by completion, remachining, and re-assembling using previously approved procedural requirements. (For ASME Section III, rework is same as repair.)

- S -

**Second Level Design Review**

Independent objective assessment of a design by qualified personnel who have no direct project responsibility for the design.

**Significant Conditions (adverse to quality)**

Those violations, deficiencies or events, having safety significance, that are required to be reported in writing within 24 hours to the NRC; severe operating abnormalities or large deviations from expected plant performance of safety related structures, systems, or components; "events" as described in the plant Technical Specifications; pervasive breakdowns in the quality assurance program; recurring deficiencies or errors that cannot be dispositioned or brought into conformance by established corrective action systems; or violations of the ASME Code that cannot be readily brought into compliance.

**Source Acceptance**

Acceptance made at a vendor's plant prior to shipment of purchased items.

**Source Inspection**

Inspection carried out at a vendor's plant prior to shipment of purchased items.

**Special Process**

A process, the results of which are highly dependent on the control of the process or skill of the operator, or both.

**Special Process Procedures Manual**

A compilation of ComEd procedures governing nondestructive examination and special processes such as welding and heat treating.

**Specification**

A concise set of requirements to be satisfied by a product, material or process. The set of requirements may, also, indicate the procedure by which one may determine if the given requirements are satisfied.

**Start-up Tests**

Tests that are performed after initial fuel loading and proceed through several power level plateaus to 100% power.

**Stock Material**

Material which is or may be used for conversion to an ASME SA, SB, or SFA Specification or allowable ASTM Specification. As used in this Program, Stock Material is that material that has not been produced in accordance with an NCA 3800 QA Program.

**Surveillance**

Examination of supplier's manufacturing, inspection and test operations and of records of work in progress. This activity is documented.

**Survey**

A documented evaluation of an organization's ability to perform ASME Code activities as verified by a determination of the adequacy of the organization's quality program and by a review of the implementation of that program at the location of the work.

- T -

**Technical Review**

A determination as to whether a nonconforming item will be accepted "as is", reworked, repaired to an acceptable condition or rejected.

**Technical Specification**

The design and performance criteria and operating limits and principles of an operating license to be observed during initial fuel loading, critical testing, start-up, power operations, refueling and maintenance operations.

**Test**

Determination of the physical and functional properties of an item by subjecting the item to a set of physical, chemical, environmental or operating conditions.

**Test Plan**

An outline, narrative description or flow diagram indicating the tests to be performed, the methods to be used and the points in the process where they are to be executed. It may be in the form of a test procedure.

**Traceability**

The ability to verify the history, location, or application of an item by means of recorded identification.

- V -

**Variation**

A nonconformance. Departure of a characteristic from specified requirements.

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- W -

**Witness Points**

In a sequential operation, a notification to ComEd, or its authorized agent, that a phase of work is about to be reached, so that it may be witnessed at a specific time, or in process, to verify acceptable performance of the phase. Witness points may be established in the traveler, procedure or in the course of monitoring the work activity.

**Work Instructions**

Actions to be completed by personnel while they are performing specific tasks in areas such as material controls and identification and fabrication or installation of equipment.

**Workmanship**

That quality of an item expressing its skillful and artful manufacture, without apparent blemishes.