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### 17.2 QUALITY ASSURANCE DURING THE OPERATIONS PHASE

#### 17.2.0 INTRODUCTION

##### 17.2.0.1 Scope

To maintain the high quality of plant systems and equipment during operation, maintenance, repair, modification, and refueling of the Duane Arnold Energy Center (DAEC), a comprehensive quality assurance program has been implemented. The objective of this program is to maintain managerial and administrative control over the operations of and activities relative to safety-related structures, systems, equipment, and components during the operating life of the DAEC. This program is designed to meet the intent of Appendix B to 10 CFR Part 50.

##### 17.2.0.2 Corporate Policy

Iowa Electric considers the operation of the DAEC to be an extension of the basic policies established and documented for design, construction, and startup.

The policies and procedures identified within this report regarding "operating phase" will form the basis for plant-life operation of the DAEC.

Where contractors and suppliers are used during the life of the operating DAEC, their function will be controlled by the Operational Quality Assurance Program.

It is the objective of Iowa Electric that the DAEC shall be operated effectively, efficiently, and in such a manner as not to jeopardize the health or safety of the public.

#### 17.2.1 ORGANIZATION

##### 17.2.1.1 Scope

Iowa Electric has established an operating organization that is structured to support DAEC operating requirements as well as meet corporate needs in other areas. This section identifies the organizational structure; management positions and responsibilities; and the delegation of authority for the development, implementation, and maintenance of the Operational Quality Assurance Program.

The responsibility and authority for the establishment and execution of the Operational Quality Assurance Program for the operation of the DAEC will be retained by Iowa Electric.

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The corporate structure of Iowa Electric's organization for nuclear power is shown in Figure 17.2-1, Section A. The Manager, Corporate Quality Assurance, reports to the Vice President - Production. Figure 17.2-1, Section B shows the organizational structure of the Corporate Quality Assurance Department. 

### 17.2.1.2 Chairman of the Board, President and Chief Executive Officer

The Chairman of the Board, President and Chief Executive Officer of Iowa Electric has final responsibility for the methods of conduct of DAEC operating activities. The authority for decisions regarding the day-to-day conduct of activities for the DAEC has been delegated to the appropriate levels of management having control over specific operating functions. However, the Chairman of the Board, President and Chief Executive Officer retains the authority to redirect or otherwise modify commitments or decisions that may prove contrary to Company or regulatory requirements regarding the operations of the DAEC.

The Chairman of the Board, President and Chief Executive Officer endorses the Operational Quality Assurance Program and has the final responsibility and authority for the review and approval of the Operational Quality Assurance Program. This function is a management review, not a line function.

### 17.2.1.3 Senior Vice President- Operations and Production

The Senior Vice President - Operations and Production reports to the Chairman of the Board, President and Chief Executive Officer and is assigned the management responsibility for operations and power production. Recognizing the special considerations for the safe operation of a nuclear power plant, the organizational arrangement and assignment of responsibilities includes a Nuclear Generation Division and a Corporate Quality Assurance Department. The organization is structured to ensure the independence of the Corporate Quality Assurance Department in the performance of its assigned responsibilities. 

The Senior Vice President - Operations and Production also is responsible for the management of the Engineering Division, which includes the Applications Engineering Department. 

### 17.2.1.4 Vice President - Production

The Vice President - Production reports to the Senior Vice President - Operations and Production and is assigned overall responsibility for operations of the fossil and nuclear divisions.

The Vice President - Production is responsible for the evaluation of the effectiveness of the total Operational Quality Assurance Program for the DAEC. 

#### 17.2.1.5 **Manager, Nuclear Division**

The Manager, Nuclear Division reports to the Vice President - Production and is assigned the overall responsibility for nuclear operations. To achieve the objective of safe operation of the DAEC, the Nuclear Generation Division has been given specific assignments for operation, engineering, licensing, emergency preparedness, and the procurement of nuclear fuel.

##### 17.2.1.5.1 **Group Leader, Nuclear Fuels**

The Group Leader, Nuclear Fuels reports to the Manager, Nuclear Division and is responsible for the design of the core loading, for the procurement of nuclear fuel for the DAEC, and for support for optimizing the use of fuel.

##### 17.2.1.5.2 **Manager, Nuclear Projects**

The Manager, Nuclear Projects reports to the Manager, Nuclear Division and is responsible for broad program management, supervision and overview of nuclear projects affecting the Duane Arnold Energy Center. The specific projects which are under the cognizance of the Manager, Nuclear Projects will be designated by the Manager, Nuclear Division.

Fulfilling the responsibility of the Nuclear Projects Department requires significant communication and interaction with the Duane Arnold Energy Center, the Nuclear Licensing & Emergency Planning Department, the Design Engineering Department, the Corporate Quality Assurance Department and the Purchasing Department. From time to time, personnel regularly assigned to other Departments of the Nuclear Generation Division may be temporarily assigned to the Manager, Nuclear Projects as Project Managers or members of Project Teams in order to achieve the necessary communications and interaction.

##### 17.2.1.5.3 **Plant Superintendent - Nuclear**

The Plant Superintendent - Nuclear reports to the Manager, Nuclear Division and is assigned the primary responsibility for the safe operation of the DAEC. The Plant Superintendent - Nuclear has supervisory control over all employees of Iowa Electric assigned to the DAEC and exercises administrative control over all persons on DAEC premises. The organizational arrangements are presented in Chapter 13, Figure 13.1-2. The license requirements for each position are as specified in the Technical Specifications.

The various organizations reporting to the Plant Superintendent - Nuclear are responsible for those activities associated with operations, maintenance, repair, refueling, performance evaluation, testing, radiation protection, the environmental survey program, fire protection, security, warehousing, and training.

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The Operations Committee functions to advise the Plant Superintendent -Nuclear on all matters related to nuclear safety. The composition, function, and responsibilities of the Operations Committee are specified in the Technical Specifications.

### 17.2.1.5.4 Manager, Design Engineering

The Manager, Design Engineering reports to the Manager, Nuclear Division and is assigned the primary responsibility for the design modifications and engineering relative to the safe operation of the DAEC.

Fulfilling the responsibilities of the Design Engineering Department requires significant communication with the DAEC, the Nuclear Licensing and Emergency Planning Department, and the Nuclear Fuels Group to determine the need for, and the priority of, design modifications.

The Design Engineering Department is responsible for preparing and maintaining lists that denote the specific safety-related structures, systems, and components.

The Design Engineering Department has the overall responsibility for the Inservice Inspection program and ensuring compliance with ASME Code Section XI rules.

The various organizations reporting to the Manager, Design Engineering, are responsible for those activities associated with design and engineering, maintaining appropriate engineering documents, and providing technical information for procurements.

Radiation protection responsibilities include design and engineering relative to minimizing exposure in accordance with the ALARA (As Low as Reasonably Achievable) concept.

Shift Technical Advisors report to the Manager, Design Engineering. They are responsible for providing advice to DAEC operations personnel in response to off-normal events and in the performance of accident analysis.

### 17.2.1.5.5 Manager, Nuclear Licensing and Emergency Planning

The Manager, Nuclear Licensing and Emergency Planning reports to the Manager, Nuclear Division and is assigned the primary responsibility for the licensing and emergency planning activities associated with the DAEC. He shall be the single contact point with the NRC in matters concerning changes to the UFSAR, Technical Specifications, Emergency Plan, Security Plan, Integrated Schedule, Environmental Report, and the Facility Operating License.

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The Manager, Nuclear Licensing and Emergency Planning is responsible for the transmittal to the NRC of proposed tests or changes that are deemed to involve unreviewed safety questions.

The Manager, Nuclear Licensing and Emergency Planning assigns the responsibility for the evaluation of Inspection and Enforcement Bulletins, Information Notices, Generic Letters, and Regulatory Guides. Such evaluations will determine applicability to the DAEC and the necessity for establishing an Iowa Electric position.

### 17.2.1.6 Manager, Corporate Quality Assurance

The Manager, Corporate Quality Assurance reports to the Vice President - Production and is assigned the primary responsibility for ensuring that quality requirements relative to the safe operation of the DAEC are identified and met. 

Fulfilling the responsibilities of the Corporate Quality Assurance Department requires significant communication with the DAEC, the Nuclear Licensing and Emergency Planning Department, the Nuclear Fuels Group, the Design Engineering Department, Nuclear Projects, and the Purchasing Department. 

The Manager, Corporate Quality Assurance is responsible for preparing and maintaining the Operational Quality Assurance Program.

The Manager, Corporate Quality Assurance is also responsible for evaluating the effectiveness of the Operational Quality Assurance Program and issuing periodic reports to the appropriate levels of management.

The organizations reporting to the Manager, Corporate Quality Assurance are responsible for performing surveillances and audits of suppliers, evaluating suppliers and maintaining an approved vendors list, reviewing procurement documents, reviewing technical documents and procedures, performing receiving, in-process, and final inspections, performing nondestructive examinations, quality assurance trending, providing quality assurance training, and supporting the Safety Committee.

#### 17.2.1.6.1 Supervising Quality Assurance Engineer

The Supervising Quality Assurance Engineer reports to the Manager, Corporate Quality Assurance and is responsible for verifying that the Operational Quality Assurance Program is being adequately implemented at the corporate offices and other locations. Implementation at the DAEC is a joint responsibility with the Quality Control Supervisor.

Quality Assurance Engineering assists the Manager, Corporate Quality Assurance in maintaining the Quality Assurance Manual and the implementing quality assurance procedures. Quality Assurance Engineering also is responsible for a

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comprehensive audit and surveillance program that includes Iowa Electric internal organizations, suppliers, and contractors. Quality Assurance Engineering reviews procurement documents, procedures, and technical documents for inclusion of quality requirements, and administers the quality assurance corrective action and trending program.

### 17.2.1.6.2 Quality Control Supervisor

The Quality Control Supervisor reports to the Manager, Corporate Quality Assurance, and along with the Supervising Quality Assurance Engineer is responsible for verifying that the Operational Quality Assurance Program is being adequately implemented at the DAEC. Quality Control is responsible for providing the inspection and testing necessary to support operation, testing, maintenance, and modification.

Quality Control also provides training relative to the Operational Quality Assurance Program. The Corporate Quality Assurance Department Training Coordinator reports to the Quality Control Supervisor and provides training for the Quality Assurance Department. In addition, training relative to the Operational Quality Assurance Program is provided to the Nuclear Generation Division.

Responsibilities relative to the Ten Year Inspection Program include performance of the required examinations and evaluation of indications of defects.

### 17.2.1.6.3 Stop Work Authority

The Manager, Corporate Quality Assurance has the authority to issue a stopwork instruction to the organization that has direct responsibility for the work. Only the Vice President - Production has the authority to override the stop-work instruction.

### 17.2.1.7 Vice President - Engineering

The Vice President - Engineering reports to the Senior Vice President - Operations and Production and is responsible for the management of the Engineering Department.

#### 17.2.1.7.1 Manager, Applications Engineering

The Manager, Applications Engineering reports to the Vice President - Engineering and is responsible for providing engineering and technical support, as requested by the Nuclear Generation Division. For joint engineering projects, the Manager, Applications Engineering and Manager, Design Engineering or Manager, Nuclear Projects shall determine the appropriate participation of their respective departments.

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When performing design and engineering activities in support of the Duane Arnold Energy Center, the Applications Engineering Department shall perform their work in accordance with approved Nuclear Generation Division procedures. 

### 17.2.1.8 Corporate Security Director

The Corporate Security Director reports to the Senior Vice President - Operations and Production and is assigned the responsibility for the development and review of corporate policy for security and for providing recommendations relative to the granting of unescorted access to the DAEC.

### 17.2.1.9 Assistant Secretary (Records Function)

The Assistant Secretary reports to the Senior Vice President - Finance and Secretary and is assigned the responsibility for the maintenance of quality assurance records.

#### 17.2.1.9.1 Records Supervisor

The Records Supervisor reports to the Assistant Secretary and is responsible for storing, protecting, and retrieving records relating to the operation of the DAEC. The organizations responsible for initially controlling records are responsible for the formal turnover of records to the Records Supervisor. The Records Supervisor provides microfilming and record reproduction services.

### 17.2.1.10 Director of Purchasing

The Director of Purchasing reports to the Senior Vice President - Finance and Secretary and is assigned the responsibility for the procurement of new, replacement and spare components and parts and equipment for the DAEC, and the procurement of services relative to the operation of the DAEC.

### 17.2.1.11 The Safety Committee

The Safety Committee reports to the Chairman of the Board, President and Chief Executive Officer and provides independent reviews and audits to verify that the plant is being operated in a safe manner consistent with Iowa Electric policy, approved operating procedures, and licensing provisions. Committee membership and duties are described in the Technical Specifications and the Safety Committee Charter.

## 17.2.2 OPERATIONAL QUALITY ASSURANCE PROGRAM

### 17.2.2.1 Scope

Iowa Electric has established an Operational Quality Assurance Program that applies to those structures, systems, and components, that are safety-related

and those activities that affect those structures, systems, and components that are safety-related. Safety-related structures, systems, and components are those that ensure the integrity of the reactor coolant pressure boundary, shut down the reactor, and maintain the reactor in a safe shut down condition, or prevent or mitigate the consequences of postulated accidents that could cause undue risk to the health and safety of the public.

#### 17.2.2.2 Basis

The basis for the Operational Quality Assurance Program is 10 CFR Part 50, Appendix B, Quality Assurance Criteria for Nuclear Power Plants and Fuel Reprocessing Plants, and Regulatory Guide 1.33, Quality Assurance Program Requirements (Operation.) Other regulatory guides will be used for guidance in the development and implementation of the Operational Quality Assurance Program.

#### 17.2.2.3 Identification of Safety-Related Items

Table 17.1-3, Chapter 17.1, contains a historical list of structures, systems, and components identified as safety-related during the design and construction phase. The Manager, Design Engineering is responsible for maintaining a current listing of safety-related structures, systems, and components, relative to the operational phase. The current listing of safety-related items can be found in a computer data base maintained by Design Engineering.

#### 17.2.2.4 Operational Quality Assurance Program Implementation

The implementation of the Operational Quality Assurance Program by Iowa Electric is directed toward the assurance that operating phase activities and maintenance activities are conducted under controlled conditions and in compliance with applicable regulatory requirements, including 10 CFR Part 50, Appendix B. Management personnel responsible for the conduct of safety related activities are responsible for providing approved procedures before initiating the activity.

#### 17.2.2.5 The Iowa Electric Operational Quality Assurance Program Documentation

The Iowa Electric Operational Quality Assurance Program is documented by four levels of documents:

- o Quality Assurance Manual
- o Nuclear Generation Division Manual
- o Departmental Procedures
- o Departmental Instructions.



**17.2.2.5.1 Quality Assurance Manual**

The Quality Assurance Manual is the highest level internal quality program document and is directed to those Iowa Electric organizations responsible for safety-related activities. The Quality Assurance Manual presents upper management philosophy and concepts to the middle management level, defines specific commitments and requirements, defines organizational responsibilities, and identifies organizational interfaces.

**17.2.2.5.2 Nuclear Generation Division Manual**

The Nuclear Generation Division Manual contains procedures that are applicable to all departments within the division. 

**17.2.2.5.3 Departmental Procedures**

The Departmental Procedures are organizationally unique documents that describe the activities of each department within Iowa Electric that has responsibilities for the operation, maintenance, or modification of the DAEC. The Departmental Procedures specify how to accomplish a specific activity.

**17.2.2.5.4 Departmental Instructions**

The Departmental Instructions are unique to the department and activity for which they have been prepared. Departmental Instructions provide the specific, detailed information necessary to perform an activity. Departmental Instructions are issued at the discretion of the responsible manager and are not required for all activities.

**17.2.2.6 Control Of Iowa Electric Suppliers**

Iowa Electric may employ the services of architect-engineers, NSSS suppliers, fuel fabricators, constructors, and consultants to augment Iowa Electric capabilities. These organizations are required to work under a quality assurance program to provide the control of quality activities consistent with the scope of their assigned work. The quality assurance programs of such organizations are subject to review, evaluation, and acceptance by the Iowa Electric Corporate Quality Assurance Department before the initiation of activities affected by the program.

**17.2.2.7 Indoctrination and Training**

The indoctrination, training, and retraining of personnel who participate in safety-related activities are provided in four broad areas: operator training, quality assurance indoctrination, technical training, and radiation safety indoctrination and training.

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The Operator training provided to senior reactor operators and reactor operators is under the cognizance of the Plant Superintendent - Nuclear.

The quality assurance indoctrination provided to Iowa Electric personnel is under the cognizance of the Manager, Corporate Quality Assurance.

The technical training provided to Iowa Electric engineering personnel is under the cognizance of the responsible managers. The training may be provided in a number of ways, from self-study courses to formalized courses at educational institutions.

Indoctrination and training provided to Iowa Electric personnel and contract personnel relative to performing work in areas that are potentially hazardous because of radioactivity are under the cognizance of the Plant Superintendent Nuclear.

### 17.2.2.8 Management Review and Audit

The status of the Iowa Electric Operational Quality Assurance Program is periodically made known to management. A periodic report is prepared by the Manager, Corporate Quality Assurance and submitted to the Vice President - Production. 

An annual audit of the Operational Quality Assurance Program is conducted to evaluate the effectiveness of the overall program. Direction for these audits alternates between the Vice President - Production and the Safety Committee. The Safety Committee audit is in accordance with the Technical Specifications requirement for a biennial audit of the quality assurance program. These alternating audits complement each other and provide an annual evaluation. 

### 17.2.3 DESIGN CONTROL

#### 17.2.3.1 Scope

The design, modification, addition, and replacement of safety-related structures, systems, and components at the DAEC is controlled to ensure that appropriate measures are implemented and to ensure that "as-built" quality is not degraded. The plant design is defined by Iowa Electric, the NSSS supplier, architect/engineer, and selected supplier design drawings and specifications that illustrate the general arrangement and details of safety-related structures, systems, and components and define the requirements for ensuring their continuing capability to perform their intended operational or safety design function.

Design activities include the correct translation of regulatory requirements and design bases into specifications, drawings, written procedures, and instructions that define the design. Design analyses regarding reactor

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physics, stress, seismic, thermal, hydraulic, radiation, and accident analyses used to produce design output documents are performed when appropriate. Design verification is performed.

Procedures establish requirements, assign responsibilities, and provide control of design activities to ensure performance in a planned, controlled, and orderly manner.

### 17.2.3.2 Design Responsibility

The design and engineering effort is the responsibility of the Design Engineering Department within the Nuclear Generation Division. Assistance may be provided by other engineering organizations; individuals providing that assistance are required to perform their activities in compliance with the Iowa Electric Operational Quality Assurance Program.

### 17.2.3.3 Design Criteria

Design requirements and changes thereto are identified, documented, reviewed, and approved to ensure the incorporation of appropriate quality standards in design documents. Design requirements and quality standards are described to an appropriate level of detail in design criteria. Any exception to quality standards will be listed. Criteria for modifications to structures, systems, and components will consider, as a minimum, the design bases described in the UFSAR. All design criteria will be satisfied in the design.

### 17.2.3.4 Design Process Controls

The organization performing design will have the responsibility for design control unless specified otherwise. The control of design will be specified in procedures. These procedures will include instructions for defining typical design requirements; communicating needed design information across internal and external interfaces; preparing, reviewing, approving, releasing, distributing, revising, and maintaining design documents; performing design reviews; and controlling field changes.

Design control involves measures that include a definition of design requirements; a design process that includes design analysis and the delineation of requirements through the issuing of drawings, specifications, and other design documents (design outputs); and design verification.

The design process establishes controls for releasing technically adequate and accurate design documents in a controlled manner with a timely distribution to responsible individuals and groups. Documents and revisions are controlled through the use of written procedures that apply to the issuer, distributor, and user to prevent inadvertent use of superseded documents. Document control procedures govern the collection, storage, and maintenance of design documents, results of design document reviews, and changes thereto.

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Design documents subject to procedural control include, but are not limited to, specifications, calculations, computer programs, the UFSAR when used as a design document, and drawings, including flow diagrams, piping and instrument diagrams, control logic diagrams, electrical single-line diagrams, structural systems for major facilities, site arrangements, and equipment locations.

### 17.2.3.5 Design Interface Control

Design interfaces with external and internal organizations participating in the design are controlled. The design interface measures ensure that the required design information is available in a timely fashion to the organization(s) responsible for the design.

### 17.2.3.6 The Design Verification

The applicability of previously proven designs, with respect to meeting pertinent design inputs, including environmental conditions, will be verified for each application. Where the design of a particular structure, system, or component for a specific application has been subjected to a previous verification process, the verification process need not be duplicated for subsequent identical applications. However, the original design and verification will be documented and referenced for the subsequent application.

When changes to previously verified designs have been made, design verification will be required for the changes, including an evaluation of the effects of those changes on the overall design.

Design verification will be performed by competent individuals who have not participated in the original design; however, they may be from the same organizational entity. The results of the design verification efforts will be clearly documented, with the identification of the verifier clearly indicated and filed. The documentation of results will be auditable against the verification methods identified by the responsible design organization. The design verification may be performed by the originator's supervisor provided the supervisor did not specify a singular design approach or rule out certain design considerations and did not establish the design inputs used in the design, or if the supervisor is the only individual in the organization competent to perform the verification.

Cursory supervisory reviews do not satisfy the intent of providing a design verification.

If errors and deficiencies in the design process are detected during the design verification cycle and/or during the performance of Quality Assurance audits, resolution of errors and deficiencies will be the responsibility of the design engineer, who must provide documented evidence of resolution to the appropriate levels of management.

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Acceptable verification methods include, but are not limited to, any one or a combination of the following:

1. Design reviews
2. Alternative or simplified calculational methods
3. Performance of suitable qualification testing.

The method selected will consider the item's complexity, previous operational experience, and importance to safety.

### 17.2.3.6.1 Design Reviews

Design reviews will be sufficient to verify the appropriateness of the design input, including assumptions, design bases and applicable regulations, codes and standards, and that the design is adequate for the intended application of the design.

Design reviews can range from multiorganization reviews to single-person reviews. The depth of review can range from a detailed check of the complete design to a limited check of the design approach, calculations, and results obtained.

### 17.2.3.6.2 Calculations

Alternative, simplified calculations can be made, or a check of the original calculations may be performed, to verify the correctness of the original calculation. Where computer programs are used, the program verification will be documented and the inputs shall be considered in the design review.

### 17.2.3.6.3 Qualification Testing

Design verification for some designs or specific design features may be achieved by suitable qualification testing of a prototype or initial production unit.

In those cases where the adequacy of a design is to be verified by a qualification test, the testing will be identified and documented. Testing will demonstrate the adequacy of performance under conditions that simulate the most adverse design conditions.

### 17.2.3.7 Design Changes

Changes to design documents receive a review and approval process as equivalent to original design documents. Design documents issued by the original architect-engineer, NSSS supplier, and other organizations may be changed and revised by the responsible design organizations within Iowa Electric or contracted by Iowa Electric.

#### 17.2.3.8 Quality Assurance Review

Design changes involving a modification to the DAEC are reviewed by the Quality Assurance Department before the design change is implemented. The Quality Assurance Department review assures that quality requirements have been considered and that the required review and approvals have been obtained.

#### 17.2.3.9 Design Review Committees

Independent of the responsibilities of the design organization, the requirements of the Operations Committee and the Safety Committee, as specified in the Technical Specifications, will be satisfied. Design changes require a safety evaluation and concurrence by the Operations Committee. The Operations Committee shall bring to the attention of the Safety Committee those design changes that are deemed to involve an unreviewed safety question, or are deemed to be inconsistent with the Technical Specifications.

#### 17.2.4 Procurement Document Control

##### 17.2.4.1 Scope

Procurement document control applies to documents employed to procure safety related materials, parts, components, and services required to modify, maintain, repair, test, inspect, or operate the DAEC. Iowa Electric controls procurement documents by written procedures that establish requirements and assign responsibility for measures to ensure that applicable regulatory requirements, design bases, and other requirements necessary to ensure quality are included in documents employed for the procurement of safety related materials, parts, components, and services.

##### 17.2.4.2 Procurement Responsibility

The responsibility for the initiation of a purchase requisition is that of the organization that ultimately has the responsibility for the procurement.

##### 17.2.4.3 Quality Classification

Each item or service to be procured is evaluated by the originator to determine whether or not it performs a safety-related function or involves activities that affect the function of safety-related materials, parts, or components and to appraise the importance of this function to plant or public safety. For those cases where it is unclear if an individual piece (that is, part of a safety-related structure, system, component, or service) is governed by the Operational Quality Assurance Program, an engineering evaluation will be conducted. The evaluation will classify the safety relationship of the

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service or questionable component parts or items of safety-related structures, systems, or components.

### 17.2.4.4 Quality Requirements in Procurement Documents

Procurement document control measures will ensure that appropriate regulatory requirements, design bases, and other requirements are included in the procurement process. Originating and reviewing organizations shall require that the following be included or invoked by reference in procurement documents, as appropriate:

1. Requirements that the supplier provide a description of his quality assurance program that implements the applicable criteria of 10 CFR Part 50, Appendix B, and that is appropriate for the particular type of item or service to be supplied. Certain items or services will require extensive controls throughout all stages of manufacture or performance, while others may require only a limited control effort in selected phases.
2. Basic administrative and technical requirements, including drawings, specifications, regulations, special instructions, applicable codes and industrial standards, and procedural requirements identified by titles and revision levels; special process instructions; test and examination requirements with corresponding acceptance criteria; and special requirements for activities such as designing, identifying, fabricating, cleaning, erecting, packaging, handling, shipping, and storing.
3. Requirements for supplier surveillance, audit, and inspection, including provisions for Iowa Electric access to facilities and records and for the identification of witness and hold points.
4. Requirements for extending applicable requirements to lower-tier suppliers and subcontractors. These requirements will include right-of access by Iowa Electric to subsupplier facilities and records.
5. Requirements for supplier reporting certain nonconformances to procurement document requirements and conditions of their disposition.
6. Documentation requirements, including records to be prepared, maintained, submitted, or made available for review, such as drawings, specifications, procedures, procurement documents, inspection and test records, personnel and procedural qualifications, chemical and physical test results, and instructions for the retention and disposition of records.
7. Requirements for supplier-furnished records.

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8. Applicability of the provisions of 10 CFR Part 21 for safety-related items, to the extent that a loss of their function may cause potential substantial safety hazards. Certain items, as off-the-shelf items, will be exempt from this requirement.
9. Requirements for packaging and transportation as necessary to prevent degradation during transit.

### 17.2.5 INSTRUCTIONS, PROCEDURES, AND DRAWINGS

#### 17.2.5.1 Scope

Instructions, procedures, and drawings will be generated to provide direction and guidance to ensure that safety-related activities are performed correctly. The need for, content of, and depth of detail of the instructions, procedures, and drawings will be consistent with the importance and complexity of that activity.

#### 17.2.5.2 Content

The content of the instructions, procedures, and drawings will be appropriate to the activities being performed.

Instructions and procedures will include, as appropriate, scope or purpose, responsibilities of individuals performing the work, the information needed, and required output and acceptance criteria.

Drawings will be prepared using industrially accepted standards.

#### 17.2.5.3 Issuance

The organization responsible for the activity being described is responsible for the issuance of the instructions, procedures, and drawings.

The instructions, procedures, and drawings will be issued before the commencement of the activity to be controlled by that instruction, procedure, and drawing.

Once instructions, procedures, and drawings have been approved and issued for use, the activities will be performed in accordance with the documents. If the activity cannot be accomplished, the document will be formally revised to reflect the manner in which the activity is to be performed.

Revised instructions, procedures, and drawings will be reviewed and approved by the same organizations and individuals (or equivalent positions) that reviewed and approved the original document.

### 17.2.6 DOCUMENT CONTROL

#### 17.2.6.1 Scope

The organization responsible for the documents will establish measures to ensure that the documents, including changes, are reviewed for adequacy, are approved for release by authorized personnel, are distributed to and used at the location where the prescribed activity is performed, and are controlled.

#### 17.2.6.2 Preparation

The organization responsible for the initiation of the document is responsible for the issuance of the document. The organization that issues controlled documents will establish administrative techniques that define the documents to be controlled, identify the current revision or issue of the document, and identify the individuals who are to receive the document.

The types of documents that are controlled by Iowa Electric are the following:

1. Specifications
2. Drawings
3. Procurement documents
4. Quality Assurance Manual
5. Nuclear Generation Division Manual
6. Departmental Procedures
7. Safety analysis reports and related design criteria documents
8. Special Process Procedures Manual
9. Computer codes.



#### 17.2.6.3 Review and Approval

Documents that are specified as being controlled documents are reviewed to ensure that regulatory, technical, quality assurance, and contractual requirements have been appropriately addressed; that review comments have been considered and resolved; and that the document is approved before issuance and use.

Each divisional and departmental procedure that is responsive to the requirements of the Quality Assurance Manual shall be reviewed and evaluated for concurrence by the Corporate Quality Assurance Department. The review shall document that the procedure is responsive to the quality assurance requirements.

Revisions will require review and approval by the same organizations (or equivalent) that performed the original review, before the issuance or implementation of the change.

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Documents that have been approved by the original designers of the DAEC will be revised by the Iowa Electric Design Engineering Department.

### 17.2.6.4 Distribution and Use

The mechanism for distribution will provide assurance that the controlled document arrives at the point of use; the user will provide assurance that the document to be used is the proper document and revision.

When formal distribution lists are used to prescribe an established distribution, they will be maintained current to reflect changes in assigned responsibilities.

Document transmittals will be reviewed for accuracy and dated and made suitable for transmittals. The recipient is informed of what is being transmitted and of the status of the documents being transmitted.

An acknowledgment of the receipt of controlled documents by recipients may be required if the organization responsible for the document deems such controls necessary.

The organization responsible for the use of the document will establish administrative controls to provide for positive identification and prevent the loss of such documents. The administrative controls will have provisions to remove obsolete documents, thereby precluding the possibility that the wrong documents or revisions will be used.

### 17.2.6.5 Changes to Documents

Changes to documents previously released will be reviewed, approved, dated, and distributed in the same manner as the original document.

Personnel who review changed documents will have access to the original documents, to any written basis or input information, and to any written reason or justification for the change. When the document that is being changed has been issued by the original designers of the DAEC, then the access to the original documents will depend on the reasonable availability of those documents.

Revised instructions and procedures will reflect the new revision and date and clearly identify the scope or portion of the instruction and procedure being changed.

## 17.2.7 CONTROL OF PURCHASED MATERIAL, EQUIPMENT, AND SERVICES

#### 17.2.7.1 Scope

Purchased material, equipment, and services are controlled to ensure that the specified technical and quality requirements are obtained. The responsibility for the control of purchased material, equipment, and services is that of the Corporate Quality Assurance Department in close cooperation with the Design Engineering Department, DAEC, and the Purchasing Department. The technique used for the control of purchased material, equipment and services includes, as appropriate, source evaluation and selection, objective evidence of quality furnished, inspection at the source, supplier's history of providing a satisfactory product, and examination of the product on delivery.

#### 17.2.7.2 Source Evaluation and Selection

Potential vendors are evaluated. These evaluations are performed by qualified personnel to determine the capability of the vendor to provide the items or services.

Vendors are evaluated on the basis of one or more of the following:

1. Capability to comply with the requirements of 10 CFR 50, Appendix B, applicable to the type of material, equipment, or service being procured.
2. Past records and performance for similar procurements to ascertain the capability of supplying a manufactured product or services under an acceptable quality assurance system.
3. Audits or surveys of vendor's facilities and quality assurance program to determine the capability to supply a product that satisfies the design, manufacturing, and quality requirements.
4. The certification of the supplier by the ASME Authorized Inspectors and the results of audits performed by other utilities and consultants.

The vendor's bid proposal is reviewed and evaluated to ensure that the bid is responsive to the procurement documents.

Depending on the importance of the item or service and its importance to safety, a post-award meeting may be held to discuss the requirements of the procurement document.

#### 17.2.7.3 Inspection at the Source

Subsequent to the award of a purchase order, a surveillance plan may be prepared. The extent of the plan will consider the complexity and importance of the item or service, vendor's past performance, and those aspects of the manufacturing process that may not be verified at receipt inspection.

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The surveillance plan will establish, as appropriate, the frequency of surveillance; processes to be witnessed, inspected, or verified; the method of surveillance; and documentation requirements.

Activities specified in the surveillance plan will be conducted at the vendor's facilities by qualified personnel using approved procedures that provide for the following as applicable:

1. Reviewing material acceptability
2. Witnessing in-process inspections, tests, and nondestructive examination
3. Reviewing the qualification of procedures, equipment, and personnel
4. Verifying that fabrication or construction procedures and processes have been approved and are properly applied
5. Verifying quality assurance/quality control systems, to the extent necessary
6. Reviewing document packages for compliance to procurement document requirements, including qualifications, process records, and inspection and test records
7. Reviewing Certificates of Compliance for adequacy
8. Verifying that nonconformances have been properly controlled.

Hold points specified in the procurement document will be complied with and Iowa Electric will be notified in a timely manner when hold points are reached.

A method will be established to provide information relative to the characteristics that have been inspected at the source and the characteristics that are to be inspected on receipt.

### 17.2.7.4 Receipt Inspection

Items purchased by Iowa Electric are controlled at the final destination by the performance of a receipt inspection. The extent of the receipt inspection depends on the importance to safety, the complexity, the quantity of the product or service, and the extent of source inspection that was performed.

Receipt inspection is performed by trained and qualified personnel in accordance with approved procedures and acceptance criteria before the

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installation or use of the item(s) to preclude the placement or use of nonconforming item(s).

Documentary evidence will demonstrate that materials and equipment conform to the procurement requirements.

If receipt inspection indicates that the item is unacceptable, the item is treated as nonconforming.

### 17.2.7.5 Post-installation Testing

Acceptance by post-installation test may be used following one of the preceding verification methods. Post-installation testing is used as the prime means of acceptance verification when it is difficult to verify item quality characteristics, the item requires an integrated system checkout or test, or the item cannot demonstrate its ability to perform when not in use. Post-installation test requirements and acceptance documentation are established by Iowa Electric.

## 17.2.8 IDENTIFICATION AND CONTROL OF MATERIALS, PARTS, AND COMPONENTS

### 17.2.8.1 Scope

Materials, parts, and components will be identified and controlled to ensure that the correct materials, parts, and components are used during fabrication, manufacture, modification, repair, and replacement.

It is the responsibility of the organization responsible for the engineering design and procurement to include the requirements for proper identification and control in the procurement documents.

It is the responsibility of the vendor for maintaining the traceability of materials, parts, and components throughout fabrication and shipment.

It is the responsibility of the DAEC for maintaining the traceability of materials, parts, and components throughout repair, replacement, modification, and installation.

### 17.2.8.2 Identification

Identification will be applied in locations and by methods that will not affect the fit, function, or quality of the item.

The identification of the item will be maintained by a unique method such as heat number, part number, serial number, batch number, or other appropriate means in a form that is durable and legible.

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The identification may be on the item or on records traceable to the item. Where feasible, direct placement of the identification on the item will be by stamping, marking, tags, labels, or other similar methods.

Where direct placement of identification on the item is not feasible, proper controls will be established that ensure direct positive identification of the item. Where physical identification is either impractical or insufficient, physical separation, procedural control, or other approved means will be employed.

Receipt inspection will verify that identification for received items is complete and accompanied by appropriate documentation.

When an item is subdivided, the identification will be immediately transferred to the sub-parts so that all sub-parts contain the appropriate identification label.

Any identification that will be obliterated or hidden by surface coatings or surface treatments will be reestablished or will be traceable by administrative means.

Standard catalog items or off-the-shelf items may be identified by catalog number or other appropriate designation.

### 17.2.8.3 Verification and Control

The items will be controlled and the identity of the item verified.

Inventory and storage controls will be established at the DAEC to ensure proper traceability of items.

The correctness of the item will be verified on withdrawal from storage and before the initiation of the repair, replacement, and modification.

### 17.2.9 CONTROL OF SPECIAL PROCESSES

#### 17.2.9.1 Scope

Special processes are those controlled fabrications, tests, and final preparation processes that require the qualification of procedure, technique, and personnel and that are performed in accordance with applicable codes and standards. Certain special processes require interim in-process controls in addition to final inspection to ensure quality.

The control of special processes is the joint responsibility of the Design Engineering Department, the DAEC, and the Corporate Quality Assurance Department.

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The Design Engineering Department is responsible for providing technical expertise relative to materials, metallurgy, welding, brazing, and for providing special process procedures. The Corporate Quality Assurance Department is responsible for providing required nondestructive examinations (NDE).

### 17.2.9.2 General Requirements

Measures will be established to ensure that special processes are controlled and accomplished by qualified personnel using qualified procedures in accordance with applicable codes, standards, specifications, criteria, and other special requirements.

Written procedures will be reviewed or prepared before use to ensure that special processes are controlled and accomplished.

These procedures will describe the operations to be performed, the sequence of operations, the characteristics involved, the limits of these characteristics, measuring and test equipment to be used, acceptance criteria, and documentation requirements.

Special processes will be accomplished in accordance with written procedures and process sheets, or their equivalent.

Personnel will be trained and qualified in accordance with applicable codes and standards.

Equipment used to perform special processes or measure or test the product will be qualified, before use, in accordance with applicable codes, standards, specifications, or procedures.

The extent and period of training, qualification, and testing of personnel and equipment will be in accordance with applicable codes, standards, specifications, or procedures.

### 17.2.9.3 Personnel Qualification

The personnel who perform nondestructive examinations will be certified to the precise technique to be used and for the proper level of expertise.

A Level III Examiner will be responsible for qualifying and certifying, in accordance with the Iowa Electric Light and Power written practice, the Iowa Electric personnel who perform nondestructive examinations.

### 17.2.9.4 Verification and Control

The procedures, process sheets, personnel, and equipment will be verified as appropriate, before the initiation of work at the DAEC.

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The Corporate Quality Assurance Department will determine that vendors performing special processes at the DAEC have sufficient controls before the initiation of the work.

The Corporate Quality Assurance Department will determine that DAEC personnel performing special processes have current qualifications.

### 17.2.10 INSPECTION

#### 17.2.10.1 Scope

A program for the inspection of safety-related activities at the DAEC will be established and executed to verify conformance with applicable documented instructions, procedures, drawings, and specifications.

The responsibility for the inspection of materials, parts, and components affecting quality is that of the Corporate Quality Assurance Department. The inspection program will include the following, which will be performed at the DAEC:

1. Receipt inspection
2. In-process inspections
3. Final inspections.
4. Nondestructive examinations

#### 17.2.10.2 General Requirements

A program for the inspection of activities affecting quality will be established and executed by or for the organization performing the activity to verify conformance with the documented instructions, procedures, and drawings for accomplishing the activity.

Inspection will be performed by individuals other than those who performed the activity being inspected. Inspections will be performed by personnel using appropriate equipment in accordance with applicable codes, standards, and procedures.

Procedures, instructions, or checklists will be established and used that identify the characteristics to be inspected, inspection methods, special devices, acceptance and rejection criteria, methods for recording inspection results, and groups responsible for the inspection. Special preparation, cleaning, and the use of measuring devices will be included.

Inspections will be planned to identify where in the sequence of work each inspection activity will be performed, to what extent, procedures to be used, and mandatory hold or witness points.

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Repairs, modifications, or replacements will be inspected in accordance with the original inspection requirements or acceptable alternatives.

Sampling methods and process monitoring will be used when inspection is impossible or disadvantageous.

### 17.2.10.3 Process Monitoring

Process monitoring of work activities, equipment, and personnel will be used as a control if inspection of processed items is impossible or disadvantageous. Both inspection and process monitoring will be provided when control is inadequate without both. As an alternative, a suitable level of confidence in structures, systems, or components on which maintenance or modifications have been performed will be attained by inspection. As appropriate, an augmented inspection program will be implemented until such time as a suitable level of performance has been demonstrated.

The monitoring of processes will be performed to verify that activities affecting quality are being performed in accordance with documented instructions, procedures, drawings, and specifications.

### 17.2.10.4 Inservice Inspection

Required inservice inspection, including nondestructive examination, pressure tests, and inservice tests of pumps and valves, will be planned and executed. The results of these examinations and tests shall be documented, including corrective actions required and the actions taken.

The basis for the inservice inspection program is the ASME Boiler and Pressure Vessel Code, Section XI, 1980 Edition with Addenda through Winter 1981. The specific issue and addendum of requirements beyond the base commitment is as specified in 10 CFR Part 50, Section 50.55a(g), except where specific exemptions have been granted by the NRC.

The Design Engineering Department has the overall responsibility for developing the inspection program, for ensuring compliance with the ASME Code Section XI rules, and for evaluating the inspection results. The inspection plans shall be updated as required to accommodate the as-built condition of the DAEC.

#### 17.2.10.4.1 Ten Year Inspection Program

The Ten-Year Inspection Program includes inspections and tests of those pressure boundary welds and materials as defined in ASME Boiler and Pressure Vessel Code, Section XI. Also included are the pressure boundary welds and materials that are defined as "Augmented" inservice inspections. The Ten-Year Inspection Program identifies the welds and items to be examined, the

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frequency of such examinations, the methods, and confirms the continuing acceptability of the selected welds and items.

The Quality Assurance Department has the responsibility for conducting the planned nondestructive examinations (NDE) and providing the services of the Corporate NDE Level III Examiner as required by Code.

### 17.2.10.4.2 Inservice Testing Program

The DAEC has the responsibility for conducting the ASME Boiler and Pressure Vessel Code, Section XI, Pump and Valve Tests, System Pressure Tests, and Snubber Tests. These performance tests to verify operational readiness are a part of the plant's Surveillance Test Program.

### 17.2.10.5 Personnel Qualification

Personnel performing inspections and examinations, or accepting the results of inspections and examinations, will be trained and qualified in accordance with governing codes, standards, and regulations. The personnel will be competent and cognizant of the technical requirements of the work activity. Qualification records will be maintained by the organization responsible for the individual(s) performing the inspections.

### 17.2.10.6 Documentation and Records

Inspection and examination activities will be reported on a form that indicates the date of the activity, identification of inspector or examiner, and rejection or acceptance of the item(s).

## 17.2.11 TEST CONTROL

### 17.2.11.1 Scope

Testing will be performed at the DAEC to demonstrate that safety-related structures, systems, and components perform satisfactorily in service. The testing program will include the following, as appropriate:

1. Qualification tests for design verification
2. Proof tests before installation
3. Preoperational tests
4. Operational tests.

### 17.2.11.2 General Requirements

The tests will be performed in accordance with approved written test procedures that incorporate the requirements and acceptance limits. The test procedure will identify the item to be tested and the purpose of the test.

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Test procedures will include provisions for ensuring that all prerequisites for the given test have been met, that adequate test instrumentation is available and used, and that the test is performed under suitable environmental conditions. The test procedure will incorporate directly, or by reference, the following requirements:

1. Performance of tests by trained personnel who are qualified in accordance with applicable codes and standards
2. Verification of test prerequisites
3. Identification and description of acceptance or rejection criteria
4. Instructions for performing the test.

### 17.2.11.3 Surveillance Testing

Provisions will be established for the performance of surveillance testing to ensure that the necessary quality of systems and components is maintained, that facility operations are within the safety limits, and that limiting conditions of operation can be met. The testing frequency will be at least as frequent as prescribed in the Technical Specifications. The provisions for surveillance testing will include the preparation of schedules that reflect the status of planned surveillance tests. Qualified plant staff will perform surveillance tests.

### 17.2.11.4 Personnel Qualification

Personnel performing testing will be trained and qualified. The personnel will be competent and cognizant of the technical requirements of the work activity.

### 17.2.11.5 Documentation and Records

Test procedures and results will be documented and approved by qualified personnel.

Test results shall be documented and indicate that the prerequisites and other test requirements have been met.

## 17.2.12 CONTROL OF MEASURING AND TEST EQUIPMENT

### 17.2.12.1 Scope

The responsibility for the control of measuring and test equipment is that of the DAEC. The control measures will include the identification and calibration of the equipment to the activity. The requirements contained within this section do not apply to devices for which normal industry practice

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provides adequate control, that is, tape measures, rulers, and measuring glasses.

### 17.2.12.2 General Requirements

Measures will be established for the control, calibration, and adjustment of measuring and testing devices.

Calibration intervals will be based on required accuracy, the use of equipment, stability characteristics, or other factors affecting the measurement.

The following requirements will be specified in written procedures that are used to control measuring and test equipment:

1. Identification of equipment and traceability to calibration data
2. Calibration methods, frequency, maintenance, and control
3. Labeling and marking of equipment to indicate due date for next calibration
4. Provisions for determining the validity of previous measurements when equipment is determined to be out of calibration
5. Traceability of reference and transfer standards to nationally recognized standards. When national standards do not exist, the basis for calibration shall be documented.

Calibration may be performed at the DAEC or by qualified laboratories using competent personnel.

Equipment that is consistently found to be out of calibration shall be repaired or replaced.

When the accuracy of the measuring or test device can be adversely affected by environmental conditions, special controls will be prescribed to minimize such effects.

### 17.2.12.3 Traceability

The measuring and test equipment will be traceable to the item on which the equipment has been used.

When calibration, testing, or other measuring devices are found to be out of calibration, an evaluation shall be made and documented concerning the validity of previous tests and the acceptability of devices previously tested from the time of the previous calibration.

**17.2.13 HANDLING, STORAGE, AND SHIPPING**

**17.2.13.1 Scope**

The handling, storage, shipping, cleaning, and preservation of material and equipment will be controlled to prevent damage, deterioration, and loss.

It is the responsibility of the organization initiating procurement to specify any special instructions and requirements for packaging and handling, shipping, and extended storage.

It is the responsibility of the DAEC to provide for the proper handling and storage of material and equipment upon receipt and throughout repair, replacement, and modification.

**17.2.13.2 General Requirements**

Measures will be established to control the handling, storage, shipping, cleaning, and preservation of material and equipment in accordance with work and inspection instructions to prevent damage or deterioration.

When necessary for particular products, special protective environments such as inert gas atmosphere, temperature levels, and specific moisture-content levels will be specified and provided.

Consistent with the need for preservation, material and equipment will be suitably cleaned to prevent contamination and degradation. The cleaning method selected will in itself not damage or contaminate the material or equipment.

**17.2.13.3 Shipping**

When required to prevent contamination or to prevent damage during shipment, special packaging methods will be specified and implemented.

Special-handling requirements, if required, will be specified in the shipping instructions. The package should be appropriately marked to indicate that special handling or storage requirements are necessary.

Markings of packages will conform to applicable Federal and state regulations.

**17.2.13.4 Radioactive Materials**

Measures will also be established to control the shipping of licensed radioactive materials in accordance with 10 CFR 71.

**17.2.13.5 Handling**

The requirements for special handling will be considered when the item is moved from the receipt point to the storage area and from the storage area to the point of use. Special-handling equipment will be periodically tested and inspected.

**17.2.13.6 Storage**

Materials and equipment will be stored to minimize the possibility of damage or lowering of quality from the time an item is stored on receipt until the time the item is removed from storage.

The manufacturers' recommendations are considered; however, the relaxation of manufacturers' storage requirements may be implemented if the storage recommendations are not reasonably necessary to preclude equipment degradation. Material and equipment will be stored at locations that have a designated storage level. The various storage levels will be defined and will have prescribed environmental conditions. The storage conditions will be in accordance with design and procurement requirements to preclude damage, loss or deterioration due to harsh environmental conditions. Items having limited shelf life will be identified and controlled to preclude the use of items whose shelf life has expired.

**17.2.14 INSPECTION, TEST, AND OPERATING STATUS**

**17.2.14.1 Scope**

Measures will be established to ensure that necessary inspections of items have not been inadvertently bypassed or that systems or components are not inadvertently operated.

**17.2.14.2 General Requirements**

Measures will be established to indicate, by the use of marking such as stamps, tags, labels, routing cards, log books, or other suitable means, the status of inspection, test and operating status of individual structures, systems, or components.

Procedures will provide for controls to preclude the inadvertent use of nonconforming, inoperative, or malfunctioning structures, systems, or components.

The procedures will include the following:

1. Identification of authority for application and removal of status indicators

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2. The use of specific status indicators
3. Provisions for maintaining the status of the structures, systems, or components until removed by an appropriate authority.

### 17.2.14.3 Inspection and Test Status

Measures will be established to provide for the identification of items that have satisfactorily passed required inspections and tests.

Only items that have passed inspection or testing will be used in the manufacture or installation of an item.

Documented procedure requirements will include the following:

1. Maintenance of the status of the item throughout fabrication and installation
2. Use of status indicators such as stamps, tags, markings, or labels either on the items or on documents traceable to the items
3. Provisions for controlling the bypassing of required inspections, tests, and other critical operations.

Items at the DAEC will be identified by status indicators to indicate whether they are awaiting inspection, acceptable for use, unacceptable, or in a hold status pending further evaluation.

### 17.2.14.4. Operating Status

Procedures relating to the operational status of safety-related structures, systems, and components, including temporary modifications, will include the following:

1. Authorization for requesting that equipment be removed from service
2. Checks that must be made before approving the request
3. Approval of the action to remove the equipment from service
4. The actions necessary to isolate the equipment and responsibility for performing these actions
5. The actions necessary to return the equipment to its operating status and responsibility for these actions.

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Equipment and systems in a controlled status will be identified. Plant procedures will establish controls to identify the status of inspection and test activities associated with maintenance, instrumentation, and control system calibration and testing. The status of nonconforming, inoperative, or malfunctioning structures, systems, and components will be documented and identified to prevent inadvertent use.

The Technical Specifications establish the status required for safe plant operation, including provisions for periodic and nonperiodic tests and inspections, of various structures, systems, and components. Periodic tests may be operational tests or tests following maintenance, and nonperiodic tests may be made following repairs or modifications.

### 17.2.14.5 Sequence Change Control

Procedures will include the control of the sequence of required tests, inspections, and other operations when important to safety. To change these controls, the individual procedure must be changed, which requires the same review and approval cycle as that which authorized the original procedure.

### 17.2.15 NONCONFORMING MATERIALS, PARTS, OR COMPONENTS

#### 17.2.15.1 Scope

The nonconformance reporting system is established to control materials, parts or components which do not conform to requirements in order to prevent their inadvertent use or installation.

The responsibility for identification, documentation and segregation of nonconforming materials, parts, or components, and notification to affected organizations, is that of the Corporate Quality Assurance Department. The responsibility for the disposition of the nonconforming materials, parts, or components is that of the Design Engineering Department, DAEC, and the Corporate Quality Assurance Department.

#### 17.2.15.2 Identification and Segregation

The identification and segregation will be sufficient to prevent inadvertent use or installation of the nonconforming item.

Material, parts, or components for which nonconformances have been identified will be immediately segregated, when practical, in areas that are reserved for nonconforming items. When segregation is impractical, administrative measures will be used, such as tagging, roping off the area, etc.

**17.2.15.3 Reporting and Disposition**

The reporting mechanism will provide the means to disposition the nonconforming material, part, or component.

The nonconformance report will identify the item, describe the nonconformance, and contain sufficient information to evaluate the nonconformance. The nonconformance report will be transmitted to the proper organization(s) for evaluation and disposition.

**17.2.15.4 Disposition**

The disposition will be limited to one of the following: use-as-is, rework to original requirements, repair to an acceptable condition, or reject.

For disposition of use-as-is and repair, a technical justification will provide assurance that the item will function as originally intended.

Items that are to be repaired or reworked will be required to be reinspected or retested to determine that the original or new acceptance criteria have been satisfied.

Items that have been placed on nonconformance due to documentation problems will be accepted for use after the documentation problems have been resolved.

**17.2.16 CORRECTIVE ACTION**

**17.2.16.1 Scope**

Corrective action control measures will be established to ensure that conditions adverse to quality are promptly identified, reported, and corrected to preclude recurrence. Corrective action is necessary to correct omissions and problems in the Operational Quality Assurance Program.

Significant conditions adverse to quality that impede the implementation or reduce the effectiveness of the program will be controlled. These conditions will be reported to appropriate management, evaluated, and corrected. Significant adverse conditions may include a recurring condition for which past corrective action has been ineffective, significant trends adverse to quality, or significant Operational Quality Assurance Program deficiencies.

**17.2.16.2 Conditions Adverse to Quality**

Conditions adverse to quality will be identified promptly and corrected as soon as practical.

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Conditions adverse to quality may be identified by a number of techniques as follows:

1. Audits of Iowa Electric by regulatory agencies
2. Internal audits
3. Audits of vendors by Iowa Electric
4. Quality Assurance reports
5. Management review of projects
6. Nonconformance reports.

Each of the above techniques has a mechanism to effect the correction of the condition adverse to quality: the audit technique has the audit report and response to the audit report mechanism, the quality assurance report and the management review of projects techniques have the management directive mechanism, and the nonconformance report technique has the disposition mechanism.

### 17.2.16.3 Significant Conditions Adverse to Quality

A significant condition adverse to quality is any adverse condition of significance which may be attributable to the quality assurance program not providing the required degree of control, or a failure of personnel to follow established procedures. Single event failures of hardware or equipment are not necessarily significant.

Conditions adverse to quality will be analyzed to determine if a significant condition adverse to quality exists. This analysis will be performed by the Corporate Quality Assurance Department.

The Corporate Quality Assurance Department will perform an analysis to determine if there are any broad programmatic problem areas or if any negative trends are detectable. This analysis will be performed at least annually and will be reported to the appropriate levels of management. The analysis will be documented and retained as a quality assurance record.

### 17.2.16.4 Reporting of 10 CFR 21 Defects and Noncompliances

A 10 CFR 21 defect and noncompliance is defined as one which could reasonably indicate a potential substantial safety hazard.

A procedure has been established and posted so that Iowa Electric employees will be aware of the methods by which 10 CFR 21 defects and noncompliances are reported to the NRC.

The Senior Vice President - Operations and Production, and the Vice President - Production, are designated as the Iowa Electric officers responsible for reporting defects and noncompliances, as appropriate, to the NRC.



**17.2.17 QUALITY ASSURANCE RECORDS**

**17.2.17.1 Scope**

Quality Assurance records will be prepared, identified, collected, and protected so that adequate evidence of activities affecting quality is available.

**17.2.17.2 Preparation and Identification of Quality Assurance Records**

The organization responsible for the activity will also be responsible for the preparation and identification of the quality assurance records that attest to the quality of that activity.

As a general criterion, those documents that reflect the as-built condition of an item, component, system, or plant, and those documents that attest to the quality of an activity, item, structure, or system will be treated as quality assurance records. Also, the qualification records of inspection, examination and testing personnel, and quality assurance audit personnel, are classified as quality assurance records.

Quality assurance records will be legible, accurate, and complete.

**17.2.17.3 Collection and Protection of Quality Assurance Records**

The quality assurance records will be collected, indexed, classified, and protected.

The organization that generates the quality assurance record will be responsible for collecting the records. The collected quality assurance records will be classified as either lifetime or nonpermanent quality assurance records. The lack of a classification will mean that the quality assurance record is a lifetime record.

The quality assurance records that have been identified and collected will be suitably protected against fire, theft, and damage. The manner in which the records are protected will be consistent with the retention period.

**17.2.17.4 Transfer or Destruction of Records**

The organization responsible for the quality assurance record will be responsible for the transfer of that quality assurance record for the purposes of microfilming and/or lifetime storage.

The transfer of quality assurance records from one organization to another organization will be accomplished by a formal mechanism that provides for the acceptance of the quality assurance record.

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The destruction of quality assurance records will be accomplished only with the approval of the concerned organizations.

### 17.2.18 AUDITS

#### 17.2.18.1 Scope

A comprehensive audit program will be established and implemented.

The audit program will be sufficient to verify compliance with the Operational Quality Assurance Program and to determine the effectiveness of the Operational Quality Assurance Program.

The responsibility for the audit system will be that of the Corporate Quality Assurance Department, the Safety Committee, and the Senior Vice President - Operations and Production.

#### 17.2.18.2 Audit System

The audit system will be applied to those organizations, both external and internal to Iowa Electric, that are involved in safety-related activities.

##### 17.2.18.2.1 External Organizations

The audit program for vendors is the responsibility of the Corporate Quality Assurance Department. Audits will be scheduled at a frequency commensurate with the status and importance of the activity.

In general, the audit schedule will be responsive to the performance of audits before the initiation of an activity to ensure that the proper controls are in place, during the early stages of the activity to determine that the proper controls are being implemented, and near the end of the activity to determine that all specified requirements have been met.

In general, the audit schedule will also include the performance of audits during the activity, assuming that the activity occurs over a sufficient length of time, to determine that the proper controls are being applied and no problems are occurring.

##### 17.2.18.2.2 Internal Organizations

The audit program for the internal Iowa Electric organizations is the responsibility of the following:

1. The Corporate Quality Assurance Department, to determine the compliance of the other organizations to the Operational Quality Assurance Program.

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2. The Safety Committee, to determine the compliance of the DAEC to the Technical Specification requirements and license provisions.
3. The Vice President - Production, to determine the overall effectiveness of the Operational Quality Assurance Program.



The audit schedule will cover the total Iowa Electric audit activities over a period of time not exceeding two years.

### 17.2.18.3 Personnel Training and Qualification

The personnel who participate in audits will have sufficient experience and/or training to fulfill their role in the audit.

Personnel who perform as Lead Auditors will be trained, qualified, and certified.

A Lead Auditor will review the experience of each potential team member, determine their acceptability to perform the audit, determine if any additional training is required, and ensure that the additional training is performed if required.

### 17.2.18.4 Performance of Audit

The Audit Team Leader will plan the audit such that the total scope of the audit can be accomplished by the selected audit team.

Audit checklists will be developed for the total scope of the audit.

The audit should be initiated by a pre-audit conference to introduce the audit team and to confirm the scope and plan of the audit and be concluded with a post-audit conference. During the post-audit conference, the Audit Team will discuss the audit findings and clarify misunderstandings.

### 17.2.18.5 Report and Closeout of Audit Findings

The audit will be documented by an audit report signed by a Lead Auditor.

The audit report shall be sent to the responsible management of the audited organization.

The audit findings will be tracked to ensure that corrective action has occurred.

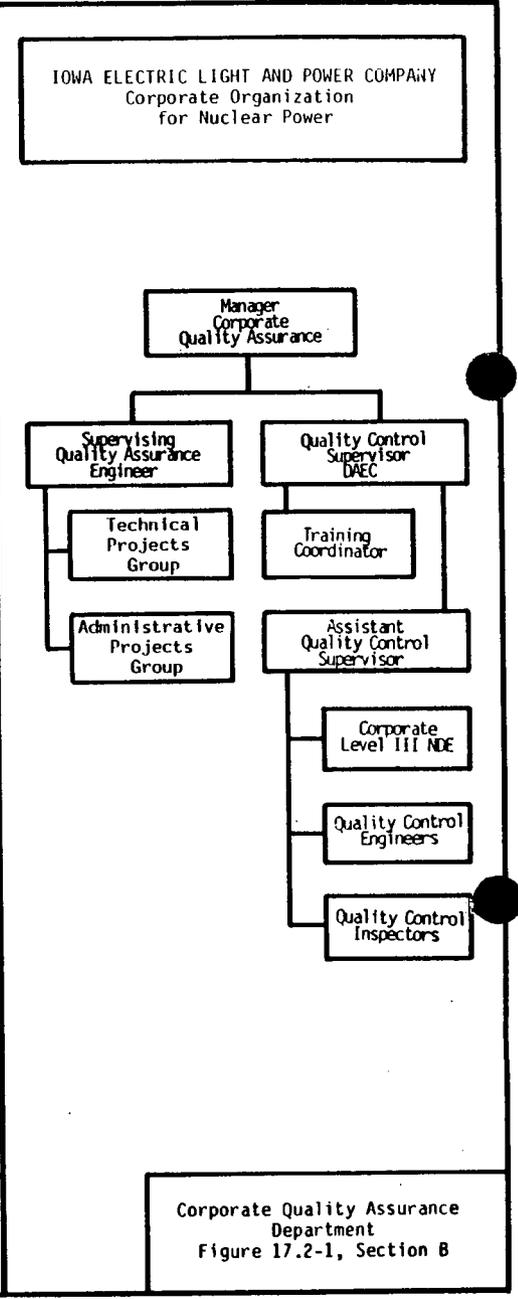
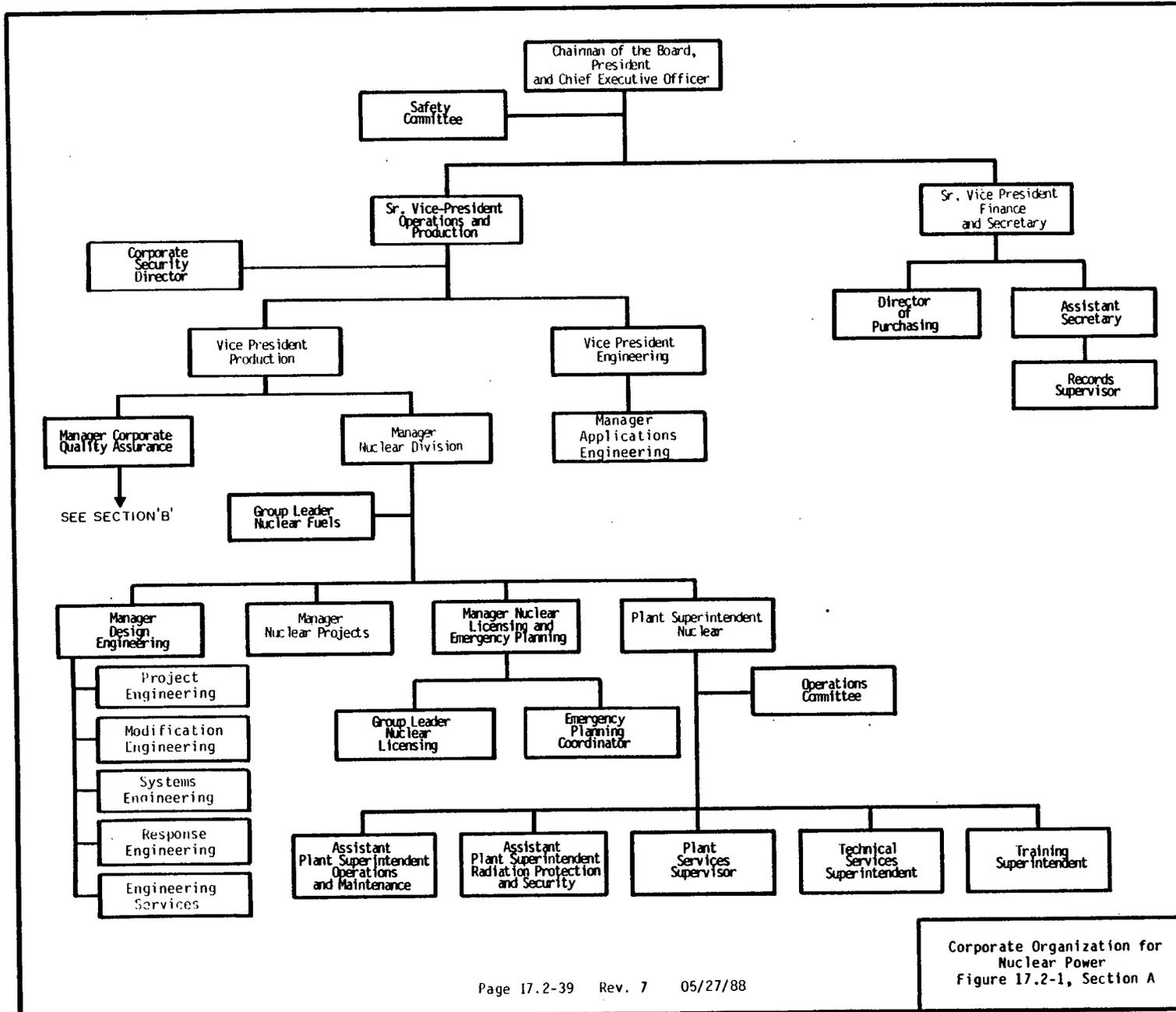
The Corporate Quality Assurance Department will evaluate the responses to the audit findings. The evaluation will include the necessity for reaudits, submittal of documentation, or any other means of verifying the corrective

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action. Statements by the audited organization that define the corrective action may be accepted.

The corrective actions will be tracked to ensure that proper and timely corrective actions have occurred and that the audit report can be closed.

Inadequate or unresponsive corrective action will be brought to the attention of appropriate levels of management.



Corporate Organization for Nuclear Power  
Figure 17.2-1, Section A

Corporate Quality Assurance Department  
Figure 17.2-1, Section B