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 overall organization is described in UFSAR Chapter 13, Conduct of Operations, Section 13.1, Organizational Structure for Iowa Electric. The organization chart, which identifies both the "on-site" and "off-site" organizational elements that function under the cognizance of the quality assurance program, appears as Figure 13.1-1, Iowa Electric Corporate Organization. Chapter 13 describes the quality assurance responsibilities of each of the organizational elements noted on the organization chart.

Additional detail concerning the Quality Assurance Department is presented in Chapter 17.2, Section 17.2.1.2.

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.

17.2.1.2 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 Outage Manager, the Nuclear Licensing Department, the Emergency Planning Department, the Nuclear Fuels Group, the Engineering Department, the Training Department, 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 Manager, Corporate Quality Assurance provides support to the Safety Committee. 13

17.2.1.2.1 Quality Assurance Supervisor

The Quality Assurance Supervisor reports to the Manager, Corporate Quality Assurance and, along with the Quality Control Supervisor and the Group Leader, Internal Audits, is responsible for verifying that the Operational Quality Assurance Program is being implemented effectively at the DAEC and other locations in support of the DAEC. The Quality Assurance Supervisor is responsible for a comprehensive program of surveillances of activities at the DAEC. 13

The Quality Assurance Supervisor provides quality assurance support for the procurement of materials and equipment. Procurement activities include audits, surveillances, and evaluations of suppliers and contractors for quality capabilities and performance; maintaining the list of approved suppliers for nuclear procurements; and reviewing procurement documents. Additionally, the Quality Assurance Supervisor is responsible for administrating the corrective action and trending program. 13 13

The Quality Assurance Supervisor is assisted in the implementation of these responsibilities by the Group Leader, Material and Supplier Quality, and the Group Leader, Quality Support.

17.2.1.2.2 **Group Leader, Internal Audits**

The Group Leader, Internal Audits reports to the Manager, Corporate Quality Assurance and is responsible for evaluating the effectiveness of the Operational Quality Assurance Program through the implementation of the internal audit program.

17.2.1.2.3 **Quality Control Supervisor**

The Quality Control Supervisor reports to the Manager, Corporate Quality Assurance and, along with the Quality Assurance Supervisor and the Group Leader, Internal Audits, is responsible for verifying that the Operational Quality Assurance Program is being implemented effectively at the DAEC. The Quality Control Supervisor reviews plant operation, maintenance, modification, and testing documents for inclusion of adequate quality requirements and for inclusion of inspection, witness and hold points; and provides the necessary support to perform the inspections and tests. The Quality Control Supervisor is responsible for preparing receiving inspection plans and in performing receiving, in-process, and final inspections. 13

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

Additionally, the Quality Control Supervisor is responsible for training the Quality Control group in nondestructive examination (NDE) disciplines and interfacing with the Quality Assurance Training Coordinator on other areas requiring training. 13

The Quality Control Supervisor also supports the DAEC Operations Committee.

17.2.1.2.3.1 **Corporate Level III NDE**

The Corporate Level III NDE reports to the Quality Control Supervisor and is responsible for developing and implementing the NDE program, including providing the necessary training. 13

17.2.1.2.4 **Quality Assurance Training Coordinator**

The Corporate Quality Assurance Department Training Coordinator reports to the Manager, Corporate Quality Assurance 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.

17.2.1.2.5 Quality Assurance Programs Engineer

The Quality Assurance Program Engineer reports to the Manager, Corporate Quality Assurance and is responsible for assisting the Manager, Corporate Quality Assurance in preparing and maintaining the Operational Quality Assurance Program and Quality Assurance Department implementing procedures.

The Quality Assurance Program Engineer is responsible for the review of divisional procedures that are responsive to the requirements of the Operational Quality Assurance Program for concurrence by the Quality Assurance Department.

17.2.1.2.6 Stop Work Authority

The Manager, Corporate Quality Assurance has the authority to issue a stop work 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.

17.2.2 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

10 CFR Part 50, Appendix B, Quality Assurance Criteria for Nuclear Power Plants and Fuel Reprocessing Plants, and certain regulatory guides, form the basis for the Operational Quality Assurance Program. Appendix A to UFSAR Chapter 17.2 identifies the particular regulatory guides to which Iowa Electric is committed and which are included in the basis for the Operational Quality Assurance Program.

17.2.2.3 Identification of Safety-Related Structures, Systems, Components and Items

The pertinent requirements of the Operational Quality Assurance Program apply to all activities affecting the safety-related functions of those structures, systems, and components that prevent or mitigate the consequences of postulated accidents that could cause undue risk to the health and safety of the public. A current list of safety-related structures, systems and components is contained in Section 3.2 of the DAEC Updated Final Safety Analysis Report. This

list includes structures, systems, and components identified during the design and construction phase and may be modified as required during operations consistent with their importance to safety. 13

The list of safety-related structures, systems and components from Section 3.2 of the DAEC Updated Final Safety Analysis Report is further defined in data bases through the assignment of plant specific unique identifiers. These data bases include items in addition to safety-related structures, systems and components and are maintained by the Manager of Engineering. 13

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.

The Iowa Electric Operational Quality Assurance Program is implemented via four levels of documents:

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

17.2.2.4.1 **Quality Assurance Manual**

The Quality Assurance Manual is the highest level internal quality program document that implements UFSAR/DAEC-1 Chapter 17.2, Quality Assurance During the Operations Phase. It 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 organizational responsibilities, and identifies organizational interfaces.

17.2.2.4.2 **Nuclear Generation Division Manual**

The Nuclear Generation Division Manual contains procedures that are applicable to more than one department within the division. These divisional procedures provide mechanisms which facilitate the flow of information and documents across departmental lines, and also eliminate the need for separate departmental procedures which address the same subject.

17.2.2.4.3 **Departmental Procedures**

The Departmental Procedures are organizationally unique documents th 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.

17.2.2.4.4 **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.

17.2.2.5 **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.

17.2.2.6 **Indoctrination and Training**

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

The Operator training provided to senior reactor operators and reactor operators is under the cognizance of the Manager, Nuclear Training.

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

The technical training provided to Iowa Electric engineering personnel is under the cognizance of the responsible managers and the Manager, Nuclear Training. The training may be provided in a number of ways, from self-study courses to formalized courses at the DAEC Training Department and 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 Manager, Nuclear Training.

The indoctrination and training provided to Iowa Electric personnel and contract personnel relative to emergency preparedness is under the cognizance of the Manager, Emergency Planning and the Manager, Nuclear Training.

17.2.2.7 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 suppliers. Design drawings and specifications 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 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 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. The design of nuclear fuel reloads is the responsibility of the Nuclear Fuels Group.

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. 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 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 but may be from the same organizational entity,
- do not have immediate supervisory responsibility for the individual performing the design,
- have not specified a singular design approach,
- have not ruled out certain design considerations, and
- have not established the inputs for the particular design aspect being verified.

Under exceptional circumstances, the design verification may be performed by the originator's supervisor provided:

- the supervisor is the only technically qualified individual in the organization competent to perform the verification,
- the need is individually documented and approved in advance by the supervisor's management, and
- QA audits cover the frequency of occurrence and effectiveness of the supervisor as design verifier to guard against abuse.

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

If errors or deficiencies in the design process are detected during the design verification cycle or during 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.

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.

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.

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 multi-organization 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 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 Engineering Department 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 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 reguire 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 sub-supplier facilities and records.

5. Requirements for the supplier to report 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.

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.

17.2.4.5 **Quality Assurance Department Review of Procurement Documents**

Procurement documents for safety related items and services are reviewed and approved by the Quality Assurance Department for appropriate inclusion of quality requirements.

17.2.4.6 **Acquisition from Other Licensed Nuclear Power Plants**

Items may be procured from another NRC licensed nuclear power plant provided the Iowa Electric purchase specification is equivalent to that of the other utility, and the quality assurance requirements of Iowa Electric have been satisfied. If the item was originally procured by the other utility as a "basic component" as defined in 10 CFR Part 21, the reporting requirements of the regulation are transferred to Iowa Electric Light and Power Company. Iowa Electric Light and Power Company shall notify the original supplier in writing of this item(s) change in ownership to ensure appropriate 10 CFR Part 21 reporting from the original supplier. 13

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 include 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. Welding 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.

Divisional procedures that are responsive to the requirements of the Operational Quality Assurance Program shall be reviewed and evaluated for concurrence by the Corporate Quality Assurance Department. The review shall be documented indicating that the procedure is consistent with the quality assurance program and corporate policies. 13

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.

Documents that have been approved by the original designers of the DAEC will be revised by the Iowa Electric Engineering Department. 13

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 transmittal. 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 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. 13

17.2.7.2 Source Evaluation and Selection

Potential suppliers are evaluated. These evaluations are performed by qualified personnel to determine the capability of the supplier to provide the items or services. 13

Suppliers are evaluated on the basis of one or more of the following: 13

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 supplier's facilities and quality assurance program to determine the capability to supply a product that satisfies the design, manufacturing, and quality requirements. 13

4. The certification of the supplier by the ASME.

5. The results of audits performed by other utilities and consultants.

The supplier's bid proposal is reviewed and evaluated to ensure that the bid is responsive to the procurement documents. 13

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 or Surveillance at the Source

Subsequent to the award of a purchase order, a surveillance/inspection plan may be prepared. The extent of the plan will consider the complexity and importance of the item or service, supplier's past performance, and those aspects of the manufacturing process that may not be verified at receipt inspection. 13

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

Activities specified in the plan will be conducted at the supplier's facilities by qualified personnel using approved procedures that provide for the following as applicable: 13

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, source surveillance or audit that was performed.

Receipt inspection is performed by trained and qualified personnel in accordance with approved procedures and acceptance criteria before the 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 check out 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 supplier for maintaining the traceability of materials, parts, and components throughout fabrication and shipment. 13

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.

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 Engineering Department, the DAEC, and the Corporate Quality Assurance Department. 13

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

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 reguirements.

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 eguipment 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.

The Corporate Quality Assurance Department will determine that suppliers performing special processes at the DAEC have sufficient controls before the initiation of the work. 13

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

17.2.9.5 **Special Protective Coatings (Paint)**

The application of a special protective coating shall be controlled as a special process when the failure (i.e. peeling or spalling) of the coating to adhere to the substrate can cause the malfunction of a Quality Level I structure, system or component. Special process coatings shall be applied by qualified personnel using qualified materials and equipment, and approved procedures. Documentation shall include identification of the following:

- o person applying the coating (and qualification)
- o material used
- o procedure used (and qualifying procedure if different)
- o tests performed and results
- o date of application of coating
- o traceability of coating location.

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 at DAEC will include the following: 13

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.

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 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 In-Service Inspection

Required in-service inspection, including nondestructive examination, pressure tests, and in-service 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 in-service 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 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" in-service inspections. The Ten-Year Inspection Program identifies the welds and items to be examined, the 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 **In-service 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 part of the plant performance 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. Pre-Operational 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.

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 and permanently installed plant instrumentation, 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 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 portable equipment to indicate due date for next calibration. Due dates for permanently installed plant equipment are controlled by means of a central record system.
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 Part 71. These measures will apply to the use of shipping containers only, and not to the design and fabrication of shipping containers for which an NRC certification is required under Part 71. 13

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

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.

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 non-periodic tests and inspections, of various structures, systems, and components. Periodic tests may be operational tests or tests following maintenance, and non-periodic 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 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.

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. Corrective action is necessary to correct omissions and problems in the Operational Quality Assurance Program.

17.2.16.2 **Conditions Adverse to Quality**

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

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

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

Each of the above techniques has a mechanism to effect the correction of the condition adverse to quality.

17.2.16.3 **Significant Conditions Adverse to Quality**

The Corporate Quality Assurance Department will perform an analysis of conditions adverse to quality to determine if a significant condition adverse to quality exists. 13

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.

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 and evaluated. The cause of a significant condition adverse to quality shall be determined, and corrective action will be taken to preclude repetition. 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.

17.2.16.4 Reporting of 10 CFR 21 Defects and Non-compliances

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 non-compliances are reported to the NRC.

The President and Chief Operating Officer and the Vice President - Production, are designated as the Iowa Electric officers responsible for reporting defects and non-compliances, 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 Record Storage on Optical Disks

Records may be stored on an optical disk storage system which utilizes a write once read many (WORM) system. The image of each record shall be placed onto two optical disks, with verification of the image on each record. Should any of the images be illegible, the hard copy record is maintained as the record. One optical disk shall be used for on-line access and the second optical disk shall be stored in a records storage facility meeting the requirements for single copy storage or in a separate remote location meeting the requirements of Iowa Electric's commitment to ANSI N45.2.9-1974.

To ensure permanent retention of records, the records stored on an optical disk are acceptably copied onto a new optical disk before the manufacturer's certified useful life of the original disk is exceeded. Records copied shall be verified.

Periodic random inspections of images stored on optical disks are performed to verify that there has been no degradation of image quality.

Should it become necessary to replace the optical imaging system with a new system which is not compatible, the records stored on the old system shall be converted onto the new system prior to the old system being taken out of service. This conversion process shall include a verification of the records converted.

17.2.17.5 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.

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 Vice President - 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 and to evaluate performance.

2. The Safety Committee, to determine the compliance of the DAEC to the Technical Specification requirements and license provisions and to evaluate performance.

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 selected audit team shall collectively have experience or training commensurate with the total scope of the audit.

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 re-audits, submittal of documentation, or any other means of verifying the corrective 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.

Iowa Electric Light and Power Company

Appendix A to UFSAR/DAEC-1
Chapter 17.2
QUALITY ASSURANCE DURING THE OPERATIONS PHASE
Quality Assurance Program Description (QAPD)

INTRODUCTION

This Appendix describes the manner by which the Iowa Electric Operational Quality Assurance Program for the Duane Arnold Energy Center (DAEC), as set forth in the Quality Assurance Program Description (QAPD), UFSAR Chapter 17.2, conforms to NRC Regulatory Guides listed in the June 6, 1990, letter from Region III (Miller) to Iowa Electric (Liu) and certain other commitments previously contained in Table 2-1 of the Quality Assurance Manual. Comments and clarifications to these specific commitments are identified in this Appendix.

Iowa Electric's position on each ANSI standard which is endorsed by a Regulatory Guide to which Iowa Electric is committed is stated in either the UFSAR or the QAPD. Other ANSI standards are not requirements for Iowa Electric even if they are listed as references in a standard endorsed by a Regulatory Guide to which Iowa Electric is committed. (Such standards may, of course, be used as guidance.) However, a section of a standard which is specifically referred to in a standard endorsed by a Regulatory Guide to which Iowa Electric is committed is a requirement for Iowa Electric unless an exception is stated.

Iowa Electric is not committed to ANSI N45.2 for the operational phase. Regulatory Guide 1.33, Revision 2, Section B, "Discussion" states ANSI N18.7-1972, along with ANSI N45.2-1971, "Quality Assurance Program Requirements for Nuclear Power Plants", was endorsed by Regulatory Guide 1.33. The dual endorsement was necessary in order for the guidance contained in the regulatory guide to be consistent with the requirements of Appendix B to 10 CFR Part 50; however, this dual endorsement caused some confusion among users. To clarify this situation, ANSI N18.7-1972 was revised so that a single standard would define the general quality assurance program "requirements" for the operation phase. This revised standard was approved by the American National Standards Committee N18, Nuclear Design Criteria. It was subsequently approved and designated N18.7-1976/ANS-3.2, "Administrative Controls and Quality Assurance for the Operational Phase of Nuclear Power Plants", by the American National Standards Institute on February 19, 1976. Therefore, for the operations phase, where a standard endorsed by a

Regulatory Guide refers to the use of ANSI N45.2 in conjunction with that Standard, Iowa Electric inserts the ANSI Standard N18.7-1976.

1.0 REGULATORY GUIDE 1.8, "Personnel Selection and Training"

COMMENTS AND CLARIFICATIONS:

Iowa Electric complies with the Regulatory Position of this Regulatory Guide with the following clarifications:

1.1 Iowa Electric's commitment is to Regulatory Guide 1.8, Revision 1-R, September 1975 (reissued May 1977), which endorses ANSI N18.1-1971. However, the Iowa Electric commitment is to ANSI/ANS 3.1-1978, which is a revision of N18.1-1971.

1.2 With respect to selection and training of security personnel, Iowa Electric does not commit to the standard [ANSI N18.17-1973 (ANS 3.3)] referred to in ANSI/ANS 3.1-1978, Sections 1 (Scope) and 6 (References). The Iowa Electric training and qualification plan for security personnel complies with 10 CFR Part 73, Appendix B.

2.0 REGULATORY GUIDE 1.26, "Quality Group Classifications and Standards for Water-, Steam-, and Radioactive-Waste-Containing Components of Nuclear Power Plants"

COMMENTS AND CLARIFICATIONS:

The Iowa Electric commitment to Safety Guide 26 (3/23/72), Quality Group Classifications and Standards, is stated in UFSAR Chapter 1.8, Conformance to NRC Regulatory Guides.

3.0 REGULATORY GUIDE 1.28, "Quality Assurance Program Requirements (Design and Construction)"

COMMENTS AND CLARIFICATIONS:

This Regulatory Guide (Safety Guide 28, dated June 7, 1972) endorses ANSI N45.2 and is not applicable to the operating phase. DAEC's operational QA program is based on Regulatory Guide 1.33, Rev. 2, as stated in UFSAR Section 1.8.

4.0 REGULATORY GUIDE 1.29, "Seismic Design Classification"

COMMENTS AND CLARIFICATIONS:

The Iowa Electric commitment to Safety Guide 29 (6/7/72), Seismic Design Classification, is stated in UFSAR Section 1.8, Conformance to NRC Regulatory Guides.

5.0 REGULATORY GUIDE 1.30, "Quality Assurance Requirements for the Installation, Inspection, and Testing of Instrumentation and Electric Equipment"

COMMENTS AND CLARIFICATIONS:

Iowa Electric complies with the Regulatory Position of this Regulatory Guide with the following clarifications:

5.1 The Iowa Electric commitment is to Safety Guide 30, dated August 11, 1972 and therefore by reference to ANSI N45.2.4-1972 which it endorses.

5.2 For maintenance and modification activities, Iowa Electric shall comply with the Regulatory Position established by this Regulatory Guide in that the quality assurance program requirements included therein (subject to the clarifications below) shall apply. Technical requirements associated with maintenance and modification activities shall be equal to or better than the original requirements (e.g., Code requirements, design and construction specification requirements, and inspection requirements).

5.3 Regulatory Position C.1 states that ANSI N45.2.4-1972 should be used in conjunction with ANSI N45.2-1971. In lieu of this, Iowa Electric uses ANSI N45.2.4-1972 in conjunction with ANSI N18.7-1976.

5.4 Section 2.2(5)(d) of ANSI N45.2.4-1972 requires evidence of compliance by manufacturer with purchase requirements, including quality assurance requirements, before the requirements of ANSI N45.2.4-1972 are implemented. In lieu of this, Iowa Electric may proceed with installation, inspection, and testing activities for equipment lacking its quality documentation provided that this equipment has been identified and controlled in accordance with Iowa Electric's nonconformance reporting system.

5.5 With respect to Section 2.5.2 of ANSI N45.2.4-1972, calibration and control covers two classes of instrumentation used by Iowa Electric: (1) portable equipment and (2) permanently-installed equipment. With respect to permanently-installed instrumentation, in lieu of marking the equipment to indicate the date of the next required calibration, a computer-based preventative maintenance program is used. Once a permanently-installed instrument is identified as needing control, a calibration frequency is assigned, and the information is entered into the data base. The calibration task is then automatically tracked and tasked by the data base. A "DO NOT USE Until Tested and Calibrated" or equivalent sticker is applied to instruments not calibrated before their due date and to instruments unacceptable for use. The provisions of ANSI N45.2.4-1972, Section 2.5.2, are applied to portable equipment.

5.6 Section 3 of ANSI N45.2.4-1972 regarding "Preconstruction Verification" states it is necessary to verify that the quality of an item has not suffered during the interim period and it is not intended to duplicate inspections but rather verify that items are in a satisfactory condition for installation. Verifications and checks are then required. In lieu of these verifications and checks, Iowa Electric considers the provisions of QAPD Sections 17.2.8 (Identification and Control of Materials, Parts, and Components) and 17.2.13 (Handling, Storage and Shipping) to be equivalent.

5.7 The last paragraph of Section 6.2.1 of ANSI N45.2.4-1972 requires that items requiring calibration be tagged or labeled on completion, indicating date of calibration and identity of person who performed the calibration. In lieu of this, for permanently-installed instrumentation, the calibration status is reflected in a computerized preventive maintenance program as described in Section 5.5 above.

6.0 REGULATORY GUIDE 1.33, "Quality Assurance Program Requirements (Operation)"

COMMENTS AND CLARIFICATIONS:

Iowa Electric complies with Regulatory Position of this Regulatory Guide with the following clarifications:

6.1 The commitment is to Regulatory Guide 1.33, Rev. 2, February 1978, and to ANSI N18.7-1976/ANS-3.2 which it endorses.

6.2 Regulatory Guide 1.33 Regulatory Position, Section C.2, also lists fifteen Regulatory Guides and ANSI standards that are referenced in ANSI N18.7-1976/ANS-3.2. The Iowa Electric position with respect to each of these standards is stated elsewhere in this Appendix A.

6.3 Section 4.3.2.3 (Quorum for Independent Review Program) of ANSI N18.7-1976/ANS-3.2 indicates a Quorum for formal meetings "... shall consist of not less than a majority of the principals, or duly appointed alternatives..." Additionally, "the chairman (or his duly appointed alternate) shall be present for all formal meetings". Section 6.5.2.6 of Appendix A (Technical Specifications) to the Facility Operating License indicates "A Quorum of the Safety Committee shall consist of the Chairman or Vice Chairman and at least four members with a maximum of two alternates as voting members". The requirements of the Technical Specifications as stated above shall govern. Specifically, a Quorum at safety committee meetings shall consist of at least four members plus the Chairman or Vice Chairman. i3

6.4 With respect to Section 4.3.4 (1), Subjects Requiring Independent Review, of ANSI N18.7-1976/ANS-3.2, the DAEC Safety Committee is not required to review safety evaluations of changes in the facility which are completed under 10 CFR Part 50.59.

6.5 Section 5.1 (Program Description) of ANSI N18.7-1976/ANS-3.2 requires a "summary document" for the Quality Assurance Program. The QAPD and Appendix A thereto fulfill this requirement for Iowa Electric.

6.6 Section 5.2.7 (Maintenance and Modifications) of ANSI N18.7-1976/ANS-3.2 lists six standards that are to be applied to activities occurring during the operational phase that are comparable to related activities during design and construction. Five of these standards are addressed elsewhere in this Appendix A.

Iowa Electric does not follow one of those listed, ANSI N101.4-1972, Quality Assurance for Protective Coatings Applied to Nuclear Facilities. See UFSAR Section 17.2.9.5 for Iowa Electric's controls relative to "Special Protective Coatings".

6.7 With respect to Section 5.2.9 (Plant Security and Visitor Control) of ANSI N18.7-1976/ANS-3.2, the DAEC Security Plan meets the stated requirements.

However, the Standard references ANSI N18.17 for guidance. Iowa Electric is not committed to ANSI

N18.17. The DAEC Security Plan complies with 10 CFR Part 73.

6.8 Section 5.2.16 (Measuring and Test Equipment) of ANSI N18.7-1976/ANS-3.2 requires that equipment be suitably marked to indicate calibration status. Section 5.2.16 refers to ANSI N45.2.4-1972, which requires (Section 2.5.2, Calibration and Control) that equipment be suitably marked to indicate date of next required calibration and (Section 6.2.1, Equipment Tests) that items requiring calibration be tagged or labeled on completion, indicating date of calibration and identify of person who performed the calibration. See the discussion provided in Section 5.5 of this document for Iowa Electric's commitment.

6.9 Instead of the format specified in Section 5.3.9.1, (Emergency Procedure Format and Content) of ANSI N18.7-1976/ANS-3.2, Iowa Electric's DAEC Emergency Operating Procedures (EOPs) are in the format specified by the BWR Owner's Group (BWROG) Emergency Procedure Guidelines, as reviewed and approved in the NRC Safety Evaluation Report, BWROG EPG, Revision 4, September 1988.

7.0 REGULATORY GUIDE 1.37, "Quality Assurance Requirements for Cleaning of Fluid Systems and Associated Components of Water-Cooled Nuclear Power Plants"

COMMENTS AND CLARIFICATIONS:

Iowa Electric complies with the Regulatory Position of this Regulatory Guide with the following clarifications:

7.1 The commitment is to Regulatory Guide 1.37, Revision 0, 3/16/73, and to ANSI N45.2.1-1973 which it endorses.

7.2 Iowa Electric shall comply with the Regulatory Position established in this Regulatory Guide for maintenance and modification activities in that the quality assurance program requirements included therein shall apply. Technical requirements associated with maintenance and modification activities shall be equal to or better than the original requirements (e.g., Code requirements, design and construction specification requirements, and inspection requirements).

8.0 REGULATORY GUIDE 1.38, "Quality Assurance Requirements for packaging, Shipping, Receiving, Storage, and Handling of Items for Water-Cooled Nuclear Power Plants"

COMMENTS AND CLARIFICATIONS:

Iowa Electric complies with the Regulatory Position of this Regulatory Guide with the following clarifications:

8.1 The Iowa Electric commitment is to Regulatory Guide 1.38, Revision 2, May 1977, which endorses ANSI N45.2.2-1972. However, the Iowa Electric commitment is to the later version of this Standard, ANSI/ASME N45.2.2-1978.

8.2 The applicability of the requirements of Section 3 and 4 and the Appendix of ANSI N45.2.2, and the paragraphs of the Regulatory Guide relating to these Sections (C.1.c, C.1.e, and C.2), is limited to the procurement of major plant equipment replacements; they are not applied to procurement of operating plant spares and modifications.

8.3 The shipping damage inspections required by Section 5.2.1 of ANSI N45.2.2 will be performed by Storekeepers prior to unloading in lieu of ANSI N45.2.6 certified inspectors. A shipping damage inspection is performed by ANSI N45.2.6 certified inspectors at a later point in the receiving process for applicable items.

9.0 REGULATORY GUIDE 1.39, "Housekeeping Requirements for Water-Cooled Nuclear Power Plants"

COMMENTS AND CLARIFICATIONS:

Iowa Electric complies with the Regulatory Position of this Regulatory Guide with the following clarification:

9.1 The Iowa Electric commitment is to Regulatory Guide 1.39, Revision 2, September 1977, and to ANSI N45.2.3-1973 which it endorses.

10.0 REGULATORY GUIDE 1.54, "Quality Assurance Requirements for Protective Coatings Applied to Water-Cooled Nuclear Power Plants"

COMMENTS AND CLARIFICATIONS:

Iowa Electric is not committed to Regulatory Guide 1.54, June 1973. Iowa Electric's controls relative to protective coatings are contained in UFSAR Section 17.2.9.5.

11.0 REGULATORY GUIDE 1.58, "Qualification of Nuclear Power Plant Inspection, Examination, and Testing Personnel"

COMMENTS AND CLARIFICATIONS:

Iowa Electric complies with the Regulatory Position of this Regulatory Guide with the following clarifications:

11.1 The Iowa Electric commitment is to Regulatory Guide 1.58, Revision 1, September 1980, and to ANSI N45.2.6-1978 which it endorses.

11.2 ANSI N45.2.6-1978 Section 1.0, "Applicability", first paragraph, states that this standard applies to personnel who perform inspections, examinations, and tests during fabrication prior to and during receipt of items at the construction site, during construction, during preoperational and startup testing, and during operational phases of nuclear power plants.

At Iowa Electric, the qualification of Quality Control personnel (Iowa Electric or contractor employees) performing inspection or examination work at the plant shall be in accordance with Regulatory Guide 1.58 (ANSI N45.2.6-1978). Personnel performing testing activities shall have appropriate experience and training to assure competence in accordance with Regulatory Guide 1.8 (ANS 3.1-1978).

11.3 Regulatory Position C.1 of Regulatory Guide 1.58 states that "for qualification of personnel (1) who approve preoperations, startup, and operation test procedures and test results and (2) who direct or supervise the conduct of individual preoperational, startup, and operational tests, the guidelines contained in Regulatory Guide 1.8, "Personnel

Selection should be followed in lieu of the guidelines of ANSI N45.2.6-1978". Iowa Electric complies with this Regulatory Position and, furthermore, test procedures are reviewed and approved by a committee consisting of members representing a broad range of experience in engineering, operation and quality assurance; the tests shall be performed by qualified personnel and monitored by quality assurance personnel, to ensure compliance with the test procedure requirements.

11.4 ANSI N45.2.6 Section 1.2, "Applicability", third paragraph, requires that this standard be used in conjunction with ANSI N45.2. Iowa Electric is not committed to ANSI N45.2.

11.5 ANSI N45.2.6 Section 1.2, "Applicability", fourth paragraph, requires that this standard be applied to organizations other than Iowa Electric. The specific applicability of this standard to other organizations is specified on a case-by-case basis in the procurement documents issued to those suppliers of materials and services.

11.6 Regulatory Guide 1.58 Revision 1, in Section B, "Discussion", endorses ASNT Recommended Practice No. SNT-TC-1A-1975 for the qualification of nondestructive testing personnel. In accordance with the Iowa Electric ASME Section XI program the 1980 Edition with addenda through Winter 1981 govern. Section IWA-2300 of this Code requires nondestructive personnel to be qualified to SNT-TC-1A-1980.

12.0 REGULATORY GUIDE 1.64, "Quality Assurance Requirements for the Design of Nuclear Power Plants"

COMMENTS AND CLARIFICATIONS:

Iowa Electric complies with the Regulatory Position of this Regulatory Guide. The Iowa Electric commitment is to Regulatory Guide 1.64, Revision 2, June 1976, and to ANSI N45.2-11-1974 which it endorses.

13.0 REGULATORY GUIDE 1.74, "Quality Assurance Terms and Definitions"

COMMENTS AND CLARIFICATIONS:

Iowa Electric complies with the Regulatory Position of this Regulatory Guide with the following clarifications:

13.1 The Iowa Electric commitment is to Regulatory Guide 1.74, February 1974, and to ANSI N45.2.10-1973, which it endorses.

13.2 Iowa Electric has adopted the definition of "Audit" which appears in ANSI/ASME N45.2.12-1977, Requirements for Auditing of Quality Assurance Programs for Nuclear Power Plants, in lieu of the definition in ANSI N45.2.10-1973.

14.0 REGULATORY GUIDE 1.88, "Collection, Storage, and Maintenance of Nuclear Power Plant Quality Assurance Records"

COMMENTS AND CLARIFICATIONS:

Iowa Electric complies with the Regulatory Position of this Regulatory Guide with the following clarifications:

14.1 The Iowa Electric commitment is to Regulatory Guide 1.88, Revision 2, October 1976, and to ANSI N45.2.9-1974 which it endorses.

14.2 Section 3.2.2 of ANSI N45.2.9-1974 specifies establishment of an "index". As we understand this term, it can include a collection of documents or indices (some of which may be computer-based) which, when taken together, supply the information attributed to an "index" in the Standard. Record retention requirements for records are specified. The specific retention times for records are indicated when the records are transmitted for

permanent storage. Iowa electric utilizes computer-aided retrieval systems to index and locate records.

14.3 Section 5 of ANSI N45.2.9-1974, "Storage, Preservation and Safekeeping", provides no distinction between temporary and permanent facilities. To address temporary storage, the following position is established: Active records (those completed but not yet duplicated or placed on microfilm) may be temporarily stored in one-hour fire rated file cabinets until such time as they are duplicated or microfilmed. Open-ended documents--those revised or updated on a more-or-less continuing basis over an extended period of time (e.g. personnel qualification and training documents) and those which are cumulative in nature (e.g. nonconforming item logs and control room log books)--are not considered as QA records since they are not "complete". These types of documents shall become QA records when they are issued as a specific revision, when they are filled-up or discontinued, or on a periodic basis when the completed portion of the on-going document shall be transferred to permanent storage as a "record".

14.4 The requirements of Section 4.3 (Receipt Control) of ANSI N45.2.9-1974 are implemented only for the permanent record files and not for temporary record files.

14.5 The requirements of Section 5.3 (Storage) of ANSI N45.2.9-1974 are implemented only for the permanent record files and not for temporary record files.

15.0 REGULATORY GUIDE 1.94, "Quality Assurance Requirements for Installation, Inspection, and Testing of Structural Concrete and Structural Steel During the Construction Phase of Nuclear Power Plants"

COMMENTS AND CLARIFICATIONS:

Iowa Electric complies with the Regulatory Position of this Regulatory Guide with the following clarifications:

15.1 The Iowa Electric commitment is to Regulatory Guide 1.94, Revision 1, April 1976, and to ANSI N45.2.5-1974 which it endorses.

15.2 For modification activities Iowa Electric shall comply with the Regulatory Position established by this Regulatory Guide in that the quality assurance program requirements included therein shall apply. Technical requirements associated with modification activities shall be equal to or better than the original requirements (e.g., Code requirements, design and construction specification requirements, and inspection requirements).

16.0 REGULATORY GUIDE 1.116, "Quality Assurance Requirements for Installation, Inspection, and Testing of Mechanical Equipment and Systems"

COMMENTS AND CLARIFICATIONS:

Iowa Electric complies with the Regulatory Position of this Regulatory Guide with the following clarifications:

16.1 The Iowa Electric commitment is to Regulatory Guide 1.116, Revision O-R, June 1976, with first page revision May 1977, and to ANSI N45.2.8-1975 which it endorses.

16.2 Iowa Electric's commitment to this Regulatory Guide is applicable to maintenance and modification activities in that the quality assurance program requirements included therein shall apply. Technical requirements associated with maintenance and modification activities shall be equal to or better than the original requirements (e.g., Code requirements, design and construction specification requirements, and inspection requirements).

17.0 REGULATORY GUIDE 1.123, "Quality Assurance Requirements for Control of Procurement of Items and Services for Nuclear Power Plants"

COMMENTS AND CLARIFICATIONS:

Iowa Electric complies with the Regulatory Position of this Regulatory Guide with the following clarifications:

17.1 The Iowa Electric commitment is to Regulatory Guide 1.123, Revision 1, July 1977, and to ANSI N45.2.13-1976 which it endorses.

18.0 REGULATORY GUIDE 1.144, "Auditing of Quality Assurance Programs for Nuclear Power Plants"

COMMENTS AND CLARIFICATIONS:

Iowa Electric complies with the Regulatory Position of this Regulatory Guide with the following clarifications:

18.1 The Iowa Electric commitment is to Regulatory Guide 1.144, Revision 1, September 1980, and to ANSI N45.2.12-1977 which it endorses.

18.2 Section 1.1, "Scope", and Section 1.2, "Applicability", of ANSI N45.2.12-1977 reference ANSI N45.2. Iowa Electric is committed to ANSI N18.7-1976 for the operational phase, consistent with its commitment to Regulatory Guide 1.33.

18.3 Regulatory Position C.3.b(1) states that external audits, after the award of a contract, are not necessary for procurement actions where acceptance of the product is in accordance with Section 10.3.2, "Acceptance by Reviewing Inspection", of ANSI N45.2.13-1976. The suppliers of products that meet this requirement are included on the Iowa Electric external audit schedule and are audited on a triennial basis.

19.0 REGULATORY GUIDE 1.146, "Qualification of Quality Assurance Program Audit Personnel for Nuclear Power Plants"

COMMENTS AND CLARIFICATIONS:

Iowa Electric complies with the Regulatory Position of this Regulatory Guide with the following clarifications:

19.1 The Iowa Electric commitment is to Regulatory Guide 1.146, August 1980, and to ANSI N45.2.23-1978 which it endorses.

19.2 ANSI N45.2.23 Section 1.2 references ANSI N45.2. For Iowa Electric, the entities subject to audit are defined in 10 CFR 50 Appendix B and ANSI N18.7-1976. This is consistent with Iowa Electric's commitment to Regulatory Guide 1.33 which endorses ANSI N18.7-1976, in lieu of ANSI N45.2.

20.0 REGULATORY GUIDE 4.15, "Quality Assurance for Radiological Monitoring Programs (Normal Operations) - Effluent Streams and the Environment"

COMMENTS AND CLARIFICATIONS:

Iowa Electric complies with the Regulatory Position in Regulatory Guide 4.15, Revision 1, February 1979.

21.0 ASME B&PV Code, Section XI, 1980 Edition with Addenda through Winter 1981

COMMENTS AND CLARIFICATIONS:

The Iowa Electric commitments relative to the Ten-Year Inspection Program and the Pump and Valve Test Program are established separately in formal correspondence with the Nuclear Regulatory Commission and incorporated into appropriate Iowa Electric documents.

Attachment 2
to NG-92-1114

DISCUSSION OF CHANGES IN THE
QUALITY ASSURANCE PROGRAM DESCRIPTION

1. 17.2. Quality Assurance During The Operations Phase

Identification of Change:

The title of the "Design Engineering Department" was changed to the "Engineering Department" in the following UFSAR sections:

* 17.2.1.2, Second Paragraph
* 17.2.3.2
* 17.2.6.3, Fourth Paragraph
* 17.2.7.1
* 17.2.9.1, Second Paragraph
* 17.2.9.1, Third Paragraph
* 17.2.10.4, Third Paragraph
* 17.2.15.1

In Section 17.2.4.3, "Design Engineering" was changed to "the Engineering Department."

In Section 17.2.2.3, the title of the "Manager, Design Engineering" was changed to "Manager of Engineering."

Reason for the Change:

The Nuclear Generation Division changed the title of the "Design Engineering Department" to the "Engineering Department" to reflect that the department's activities in support of plant operations are not limited to "design" activities. Consequently, the title of the Manager has been changed from "Manager, Design Engineering" to "Manager of Engineering."

Basis for Concluding that the Change is Acceptable Under Section 50.54(a)(3):

The title changes are strictly administrative. No additions or deletions to the responsibilities of the Engineering Department have been made. The scope and

application of the Quality Assurance Program are unaffected by this change. The Nuclear Generation Division organization remains consistent with the Quality Assurance Program Description previously reviewed and approved by the NRC.

2. 17.2.1.2 Manager, Corporate Quality Assurance

Identification of Change:

The fifth paragraph of section 17.2.1.2 as revised states only that the Manager, Corporate Quality Assurance supports the Safety Committee; the rest of the paragraph has been deleted.

Reason for the Change:

In substantial part, this paragraph simply referred to the responsibilities of organizations which report to the Manager, Corporate Quality Assurance. As revised the paragraph states only that the Manager, Corporate Quality Assurance supports the Safety Committee.

The specific responsibilities which were mentioned in the fifth paragraph of section 17.2.1.2 are now addressed in the following sections of 17.2:

* The responsibility for performing surveillances and audits of suppliers, evaluating suppliers, maintaining an approved suppliers list, reviewing procurement documents, and performing quality assurance trending is assigned to the Quality Assurance Supervisor and is stated in section 17.2.1.2.1, "Quality Assurance Supervisor."

* The responsibility for reviewing procedures is assigned to the Quality Assurance Program Engineer and is stated in section 17.2.1.2.5, "Quality Assurance Programs Engineer."

* The responsibility for performing receiving, in-process, and final inspections; performing nondestructive examinations; and supporting the Operations Committee is assigned to the Quality Control Supervisor and is stated in section 17.2.1.2.3, "Quality Control Supervisor."

* The responsibility for providing quality assurance training is assigned to the Quality Assurance Training Coordinator and is stated in section 17.2.1.2.4, "Quality Assurance Training Coordinator."

The reference in the fifth paragraph to reviewing technical documents has been deleted. The review of technical documents in the form of design changes is no longer required of the Quality Assurance Department and there are no other references to technical documentation in UFSAR 17.2.

Basis for Concluding that the Change is Acceptable Under Section 50.54(a)(3):

With the exception of the technical document reviews, the change only eliminates redundancy. The responsibilities of the "organizations reporting to the Manager, Corporate Quality Assurance" are explicitly listed in sections described in the appropriate positions which report to the Manager.

See letters of October 31, 1990 from Mr. McGaughy (Iowa Electric) to Mr. Murley (NRC) and of December 21, 1990 from Mr. Burdick (NRC) to Mr. Liu (Iowa Electric). In 1990 Iowa Electric requested and obtained NRC approval for the elimination of Quality Assurance Department review and approval of Design Change Packages. Given that elimination, there is no longer any need for UFSAR 17.2 to refer to review of "technical documents". The term "technical document" is no longer used in UFSAR 17.2.

This change is consistent with the requirements of 10 CFR Part 50 Appendix B and the quality assurance program description previously reviewed and approved by the NRC.

3. <u>17.2.1.2.1 Quality Assurance Supervisor</u>

Identification of Change:

Paragraph 17.2.1.2 previously stated the Quality Assurance Supervisor was "assisted" in the verification of implementation of the Operational Quality Assurance Program by the Quality Control Supervisor and the Group Leader, Internal Audits. This wording was simply restructured and now states that the Quality Assurance Supervisor, "along with" the Quality Control Supervisor and Group Leader,

Internal Audits verifies implementation of the Quality Assurance Program.

Performing surveillances of suppliers and reviewing procurement documents was added to the responsibility of the Quality Assurance Supervisor.

The statement in section 17.2.1.2.1 regarding review of procedures and technical documents for the inclusion of quality requirements has been deleted from the responsibility of the Quality Assurance Supervisor. Review of procedures is now addressed in Section 17.2.1.2.5. Technical documents has been deleted from UFSAR 17.2.

Reason for the Change:

The change from "assisted" to "along with" was only changed to support the new structure of this paragraph. This is only an editorial change.

Responsibilities for performing supplier surveillances and review of procurement documents were added consistent with explicit assignment of responsibilities with the position reporting to the Manager. See 17.2.1.2 above. The Quality Assurance Supervisor was already performing surveillance of suppliers and review of procurement documents. This makes the section correspond to reality.

The sentence: "Additionally, the Quality Assurance Supervisor is responsible for review of the procedures and technical documents for inclusion of quality requirements" has been deleted to correspond with the changes to 17.2.1.2 with regards to "technical documents." It is unnecessary for the QA supervisor to review procedures for inclusion of quality requirements because:

1. The QA Program Engineer has responsibility for review of programmatic/administrative procedures as defined in 17.2.1.2.5, and

2. The Quality Control Supervisor is responsible for the review of plant related procedures (operations, maintenance, modification and testing documents) for inclusion of adequate quality requirements (inspection, witness and hold points) as defined in section 17.2.1.2.3.

Basis for Concluding that the Change is Acceptable Under Section 50.54(a)(3):

With the elimination of Quality Assurance review of design changes, there is no longer a required review of "technical documents" specified in UFSAR 17.2. The term "technical document" is not specific and has been deleted from UFSAR 17.2.

Section 17.2.4.5, "Quality Assurance Department Review of Procurement Documents", has been added consistent with previously assigned responsibility. These changes are consistent with the requirements of 10 CFR Part 50 Appendix B and the quality assurance program description previously reviewed and approved by the NRC.

These clarifications and changes in responsibilities are strictly administrative changes and do not affect the overall Quality Assurance Program Description previously reviewed and approved by the NRC.

Refer to section 17.2.1.2 regarding the review of technical documents.

4. 17.2.1.2.3 Quality Control Supervisor

Identification of Change:

The responsibility of the Quality Control Supervisor was changed from "Quality Control prepares inspection instructions and provides the inspection and testing necessary to support plant operation, maintenance, modification, and testing," to "The Quality Control Supervisor reviews "plant operation, maintenance, modification, and testing documents for inclusion of adequate quality requirements, and for inclusion of inspection, witness, and hold points, and provides the necessary support to perform the inspections and tests."

The responsibility for performing receiving, in-process, and final inspections has been relocated from section 17.2.1.2 to this section. The QC Supervisor has also been given responsibility to prepare receiving inspection plans.

The word "Inservice" was added to the second paragraph.

The QC Supervisor will also be responsible for training of QC personnel in NDE disciplines.

The QC Supervisor must also provide support for the Operations Committee consistent with the changes to paragraph 17.2.1.2.

Reason for the Change:

Inspection instructions for plant operation, maintenance, modification, and testing are prepared by the organization which initiates the document. The Quality Control Supervisor then reviews the instructions to assure that quality requirements are adequate and necessary inspection, witness and hold points are included.

The reference to "performing receiving, in-process, and final inspections" was deleted from section 17.2.1.2, as discussed previously. The responsibility is now clearly stated with this position.

The addition of responsibility for the QC Supervisor to prepare receiving inspection plans is consistent with responsibility for performing receiving inspections. These plans are developed from criteria provided by Engineering and Quality Assurance.

Addition of "Inservice" to the second paragraph specifies the Ten Year Inspection program referred to.

The training of personnel to perform non-destructive examinations must be done by personnel qualified as Level III inspection in the particular discipline. These inspectors report to the Quality Control Supervisor. Therefore the Quality Control Supervisor will be responsible for assuring that personnel are appropriately trained in NDE. This is now clearly stated and this training is not the responsibility of the QA Training Coordinator.

The QC Supervisor is a member of the DAEC Operations Committee and, consistent with the deletion from paragraph 17.2.1.2, that responsibility is clearly stated here.

Basis for Concluding that the Change is Acceptable Under Section 50.54(a)(3):

This change clarifies the responsibilities of the Quality Control Supervisor regarding the review and approval of inspection documents. The Quality Control Group continues to approve plant operation, maintenance, modification and testing documents for inclusion of adequate quality requirements.

The reference to performing receiving, in-process, and final inspections was relocated from section 17.2.1.2, as discussed previously, but there is no change to the duties of the Quality Control Supervisor.

The reference to training in NDE disciplines was added to emphasize Quality Control Supervisor's responsibility for that program.

The change in responsibilities of the QC Supervisor from "preparing" inspection instructions to "reviewing" inspection instructions continues to hold the Quality Control Supervisor responsible for the adequacy and approval of inspection instructions for operations, maintenance, modification and testing activities.

Quality Control prepares the plans for the receiving inspections it performs. This change defines responsibility which was not previously specified.

The insertion of "Inservice" is editorial.

The changes concerning responsibilities for NDE training are the results of adding specificity to the responsibilities of QC Supervisor. The responsibility for training of personnel in NDE must reside with a designated individual qualified as a Level III in the discipline. These responsibilities have remained with the QC Supervisor and the Corporate Level III NDE and are now specifically stated.

The QC Supervisor is a member of the DAEC Operations Committee as specified by section 6.5.1.2 of the DAEC Technical Specifications. This statement of responsibility for support of the committee has been relocated from paragraph 17.2.1.2 to the section which describes the QC Supervisor's responsibility.

As revised, section 17.2.1.2.3 continues to comply with the provisions of the 10 CFR Part 50 Appendix B program. The responsibilities of the Quality Control Supervisor remain consistent with the Quality Assurance Program Description previously reviewed and approved by the NRC.

5. 17.2.1.2.3.1 Corporate Level III NDE

Identification of Change:

A reference to training in NDE was added to the responsibilities of the Corporate Level III NDE.

Reason for the Change:

Training in NDE is required to be performed by personnel qualified in the respective disciplines as Level III inspectors. The Corporate Level III NDE has these qualifications and is responsible for providing NDE training.

Basis for Concluding that the Change is Acceptable Under Section 50.54(a)(3):

The Corporate Level III NDE has been and will continue to be responsible for providing NDE training. This change merely adds specificity regarding the provision of the training. The changes do not affect the application of the 10 CFR Part 50 Program. The responsibilities of the Corporate Level III NDE remain consistent with the Quality Assurance Program Description previously reviewed and approved by the NRC.

6. 17.2.1.2.5 Quality Assurance Programs Engineer

Identification of Change:

The phrase "Quality Assurance Department" is being added in the first paragraph to indicate the Quality Assurance Program Engineer is responsible for assisting in preparing and maintaining that Department's implementing procedures. In addition, the Quality Assurance Program Engineer will also review on behalf of the QA Department divisional procedures which are responsive to the requirements of the Operational Quality Assurance Program.

Reason for the Change:

The first change makes clear which procedures the Quality Assurance Program Engineer assists in preparing and maintaining. The second change reflects the responsibility for review of procedures prepared by other departments consistent with the requirements of paragraph 17.2.6.3. The responsibility for reviewing procedures referred to in section 17.2.1.2 is now clearly assigned for implementation.

Basis for Concluding that the Change is Acceptable Under Section 50.54(a)(3):

The first change specifically assigns responsibility for the review of procedures to the QA Programs Engineer. This responsibility was previously specified in 17.2.1.2.

The change regarding review of divisional procedures is to clearly define this responsibility consistent with the content of section 17.2.6.3. The changes do not affect the application of the 10 CFR Part 50 program but clearly define the responsibility of these activities. The responsibilities of the Quality Assurance Program Engineer remain consistent with the Quality Assurance Program Description previously reviewed and approved by the NRC.

Refer to paragraph 17.2.6.3 for further discussion regarding review of departmental and divisional procedures.

7. 17.2.2.3 Identification of Safety-Related Structures, Systems, Components and Items

Identification of Change:

The second paragraph of section 17.2.2.3, which refers to Appendix B to UFSAR 17.2, has been deleted.

Reason for the Change:

The information deleted from this section has been incorporated into UFSAR Table 3.2-1 as was promised in the letter of August 27, 1991 from Mr. McGaughy (Iowa Electric) to Mr. Murley (NRC).

Basis for Concluding that the Change is Acceptable Under Section 50.54(a)(3):

The information previously in UFSAR 17.2, Appendix B, is only being relocated to the revised UFSAR Table 3.2-1 which will be submitted in accordance with 10 CFR Part 50.71(e). The content of UFSAR 17.2, Appendix B was previously reviewed and approved by the NRC in the letter of August 28, 1991 from Mr. Miller (NRC) to Mr. Liu (Iowa Electric).

8. 17.2.2.3 Identification of Safety-Related Structures, Systems, Components and Items
UFSAR Table 3.2-1 Issue

8.1 **Identification of Change:**

The title of UFSAR Table 3.2-1 has been changed from "DAEC Classification of Structures, Systems, and Components" to "DAEC Classification of Components in Systems."

Reason for the Change:

The revised title more accurately describes the contents of UFSAR Table 3.2-1.

Basis for Concluding that the Change is Acceptable Under Section 50.54(a)(3):

The title change is strictly administrative and does not affect the content of this document as reviewed and approved by the NRC.

8.2 **Identification of Change:**

* Item XXIX.9 "Diesel Air Start System" (located on page 11 of UFSAR Table 3.2-1) for the Diesel Generator Systems was added

* Item XXXX.2 "Containment Penetrations for Process Piping and Electrical" (located on page 12) was added

* Item XXVIII, "Pneumatic Systems" changed the Quality Assurance Requirements from no entry to "B" and the Seismic Category from no entry to "I". A no entry is represented by "-" and indicates that no information was available at the time UFSAR Table 3.2-1 was developed. The "I" indicates the equipment shall be constructed in accordance with seismic requirements for the safe shutdown earthquake, as described in UFSAR Section 3.7, Seismic Design. The following components are included:

  * item XXVIII.1, "Nitrogen vessels, accumulators, supporting safety-related systems"

* item XXVIII.2, "Nitrogen piping and valves in lines between above accumulators and safety-related systems"

* item XXVIII.3, "Nitrogen piping and valves forming part of containment boundary"

* item XXVIII.4, "Instrument air vessels, accumulators, supporting safety-related systems"

* item XXVIII.5, "Instrument air piping and valves in lines between above accumulators and safety-related systems"

* Item VI.3 "Electrical modules, IRM and APRM" (located on page 4) had footnote 1w and comment "yes" added; "This item includes the 24 volt D.C. Power System" and "See IELP letter to the USNRC, NG-91-2652, dated 8/27/91, for inclusion of the 24 V D.C. Power Supply with this item", respectively.

* Item XXXIII.1, "Main Steam Piping from Outboard MSIV to turbine stop valves and branch line piping up to and including first valve" revised the seismic class from "NA" to "I".

Reason for the Change:

Information was added to UFSAR Table 3.2-1 which was previously contained in Appendix B to UFSAR 17.2.

Basis for Concluding that the Change is Acceptable Under Section 50.54(a)(3):

The information previously approved in UFSAR 17.2, Appendix B is only being relocated to UFSAR Table 3.2-1. There is no change to the information which was previously reviewed and approved by the NRC as recorded in the letter of August 28, 1991 from Mr. Miller (NRC) to Mr. Liu (Iowa Electric).

8.3 **Identification of Change:**

The following changes were made in the list of Principal Components:

* item I.4 (located on page 1) was changed from "CRD Housing" to "CRD Housing Supports (Shoot-out Steel)"

* item XXI (located on page 9) was changed from "Control Room & Remote Shutdown Panels H11" to "Control Room & Remote Shutdown Panels H11 C61"

* item XXIV (located on page 9) was changed from "Emergency Service Water" to "Emergency Service Water E13"

* item XXV (located on page 9) was changed from "RHR Service Water System" to "RHR Service Water System E12"

* item XXVI (located on page 10) was changed from "RBCCW" to "RBCCW P42"

* item XXVII (located on page 10) was changed from "Well Water System" to "Well Water System P46"

* item XXVIII (located on page 10) was changed from "Pneumatic Systems" to "Pneumatic Systems T48 P50"

* item XXIX (located on page 10) was changed from "Diesel Generator Systems" to "Diesel Generator Systems R43"

* item XXX (located on page 11) was changed from "Containment Atmosphere Control System" to "Containment Atmosphere Control System T48"

* item XXXI (located on page 11) was changed from "Standby Gas Treatment System" to "Standby Gas Treatment System T46"

* item XXXII (located on page 11) was changed from "ECCS Equipment Area Cooling System" to "ECCS Equipment Area Cooling System T41"

* item XXXIII (located on page 11) was changed from "Power Conversion System" to "Power Conversion System N11 N21"

* item XXXIV (located on page 11) was changed from "Condensate Storage and Transfer System" to "Condensate Storage and Transfer System P11"

* item XXXV (located on page 11) was changed from "Essential a-c Power System" to "Essential a-c Power System R20-24 R35 R43"

* item XXXVI (located on page 11) was changed from "125/250 Volt d-c Power System" to "125/250 Volt d-c Power System R42"

* item XXXVII (located on page 11) was changed from "River Water Supply" to "River Water Supply W10"

* item XXXVIII (located on page 11) was changed from "MSIV Leakage Control" to "MSIV Leakage Control B21"

Reason for the Change:

The revised description of item I.4 was updated to reflect more accurately that it applies to the CRD housing shoot-out steel. The shoot-out steel consists of steel beams under the CRDs which minimize the distance CRDs may drop if the CRD or CRD housing separates from the reactor pressure vessel. During Iowa Electric's continuing work on the Design Basis reconstitution program, it was identified that all the components of the CRD system except the supports (shoot-out steel) were listed in UFSAR Table 3.2-1, item IV, "CRD Hydraulic System", and Item I.8, "Control Rod Drives".

The other revised descriptions add designations which may be used to cross reference the General Electric Company Product Structure Code on the Master Parts List as originally applied during the construction and design of the DAEC. The Product Structure Code is used on General Electric design documentation, the Bechtel design document list, and the Iowa Electric Master Document List.

Basis for Concluding that the Change is Acceptable Under Section 50.54(a)(3):

Except for item I.4, these changes are administrative only; they tie the "Principal Component" descriptions to the system designations as originally assigned during construction.

The revised title of Item I.4 identifies more clearly the contents of the item. During Iowa Electric's continuing work on the Design Basis reconstitution program, we concluded that all the components of the CRD system except the supports (shoot-out steel) were contained in UFSAR Table 3.2-1, item IV, "CRD Hydraulic System" and item I.8, "Control Rod Drives".

The revised descriptions do not remove any items from UFSAR Table 3.2-1, which continues to encompass the same equipment as was previously reviewed and approved by the NRC as recorded in the NRC letter of August 28, 1991 from Mr. Miller (NRC) to Mr. Liu (Iowa Electric).

8.4 **Identification of Change:**

The Safety Class of the following Principal Components was changed or added:

* item XXVIII.1, "Nitrogen vessels, accumulators, supporting safety-related systems" (located on page 10) from Safety Class 3 to Safety Class 2

* item XXIX.9, "Diesel Air Start System" (located on page 11) for the Diesel Generator Systems was added as Safety Class 2 (item was added to UFSAR 17.2 Appendix B in 1991)

* item XXXVIII.1, "Piping and valves up to the first isolation valve of the inboard subsystem" (located on page 12) on the MSIV Leakage Control System from Safety Class 2 to Safety Class 1

* item XXXX.2, "Containment Penetrations for Process Piping and Electrical" (located on page 12) was added as Safety Class 2 (item was added to UFSAR 17.2 Appendix B in 1991)

Reason for the Change:

In the Design Basis reconstitution program we discovered errors in Safety Class designations for items XXVIII.1 and XXXVIII.1. The Safety Classes are being revised to accurately reflect the original design and construction requirements. Items XXIX.9 and XXXX.2

were reviewed and approved as additions to the UFSAR 17.2 Appendix B by the NRC letter of August 28, 1991 from Mr. Miller (NRC) to Mr. Liu (Iowa Electric).

Basis for Concluding that the Change is Acceptable Under Section 50.54(a)(3):

The upgrades of the Safety Class for items XXVIII.1 and XXXVIII.1 are corrections in the UFSAR Table 3.2-1 document which were identified during the Design Basis reconstitution program. The designation of Safety Class for items XXIX.9 and XXXX.2 is the result of the continuing Design Basis reconstitution program. These changes have been evaluated for adverse impact on the associated systems and no adverse consequences were identified. UFSAR Table 3.2-1 has been revised to be consistent with the original construction requirements. The application of the 10 CFR Part 50 Appendix B program previously reviewed and approved by the NRC is unaffected by these changes.

8.5 **Identification of Change:**

The Code Class of the following Principal Components was changed:

* item I.12, "Rx Vessel Stabilizer" (located on page 1) from no Code Class designation to Code Class **A**

* item XXVIII.1, "Nitrogen vessels, accumulators, supporting safety-related systems" (located on page 10) from no Code Class designation to Code Class 2

* item XXVIII.2, "Nitrogen piping and valves in lines between above accumulators and safety-related systems" (located on page 10) from no Code Class designation to Code Class 2

* item XXVIII.3, "Nitrogen piping and valves forming part of containment boundary" (located on page 10) from no Code Class designation to Code Class 2

The 1991 submittal listed the Code Class as "-" which indicated the information was not available at that time.

Reason for the Change:

As the result of Iowa Electric's continuing work on Design Basis reconstitution, the Code Classes which the above were constructed have been identified.

Basis for Concluding that the Change is Acceptable Under Section 50.54(a)(3):

The Design Basis reconstitution process has resulted in the identification of additional information which is being incorporated into UFSAR Table 3.2-1 to reflect the original Code Class. The identification of these Code Classes of construction does not impact the application of the Quality Assurance Program Description as previously reviewed and approved by the NRC and continues to satisfy the provisions of 10 CFR Part 50 Appendix B.

8.6 **Identification of Change:**

The "Construction Code" of the following Principal Components was changed:

* item I.12, "Rx Vessel Stabilizer" (located on page 1) from no entry to "ASME Section III, 1965 Edition, Summer 1967 addenda"

* item II.2, "Vessels, N2 accumulators" (located on page 1) from no entry to "ASME Section III"

* item XXVIII.1, "Nitrogen vessels, accumulators, supporting safety-related systems" (located on page 10) from no entry to "ASME Section III"

* item XXVIII.2, "Nitrogen piping and valves in lines between above accumulators and safety-related systems" (located on page 10) from no entry to "ASME Section III"

* item XXVIII.3, "Nitrogen piping and valves forming part of containment boundary" (located on page 10) from no entry to "ASME Section III"

The "-", (no entry), in the 1991 UFSAR Table 3.2-1 submittal indicated no information was available at that time.

Reason for the Change:

The change to Item I.12 is the result of the continuing work on the Design Basis for DAEC which identified an additional source document listing the specific "Construction Code."

The changes to Items II.2, XXVIII.1, XXVIII.2 and XXVIII.3 are the result of identifying errors in the content of UFSAR Table 3.2-1 based on previously identified source documents.

Basis for Concluding that the Change is Acceptable Under Section 50.54(a)(3):

The identification of the "Construction Code" does not impact the application of the Quality Assurance Program Description as previously reviewed and approved by the NRC and continues to require the application of 10 CFR Part 50 Appendix B to these components.

8.7 **Identification of Change:**

In Item I.4 "CRD Housing Supports (Shoot-out Steel)" (located on page 1), the Quality Group Class has been changed from "A" to "-" (no entry).

Reason for the Change:

The "CRD Housing Supports (Shoot-Out-Steel)" was not previously recognized. The previous description of Item I.4, "CRD Housing" is addressed by Items I.8, "Control Rod Drives". Refer to the "Reason for Change" in paragraph 8.3. This entry has been revised (description and Code Class) to be consistent with the supporting design basis documents for the "CRD Housing Supports (Shoot-Out-Steel)".

Basis for Concluding that the Change is Acceptable Under Section 50.54(a)(3):

The change in Quality Group Class for Item I.4 is consistent with the change in description for this item as discussed in paragraph 8.3 above. This change in Quality Group Class is consistent with the design basis for the item and results in the continued application of quality assurance program consistent with 10 CFR Part 50, Appendix B.

8.8 **Identification of Change:**

The Quality Group Class of the following Principal Components was changed:

* item I.5, "Reactor internal structures, engineered safety features" (located on page 1) from no entry to "NA"

* item I.10, "Power range detector hardware" (located on page 1) from no entry to Quality Group Class "B"

* item I.11, "Fuel assemblies" (located on page 1) from no entry to "NA"

* item I.12, "RX Vessel Stabilizer" (located on page 1) from no entry to "NA"

* item IV.10, "Electrical modules, with safety function" (located on page 4) for the CRD Hydraulic System from no entry to "NA"

* item IX.8, "Valves, isolation, other" (located on page 5) in the RHR System from no entry to Quality Group Class "B"

* item XXIII.7, "Mechanical modules, with safety function" (located on page 9) for the Off-gas System from Quality Group Class D/D to Quality Group Class D/D+QA (Note the D/D indicates the first entry applies to the GE portion of the work and the second entry applies to the Bechtel portion of the work.)

* item XXX.1, "Piping and valves from primary containment through outer isolation valve" (located on page 11) on the Containment Atmosphere Control System from "no entry" to Quality Group Class "B"

* item XXXVIII.1, "Piping and valves up to the first isolation valve of the inboard subsystem" (located on page 12) on the MSIV Leakage Control System from "no entry" to Quality Group Class "A"

While the "-" entry indicates no information was available, the "NA" entry indicates information was found and reviewed but it did not specify a Quality Group Classification.

Reason for the Change:

The changes in the above Quality Group Classifications are the result of continuing work on the design basis reconstitution program and identification of errors in UFSAR Table 3.2-1 based on the supporting design basis documentation.

Basis for Concluding that the Change is Acceptable Under Section 50.54(a)(3):

These Quality Group Class changes do not impact the application of the Quality Assurance Program Description previously reviewed and approved by the NRC and continue to satisfy the provisions of 10 CFR Part 50 Appendix B.

8.9 **Identification of Change:**

The "Quality Assurance Requirements" were changed for the following Principal Components:

* Item IV.4, "Valves, other" (located on page 3) in the CRD Hydraulic System changed the Quality Assurance Requirements from "no entry" to "D"

* Item IV.8, "Piping, other" (located on page 4) in the CRD Hydraulic System changed the Quality Assurance Requirements from "no entry" to "D"

* Item XXXVIII.1, "Piping and valves up to the first isolation valve of the inboard subsystem" (located on page 12) in the MSIV Leakage Control system changed the Quality Assurance Requirements from "no entry" to "B"

* Item XXXVIII.2, "Piping and valves, other" (located on page 12) in the MSIV Leakage Control system changed the Quality Assurance Requirements from "no entry" to "B"

A "no entry" of data is denoted by "-" which indicates no information was available.

Reason for the Change:

The changes in the above "Quality Assurance Requirements" are the result of continued work on the design basis reconstitution program and identification of the correct quality assurance requirements for these items. The previous entries were incomplete.

Basis for Concluding that the Change is Acceptable Under Section 50.54(a)(3):

The changes in the "Quality Assurance Requirements" from "no entry" to "D" or "B" entries were made on the basis of additional information which was identified during the Design Basis reconstitution program. These changes are consistent with the original construction quality assurance requirements and result in the UFSAR Table being more accurate. These additions provide specificity to the quality assurance requirements consistent with the original requirements and consistent with the continued application of the Quality Assurance Program Description for the components.

8.10 **Identification of Change:**

In Item XXIII.7, "Mechanical modules, with safety function" (located on page 9) in the Off-Gas System, the following changes have been made:

* Quality Assurance Requirements changed from "B/B" to "D/B"

* Seismic Category changed from "NA/NA" to "NA/I"

* footnote 1v and a comment were added indicating this item includes the off-gas stack dilution fans which are Seismic Class I and must meet the total Quality Assurance Program

Reason for the Change:

The 1991 UFSAR Table 3.2-1 submittal did not indicate whether the Off-Gas Stack Dilution Fans were supplied by General Electric or Bechtel. As a result, the scope of supply for both General Electric and Bechtel was classified as having applicable quality assurance requirements and Seismic Category I. During Iowa Electric's review

of the existing documentation in the Design Basis reconstitution program, we concluded that the General Electric scope of supply did not contain any safety-related items for the Off-Gas System as specified by the General Electric Master Parts List. The Off-Gas Stack Dilution Fans were originally supplied by Bechtel. Footnote 1v and a comment have been added to clarify that the Off-Gas Dilution Fans are included in this item. The reference documents in support of these changes have also been added to the engineering design basis documentation upon which UFSAR Table 3.2-1 is based.

Basis for Concluding that the Change is Acceptable Under Section 50.54(a)(3):

The changes provide additional information which was identified during the Design Basis reconstitution process and clarify the scope of supply. Based on the 1991 UFSAR Table 3.2-1 submittal, the classification of the Off-Gas system modules was incomplete and inadequately defined the equipment to which the 10 CFR Part 50 Appendix B program applied. None of the equipment supplied by General Electric for these modules is or has been safety related. Only the equipment associated with the dilution fans, which were provided by Bechtel, have been supplied as safety related. This change has been evaluated for adverse impact on the Off-Gas System and no adverse consequences were identified.

UFSAR Table 3.2-1 has been revised to be consistent with the original construction requirements. The 10 CFR Part 50 Appendix B program continues to be applied to the safety related portion of the Off-Gas System consistent with the original construction requirements.

8.11 **Identification of Change:**

Item XXVII.3, "Piping and valves, other" (located on page 10) for the Well Water System has the following changes:

* Quality Assurance Requirements changed from "B" to "no entry"

* Seismic Category changed from "I" to "NA"

* footnote 1s regarding the application of Seismic Category 1 criteria was deleted

Reason for the Change:

During the performance of the design basis reconstitution activities, we concluded that the application of the seismic and Quality Assurance Requirements to the well water system outside of the primary containment isolation valves was not clear. These changes provide clarification.

Basis for Concluding that the Change is Acceptable Under Section 50.54(a)(3):

Item XXVII of UFSAR Table 3.2-1 is the Well Water System. Item XXVII.3 covers piping and valves located outside of the primary containment isolation valves. This equipment performs no safety function and therefore the quality assurance program need not apply. Consistent with footnote f to UFSAR Table 3.2-1, supports in portions of non-seismic category I lines passing through rooms containing safeguard equipment are seismic category 1. However, the Well Water System is not seismic in and of itself. Footnote 1s further clarifies that only the supports in this item have a requirement for quality assurance program consistent with the design basis for these items. These changes add a level of specificity to these items consistent with the design basis and the Quality Assurance Program Description as previously reviewed and approved by the NRC.

8.12 **Identification of Change:**

The Seismic Category of the following Principal Components was changed:

* Item II.16, "Cable, with safety function" (located on page 2) for the Nuclear Boiler System changed the Seismic Category from "no entry" to "I"

* Item III.8, "Cable with safety function" (located on page 3) for the Recirculation System changed the Seismic Category from "no entry" to "I"

* Item VI.4, "Cable, IRM and APRM" (located on page 4) changed the Seismic Category from "no entry" to "I"

* Item XXII.2, "Cable, with safety function" (located on page 9) for Local Panels and Racks changed the Seismic Category from "no entry" to "I"

While the "-" entry indicates no information was available, the "NA" entry indicates information was found and reviewed but no Seismic Category was specified.

The "I" indicates the equipment must be constructed in accordance with seismic requirements for the safe shutdown earthquake, as described in UFSAR Section 3.7, Seismic Design.

Reason for the Change:
As the result of Iowa Electric's continuing work on the Design Basis reconstitution program, errors were identified relating to the Seismic Category for these items. These changes accurately reflect the original design and construction requirements.

Basis for Concluding that the Change is Acceptable Under Section 50.54(a)(3):

These changes correct errors identified in the seismic category for these items consistent with the design basis documentation. These corrections do not affect the continued application of the Quality Assurance Program Description to these items. The Quality Assurance Program Description continues to apply as previously reviewed and approved by the NRC.

8.13 **Identification of Change:**

The following Principal Components had footnote references added in the "Footnote" column. (The footnotes existed at the end of UFSAR Table 3.2-1 but were inadvertently omitted from the "Footnotes" column):

* Item II.13, "Valves, instrumentation beyond outermost isolation valves" (located on page 2) in the Nuclear Boiler System added footnote 1b

stating "ANSI B31. Code Case 78 applies for Class 1 and Class 2 pipe and fittings 3/4" nominal pipe size (NPS) and smaller."

* Item IV.4, "Valves, other" (located on page 3) in the CRD Hydraulic System added footnote 1a.

Reason for the Change:

During Iowa Electric's continuing work on the Design Basis reconstitution program, the above omissions were identified. These changes are consistent with the supporting design basis documents.

Basis for Concluding that the Change is Acceptable Under Section 50.54(a)(3):

The change is administrative in nature. The provisions of 10 CFR Part 50 Appendix B continue to remain in effect for all the applicable components encompassed in the items listed above, as previously reviewed and approved by the NRC.

8.14 **Identification of Change:**

A "yes" in the "Comments" column of Table 3.2-1 indicates that comments are provided at the end of the Table. Corrections have been made to the Table by deleting the "yes" for the following Principal Components which had a "yes" in the "Comments" column although no comment existed:

* Item V.9, "Electrical modules, with safety function" (located on page 4) for the Standby Liquid Control System

Corrections were made to the Table by adding a "yes" for the following Principal Components to which a comment pertained but for which there was no "yes" in the "comments" column:

* Item V.1, "Standby liquid control tank" (located on page 4)

* Item XVIII.4, "Piping, other" (located on page 8) for the Radwaste System

* Item XXIV.1, "Piping" (located on page 9) for the Emergency Service Water system

* Item XXXIII.1, "Main steam piping from outboard MSIV to turbine stop valves and branch line piping up to and including first valve" (located on page 11)

* Item XXXIII.4, "Reactor feedwater piping and valves, other" (located on page 11)

* Item XXXIV.1, "Condensate storage tank" (located on page 11)

* The "Comments", page 2 attached to UFSAR Table 3.2-1, item XI.8, has been changed to XI.9

Reason for the Change:

The changes correct typographical errors.

Basis for Concluding that the Change is Acceptable Under Section 50.54(a)(3):

The changes are administrative only and do not affect the application of 10 CFR Part 50 Appendix B previously reviewed and approved by the NRC.

8.15 **Identification of Change:**

Comments were added for the following Principal Components:

* Item IV.4, "Valves, other" (located on page 3) on the CRD Hydraulic System added comments 1 and 2 regarding the design and construction specifications for the HCU"s

* Item IV.8, "Piping, other"(located on page 4) on the CRD Hydraulic System added comments 1 and 2 regarding the design and construction specifications for the HCU"s

* Item XVIII.1, "Tanks, Atmospheric" (located on page 7) in the Radwaste System added comment 1 regarding the Quality Group classification of unprocessed liquid radioactive waste piping and equipment pressure parts

* Item XXXIV.1, "Condensate storage tank" (located on page 11) added comment 2 regarding a note on page T3.2-5 of the UFSAR which states the CST is non-seismic

Reason for the Change:

During Iowa Electric"s continuing work on the Design Basis reconstitution program, we developed comments which provide additional information to reflect more accurately the original design and construction requirements. The additional information has been added to the engineering design basis document in support of these additional comments.

Basis for Concluding that the Change is Acceptable Under Section 50.54(a)(3):

The additional comments are clarifications only. They do not affect the application of the 10 CFR Part 50, Appendix B program previously reviewed and approved by the NRC.

8.16 **Identification of Change:**

Footnote "e" for the "Seismic Category" was revised by adding "The inclusion of a system or structure within Seismic Category I does not mean the entire system or structure is Seismic Category I but rather that the system or structure has been evaluated and those portions that lie within the definition of Seismic Category I have been appropriately analyzed and protected for seismic response."

Reason for the Change:

The comment provides additional information clarifying the application of seismic requirements to overall systems.

Basis for Concluding that the Change is Acceptable Under Section 50.54(a)(3):

The additional comment is for clarification only and does not effect the application of 10 CFR Part 50 Appendix B previously reviewed and approved by the NRC on these systems.

9. 17.2.3.6 Design Verification

Identification of Change:

In the fifth paragraph, the phrase "If errors and deficiencies" has been changed to "If errors or deficiencies" and the phrase "during the performance of Quality Assurance audits" changed to "during audits." The paragraph now reads "If errors or deficiencies in the design process are detected during the design verification cycle or during 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."

Reason for the Change:

Changing to the term "errors or deficiencies" more accurately states that the Engineering Department must document resolutions when either an error or a deficiency is detected. The intent has always been for the design engineer to be responsible for documenting resolution of all errors and deficiencies which are detected during the design verification process or during audits.

Deleting the words "the performance of Quality Assurance" allows the paragraph to be applied to audits performed by any organization, including the Quality Assurance Department.

Basis for Concluding that the Change is Acceptable Under Section 50.54(a)(3):

The changes are editorial. They do not affect the application of the 10 CFR Part 50 program previously reviewed and approved by the NRC.

10. 17.2.4.5 Quality Assurance Department Review of Procurement Documents

Identification of Change:

This is a new paragraph. Its purpose is to clearly specify that procurement documents must be reviewed by the Quality Assurance Department to assure that appropriate quality requirements are included.

Reason for the Change:

The responsibility for review of procurement documents by the Quality Assurance Department was previously specified in section 17.2.1.2 but was not clearly identified in section 17.2.4, "Procurement Document Control."

Basis for Concluding that the Change is Acceptable Under Section 50.54(a)(3):

The assigned responsibility for the review of procurement documents now has a corresponding requirement under section 17.2.4, "Procurement Document Control." This change emphasizes this function but does not alter the requirement in any way from that previously specified in section 17.2.1.2. This change is administrative only and does not affect the application of 10 CFR Part 50 Appendix B to the "Procurement Document Control" function previously reviewed and approved by the NRC.

11. 17.2.4.6 Acquisition from Other Licensed Nuclear Power Plants

Identification of Change:

This is a new section. Its purpose is to define the process by which items may be procured from other licensed nuclear power plants.

Reason for the Change:

To define clearly the process by which Iowa Electric may procure items from other licensed nuclear power plants. This change also defines the method by which the provisions of 10 CFR Part 21 for reporting of defects and non-compliances will be accomplished under these conditions.

Basis for Concluding that the Change is Acceptable Under Section 50.54(a)(3):

Licensed nuclear power plant quality assurance programs which meet the provisions of 10 CFR Part 50 Appendix B and have been reviewed and approved by the NRC are acceptable as procurement sources. The process by which Iowa Electric implements its Quality Assurance Program assures that purchased materials, items, and services are acceptable. If basic components are purchased from another nuclear utility, the original equipment supplier of

the basic component would not be aware of the change in ownership or application unless he was notified. Consequently, Iowa Electric has added this paragraph to the Quality Assurance Program Description to require that the original equipment supplier of the basic component is informed of the change in application and ownership. The purpose is, of course, to enable the original supplier to notify us of any reportable defects and noncompliances in the products. This addition to the Quality Assurance Program Description continues to comply with the provisions of 10 CFR Part 50 Appendix B and the provisions of 10 CFR Part 21.

12. 17.2.6.3 Review and Approval

Identification of Change:

The requirement for the Quality Assurance Department to review departmental procedures is being deleted.

Reason for the Change:

As defined in section 17.2.2.4.3, "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." As such, these procedures are the responsibility of the individual departments and are subject to audit by the Quality Assurance Department.

Basis for Concluding that the Change is Acceptable Under Section 50.54(a)(3):

10 CFR 50 Appendix B, Criterion V, states "Activities affecting quality shall be prescribed by documented instructions, procedures, or drawings, of a type appropriate to the circumstances..."

10 CFR 50 Appendix B, Criterion VI, states "measures shall assure that documents, including changes, are reviewed for adequacy and approved for release by authorized personnel..."

The Quality Assurance Department will continue to review and approve the Quality Assurance Manual and Nuclear Generation Division Manual in accordance with paragraphs 17.2.6.3, 17.2.2.4.1 and 17.2.2.4.2. These reviews ensure that upper

management's philosophy and concepts are provided to middle management, organizational responsibilities are defined, and organizational interfaces are defined. The Quality Assurance Department will also continue to review the Divisional procedures which are common to more than one department and facilitate the flow of information across departmental lines.

Since the Quality Assurance Department continues to review the Divisional procedures and the Quality Assurance Manual as defined above, it is unnecessary for Quality Assurance to continue reviewing procedures which are organizationally unique to a single department. Each department is responsible for the attainment of quality consistent with the established policies and assigned responsibilities. Resources of the Quality Assurance Department are best utilized by assuring the program has been established (QAM and Divisional procedures) and by auditing to ensure that activities are correctly performed consistent with 10 CFR Part 50 Appendix B, Criterion I.

In conclusion, the removal of Quality Assurance from the review and approval of Departmental procedures is considered a reduction in the commitments previously reviewed and approved by the NRC. However, this change will not reduce the effectiveness of the Quality Assurance Program and is consistent with the provisions of 10 CFR Part 50 Appendix B.

13. 17.2.7.2 Source Evaluation and Selection

17.2.7.3 Inspection or Surveillance at the Source

17.2.8.1 Identification and Control of Materials, Parts and Components (Scope)

17.2.9.4 Verification and Control

Identification of Change:

The word "vendors" is being changed to "suppliers" in the above identified sections.

Reason for the Change:

To consistently use the term "supplier" as it is used in Regulatory Guide 1.144.

Basis for Concluding that the Change is Acceptable Under Section 50.54(a)(3):

The changes are editorial. It does not affect the application of the 10 CFR Part 50 Appendix B program previously reviewed and approved by the NRC.

14. 17.2.10.1 Inspection (Scope)

Identification of Change:

The second paragraph is being reworded from "The inspection program will include the following, which will be performed at the DAEC" to "The inspection program at DAEC will include the following."

Reason for the Change:

The change more accurately describes the areas included in the inspection program.

Basis for Concluding that the Change is Acceptable Under Section 50.54(a)(3):

The change is editorial. It does not affect the application of the 10 CFR Part 50 Appendix B program previously reviewed and approved by the NRC.

15. 17.2.13.4 Radioactive Materials

Identification of Change:

Section 17.2.13.4 is being revised to state specifically that the Quality Assurance Program does not apply to the design and fabrication of shipping containers for radioactive materials.

Reason for the Change:

The change clarifies that Iowa Electric Light and Power is only a "user" of packages for the transportation of radioactive materials and not a "fabricator and user" of these packages in accordance with 10 CFR Part 71.

Basis for Concluding that the Change is Acceptable Under Section 50.54(a)(3):

The change is a clarification only. Iowa Electric Light and Power has never engaged in the design and fabrication of packages for the transportation of radioactive materials for which an NRC certification is required under Part 71, "Packaging and Transportation of Radioactive Material." This change does not affect our implementation of 10 CFR Part 50, Appendix B. The Iowa Electric program for shipping radioactive material is consistent with the Quality Assurance Program Description previously reviewed and approved by the NRC. Iowa Electric Light and Power letter NG-91-2922 dated September 19, 1991 from Mr. McGaughy (Iowa Electric) to Mr. Murley (NRC) submitted the clarification to the NRC. Subsequently, License revision 4 to approval number 0296 (Quality Assurance Program Approval for Radioactive Material Packages) attached to NRC letter dated October 9, 1991 from Mr. Messier (NRC) to Mr. Mineck (Iowa Electric) was issued. License revision 3 stated "Transportation and packaging activities conducted under applicable criteria of Appendix B of 10 CFR Part 50 to be executed in accordance with the NRC approved Quality Assurance Program Plan included as section 17.2.13 of the FSAR for operations at the Duane Arnold Energy Center (Docket No. 50-331)." License revision 4 states "Activities conducted with regard to transportation packages under applicable criteria of Appendix B to 10 CFR Part 50 authorized by this approval: procurement, maintenance, repair and use. All other activities (i.e., design, fabrication, assembly, and modification) shall be satisfied by obtaining certifications from package suppliers that these activities were conducted in accordance with an NRC-approved QA program. It shall remain the responsibility of the licensee-user that all transportation activities meet the requirements of 10 CFR section 71.101."

16. <u>17.2.16.3 Significant Conditions Adverse to Quality</u>

Identification of Change:

The first paragraph of this section is revised to delete the definition of a significant condition adverse to quality as defined by the first two sentences of the paragraph. Specifically, the following is deleted:

"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 procedure. Single event failures of hardware or equipment are not necessarily significant."

The last two sentences of the first paragraph were combined.

Reason for the Change:

Stating that 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 procedures are significant conditions adverse to quality is prescriptive and restrictive and basically forms a definition for what constitutes a significant condition adverse to quality. On the other hand, this paragraph states, "Single event failures of hardware or equipment are not necessary significant.

The above definitions are unnecessary and prescriptive. As stated in the third paragraph of 17.2.16.3, "Significant conditions adverse to quality that impede the implementation or reduce the effectiveness of the program will be controlled." This paragraph continues to address the reporting, evaluation, determination of cause, and taking corrective action to preclude repletion. This third paragraph of 17.2.16.3 also recognizes significant adverse conditions to include a recurring condition for which past corrective action has been ineffective, significant trends adverse to quality, or significant Operational Quality Assurance Program deficiencies. This third paragraph of 17.2.16.3 provides adequate definition for what constitutes a "significant condition adverse to quality" and the necessary actions for resolution.

Basis for Concluding that the Change is Acceptable Under Section 50.54(a)(3):

The above change only removes a prescriptive and limiting definition for a significant condition adverse to quality which is unnecessary to comply with 10 CFR Part 50 Appendix B, Criteria XVI, "Corrective Action". The process for identification of significant conditions adverse to quality and their resolution remains in UFSAR Section 17.2.16.3 consistent with the provisions of 10 CFR 50 Appendix B, Criterion XVI, "Corrective Action" and the Quality Assurance

Program Description as previously reviewed and approved by the NRC.

17. 17.2.17.4 Records Storage on Optical Disks

Identification of Change:

This is a new section. Its purpose is to allow the use of an optical disk storage system for quality assurance records.

Reason for the Change:

To define the quality assurance controls applicable to an optical disk storage system for the storage of quality assurance records. An optical storage system (Digital Imaging) is in the initial stages of implementation at DAEC. No records have been placed in the optical storage system.

Basis for Concluding that the Change is Acceptable Under Section 50.54(a)(3):

The information being added is based on the guidance of Generic Letter 88-18, "Plant Record Storage on Optical Disks" dated October 20, 1988. Quality Assurance records stored in electronic media are merely records in a different format. They must satisfy the existing quality requirements contained in the NRC approved Quality Assurance Program Description and the supplemental guidance provided by NRC Generic Letter 88-18. This addition continues to comply with the provisions of 10 CFR Part 50, Appendix B and the quality assurance program as previously reviewed and approved by the NRC.

18. 17.2 Appendix A, Section 6.0, Regulatory Guide 1.33, "Quality Assurance Program Requirements (Operational)"

Identification of Change:

An exception is taken to ANSI N18.7-1976/ANS-3.2, Section 4.3.2.3 (as endorsed by Regulatory Guide 1.33) with regard to the quorum requirements of the independent review body.

The establishment of quorum requirements of the independent review body will comply with Section 6.5.2.6 of Appendix A (Technical Specification) of the DAEC License rather than the requirement of ANSI N18.7-1976/ANS-3.2, Section 4.3.2.3.

Reason for the Change:

Section 4.3.2.3 of ANSI N18.7 specifies that a quorum for a formal meeting of the independent review committee "... shall consist of not less than a majority of the principals, or duly appointed alternates ...." It also specifies that "The chairman (or his duly appointed alternate) shall be present for all formal meetings." Under Section 6.5.2.6 of Appendix A (Technical Specifications) of the DAEC Operating License, "A quorum of the Safety Committee shall consist of the Chairman or Vice Chairman and at least four members with a maximum of two alternates as voting members."

If the independent review committee consists of more than eight members, the quorum requirements of ANSI N18.7 exceed those of the Technical Specifications. To be consistent with the Technical Specifications, a quorum shall be composed of a minimum of four members and the Chairman or Vice Chairman.

Basis for Concluding that the Change is Acceptable Under Section 50.54(a)(3):

DAEC Technical Specifications, state that four members plus the Chairman or Vice Chairman constitute a quorum for the Safety Committee. If the committee consists of more than eight members, ANSI N18.7 would require the presence of one half of the members and would be more restrictive than the Technical Specifications. In order to resolve the conflict, Section 6.3 specifies that the provisions of the Technical Specifications will govern. This position is considered a reduction from the specific Quality Assurance Program Description commitments previously reviewed and approved by the NRC, but is consistent with the Technical Specifications previously reviewed and approved by the NRC and continues to comply with the requirements of 10 CFR Part 50 Appendix B.

3.2 CLASSIFICATION OF STRUCTURES, SYSTEMS AND COMPONENTS

3.2.0 Structures, Systems, and Components Important to Safety

Certain structures, systems, and components of the nuclear plant are considered important to safety because they perform safety actions required to avoid or mitigate the consequences of abnormal operational transients or accidents. The ways in which structures, systems, and components important to safety work together to avoid the unacceptable results associated with the consequences of various extreme plant events is explained in the IE Nuclear Safety Operational Analysis (NSOA). The purpose of this section is to classify structures, systems, and components according to the importance of the safety function they perform. In addition, design requirements are placed upon such equipment to assure the proper performance of safety actions, when required.

In order to establish the loadings and loading combinations for which each individual structure and system is to be designed, buildings and their contained systems are separated into the seismic or nonseismic categories with respect to seismic design requirements.

3.2.1 Seismic Classification

Those structures, systems, and components important to safety that are designed to withstand the effects of a safe shutdown earthquake (SSE) and remain functional are designated as Seismic Category I. Tables 3.2-1 and 3.2-3 provide lists of Seismic Classification of Structures, Systems, and Components. Table 3.2-5 shows the relationship between Seismic Classification, Quality Group classification, and Safety Class. | 1

3.2.1.1 Nonseismic Structures, Systems, and Components

Nonseismic structures, systems, and components are those whose failure would not result in the release of significant radioactivity and would not prevent reactor shutdown. All structures, systems, and components not specifically listed as Seismic Category I are included in the nonseismic category. The failure of nonseismic structures, systems, or components may interrupt power generation. | 1(| 1(

Seismic Category I and nonseismic structures, systems and components are listed in Tables 3.2-1 and 3.2-3.

The equipment and piping classifications meet the general requirements given in Sections 3.2.2 and 5.2.1. They also meet

the additional seismic requirements listed in Section 3.7 ("Seismic Design").

3.2.2 System Quality Group Classification

System quality group classifications have been determined for each component of (a) those applicable fluid systems relied upon to prevent or mitigate the consequences of accidents and malfunctions originating within the reactor coolant pressure boundary, or to permit shutdown of the reactor and maintenance in the safe shutdown condition, and (b) other associated safety related systems. A tabulation of quality group classification for each component so defined is shown in Table 3.2-1 under the heading "Quality Group Class."

Regulatory Guide 1.26 provides for the use of appropriate construction codes and standards which should be used for Quality Groups A through D. Figure 3.2-1 depicts the relative location of major components and the appropriate DAEC code of construction for these DAEC systems, as well as others, which are listed on Table 3.2-1 or Table 3.2-2. Table 3.2-5 compares the AEC (now NRC) Quality Group classification, Seismic Category and Quality Assurance requirements. | 10

3.2.3 Conditions for Design

Two major categories of conditions might occur at the facility which must be appropriately considered in the design. These include (a) the plant process conditions as may be encountered during normal operation, anticipated operational occurrences, or postulated accidents; and (b) the conditions as may be imposed on the plant from the effects of natural phenomena. This subsection combines the plant process conditions (3.2.3.1) with the safe shutdown earthquake (SSE) and correlates these with design condition categories (normal, upset, emergency, and faulted) for structures within the Reactor Coolant Pressure Boundary (RCPB).

3.2.3.1 Plant Process Conditions (PPC) Considered in Design

The full spectrum of plant process conditions (PPC) are divided into four categories in accordance with their anticipated frequency of occurrence. The four categories of PPC are normal, frequent, infrequent, and limiting. These PPC are defined below and examples of representative process conditions are given.

3.2.3.1.1 Normal PPC

Normal PPC include process conditions which are expected to occur normally or regularly in the course of planned plant operation. Examples of normal PPC include the following:

(1) Refueling;

(2) Startup;

(3) Power Operation;

(4) Hot standby;

(5) Shutdown; and

(6) Routine testing and maintenance of components and systems during any of the above.

3.2.3.1.2 Frequent PPC

Frequent PPC are those incidents which are anticipated to occur occasionally during the life of the plant. Examples of frequent PPC include the following:

(1) Generator trip;

(2) Turbine trip;

(3) Isolation of any or all main steam lines;

(4) Loss of condenser cooling;

(5) Loss of feedwater heating;

(6) Inadvertent moderator cooldown;

(7) Control rod withdrawal error;

(8) Loss of feedwater flow;

(9) Total loss of offsite a-c power;

(10) Trip of any or all recirculation pumps;

(11) Inadvertent pump start in a hot recirculation loop;

(12) Inadvertent opening of a safety/safety relief valve; | 10

(13) Single failure of a control component or an active component such as:

a. Turbine pressure regulator failure

b. Feedwater controller failure

c. Recirculation flow control failure

(14) Single failure in the electrical system; and

(15) Minor reactor coolant system leak which requires plant shutdown.

3.2.3.1.3 Infrequent PPC

Infrequent PPC are those which might occur infrequently during the life of the plant. Examples of infrequent PPC include the following:

(1) Blowdown of reactor coolant through multiple safety or relief valves; loss of reactor coclant from a break or crack which does not depressurize the reactor system, but which requires the safety functions of isolation or containment, emergency core cooling, and reactor shutdown;

(2) Improper assembly of core during refueling;

(3) Seizure of one recirculation pump;

(4) Startup of an idle recirculation pump in a cold loop;

(5) Reactor overpressure with delayed scram; and

(6) Release of radioactive material resulting from radwaste equipment failure.

3.2.3.1.4 Limiting PPC

Limiting PPC are those faults that are not expected to occur, but are postulated because their consequence would include the potential for the release of significant amounts of radioactive material. Limiting PPC are the most drastic process events for which plant protection must be provided. Examples of limiting PPC include the following:

(1) Control rod drop accident;

(2) Fuel handling accident resulting in major clad damage of irradiated fuel;

(3) Major rupture of that portion of the steam line which is not a part of the reactor coolant pressure boundary up to and including a double-ended rupture of the steam line; and

(4) Major rupture of any pipe in the reactor coolant pressure boundary larger than that defined as an infrequent PPC and including a double-ended rupture of the largest pipe.

The loading combinations for this event include normal operating

loads, plus safe shutdown earthquake loads, plus associated accident loads.

3.2.3.2 Natural Phenomena and Environmental Conditions Considered in Design

The full range of natural phenomena and environmental conditions in the vicinity of the site must be evaluated to establish the design bases for structures, systems, and components important to safety. The range of conditions is established on the basis of suitable historical data and environmental conditions as discussed in UFSAR Chapter 2.

3.2.3.3 Design Condition Categories

The postulated combination of plant process conditions and the SSE describe separate design conditions which must be appropriately considered in the design of structures within the Reactor Coolant Pressure Boundary (RCPB) ("structures" as used in the power piping codes, not the same as civil structures such as Reactor Building), as well as systems and components important to safety. Design condition categories commonly used to define such combined effects are the normal, upset, emergency, and faulted conditions as defined in UFSAR Section 3.9.3 for mechanical equipment. | 10

3.2.4 Safety Classes

"Structures within the RCPB," systems and components shall be classified as Safety Class 1, Safety Class 2, Safety Class 3 or Other in accordance with the importance of the safety functions to be performed by such equipment. Equipment is assigned a specific safety class, recognizing that components within a system may be of differing safety importance. A single system may thus have components in more than one safety class. (Supports shall be in the same class as the component supported.) | 10

The safety classes are defined in this section and examples of their broad application are given. Because of specific design considerations, these general definitions are subject to interpretation and exceptions. These interpretations and exceptions are to be obtained from the applicable design specifications. Table 3.2-1, under the heading of "Safety Class" provides a summary of the safety classes for the principal structures within the RCPB, systems and components of the plant. Table 3.2-5 shows the relationship between Seismic Classification, Quality Group classification, and Safety Class. | 10

Design requirements for components of safety classes are stated in this section. Where possible, reference is made to accepted industry codes and standards which define design requirement commensurate with the safety function(s) to be performed by

components of a particular safety class for a given condition of design.

Design requirements for safety related plant structures are considered in UFSAR Sections 2.5 and 3.3 through 3.8.

3.2.4.1 Safety Class 1

3.2.4.1.1 Definition of Safety Class 1

Safety Class 1 (SC-1) applies to components of the RCPB whose failure could cause a loss of reactor coolant, as defined in Subsection 3.2.3.1.3, Infrequent PPC, and Subsection 3.2.3.1.4, Limiting PPC.

3.2.4.1.2 Design Requirements for Safety Class 1

Tables 3.2-1 and 3.2-2 list industry code requirements for SC-1 mechanical components and structural foundations.

3.4.2.2 Safety Class 2

3.2.4.2.1 Definition of Safety Class 2

Safety Class 2 (SC-2) applies to those structures within the RCPB, systems and components that are not Safety Class 1 but are necessary to accomplish the safety functions of:

(1) inserting negative reactivity to shut down the reactor;

(2) preventing rapid insertion of positive reactivity;

(3) maintaining core geometry appropriate to all plant process conditions;

(4) providing emergency core cooling;

(5) providing and maintaining containment;

(6) removing residual heat from the reactor and reactor core; and

(7) storing spent fuel.

Safety Class 2 includes the following:

a. Reactor protection system

b. Those components of the control rod system which are necessary to render the reactor subcritical

c. Systems or components which restrict the rate of insertion of positive reactivity

d. The assembly of components of the reactor core which maintain core geometry including the fuel assemblies, core support structure, and core grid plate, as examples

e. Other components within the reactor vessel such as jet pumps, core shroud and core spray components which are necessary to accomplish the safety function of emergency core cooling

f. Emergency core cooling systems

g. Primary and Secondary Containment | 10

h. Post-accident containment heat removal systems

i. Primary Containment hydrogen control system | 10

j. Initiating systems required to accomplish safety functions, including emergency core cooling initiating system and containment isolation initiating system

k. At least one of the systems which recirculates reactor coolant to remove decay heat when the reactor is not pressurized

l. Spent fuel storage racks and spent fuel pool

m. Electrical and instrument auxiliaries necessary to operation of the above

n. Pipes having a nominal pipe size of 3/4 in. or smaller, that are connected to the reactor coolant pressure boundary.

3.2.4.2.2 Design Requirements for Safety Class 2

In applying industry codes to SC-2 equipment, the codes, except for mechanical equipment, do not fit neatly and automatically into the safety class and design condition designations developed in this section. Therefore, mechanical and structural categories will be treated separately from electrical. Tables 3.2-1 and 3.2-2 list the code requirements for mechanical systems and structures within the RCPB of SC-2 designation.

Design requirements for protection and Class 1E electrical systems (as defined in IEEE-279 and IEEE-308 of SC-2) of SC-2 are shown in Table 3.2-4.

3.2.4.3 Safety Class 3

3.2.4.3.1 Definition of Safety Class 3

Safety Class 3 (SC-3) applies to those structures, systems, and components not included in Safety Class 1 or Safety Class 2, but:

(1) Whose function is to process radioactive wastes and whose failure would result in release to the environment of gas, liquid, or solids resulting in a single-event dose that would be greater than the annual dose from 10CFR20.105(a). This is currently interpreted to be 500 mRem at a point on the site boundary; and

(2) Which provide or support any safety system function.

Safety Class 3 includes the following:

a. Portions of the gaseous waste disposal system in accordance with item 1, above

b. Those portions of the radwaste equipment or structures required to prevent an excessive rate of leakage of liquids from the liquid waste disposal system to the environs

c. Cooling water systems required for the purpose of:

1. Removal of decay heat from the reactor

2. Emergency core cooling

3. Post-accident heat removal from the suppression pool

4. Providing cooling water needed for the functioning of emergency systems

d. Fuel supply for the onsite emergency electrical system

e. Emergency equipment area cooling

f. Portions of the compressed gas or hydraulic systems required to support control or operation of safety systems

g. Electrical and instrumentation auxiliaries necessary for operation of the above

3.2.4.3.2 Design Requirements for Safety Class 3

The design requirements for Safety Class 3 mechanical and structural categories (within the RCPB) are listed in Tables 3.2-1 and 3.2-2.

Design requirements for Safety Class 3 electrical equipment are shown in Table 3.2-4.

Safety Class 3 components need not be designed for the SSE if the components are not required to mitigate the consequences of a LOCA or if their failure will not result in release to the environment of radioactive material which exceeds the requirements of Subsection 3.2.4.3.1(1).

3.2.4.4 Other Structures, Systems, and Components

3.2.4.4.1 Definition of Other Structures, Systems, and Components 10

A boiling water reactor has a number of structures, systems, and components in the power conversion or other portions of the facility which have no direct safety function but which may be connected to or influenced by the equipment within the Safety Classes defined above. Such structures, systems, and components 10 are designated as "other".

3.2.4.4.2 Design Requirements for Other Structures, Systems, and Components 10

The design requirements for equipment classified as "other" shall be specified by the designer with appropriate consideration of the intended service of the equipment and expected plant and environmental conditions under which it will operate. Where possible, design requirements should be based on applicable industry codes and standards. If these are not available, the designer should rely on accepted industry or engineering practice.

3.2.4.5 Design Requirements for Safety Class 2 and 3 Electrical Systems and Components

Design requirements for Safety Class 2 and 3 electrical systems and components are contained in Table 3.2-4.

3.2.5 Quality Assurance

Structures, systems, and components whose safety functions 10 require conformance to the quality assurance requirements of 10CFR50, Appendix B, are summarized in Table 3.2-1 under the heading, "Quality Assurance Req." and Table 3.2-3. Table 3.2-5 10 shows the relationship between seismic classification, Quality

Group classification, Safety Class, and Quality Assurance requirements.

3.2.6 Correlation of Safety Classes with Industry Codes

The design of plant equipment is commensurate with the safety importance of the equipment. Hence, the various safety classes have a gradation of design requirements. The correlation of safety classes with other design requirements are summarized in Table 3.2-5.

3.2.7 Classification of Piping Systems

Piping and equipment are classified according to service and location. The design, fabrication, inspection, and testing requirements that are defined within this section for each specified classification group ensure the proper pressure integrity for the item listed.

The requirements and provisions of this section are applicable to the nuclear energy system components, as shown in Table 3.2-1 and Figures 3.2-1 and 3.2-2, such as pressure vessels, piping, pumps, valves and their equipment pressure parts such as fittings, flanges, bolts, valve bodies, pump casings, and similar piping system parts that constitute a pressure boundary for the process fluid.

Specifically excluded from the scope of this section are nonpressure parts, such as: shafts, seals, impellers, wear rings, gland followers, seat rings, guides, and operators; any nonmetallic material, such as packing and gaskets; fasteners not in pressure part joints; and washers of any kind.

Piping systems, valves, pumps, heat exchangers, pressure vessels, and equipment pressure parts have been separated into classifications corresponding to applicable codes and industrial standards. These classifications meet code requirements to the extent outlined. Table 3.2-2 gives a summary of major codes applied depending on the component purchase order date. Where information regarding codes for an individual component is available, this is included in Table 3.2-1.

System piping and equipment pressure parts (including those of BWR nuclear systems) are classified as follows:

1. Quality Group A - Piping and equipment pressure parts within the reactor coolant pressure boundary through the outer isolation valves, inclusive.

2. Quality Group B - Piping and equipment pressure parts downstream of the outer isolation valves, extensions of containment, and the emergency core cooling systems.

3. Quality Group C - Auxiliaries to emergency core cooling system or radioactive waste process piping and equipment pressure parts, excluding power generation systems.

4. Quality Group D - Balance-of-plant piping and equipment pressure parts, including power generation systems. Certain piping in this group such as feedwater and main steam outside of containment are designated "critical" to establish a category for added quality controls. This "critical" piping is designated by "D +QA".

The Quality Group for an individual structure or component can be found on Table 3.2-1 under the heading "Quality Group Class."

The piping classes for each particular system are shown on the system P&ID that is included as a figure in the appropriate section of the UFSAR.

Piping classes are designated by a three-letter code on the P&ID for piping not within GE's scope of supply. The first letter indicates the primary valve and flange rating; the second letter, the type of material; and the third letter, the code to which the piping is designed.

The key to interpreting the first two letters in the line designation is contained in Bechtel Specification 7884-M-190. The third letter in the line designation code can be interpreted as follows:

A - Nuclear Power Piping Code ANSI B31.7, Class I (ASME Section III (1971), Class 1, for the CRD Hydraulic System)

B - Nuclear Power Piping Code, ANSI B31.7, Class II (ASME Section (1971), Class 2 for the CRD Hydraulic System)

C - Nuclear Power Piping Code, ANSI B31.7, Class III (ASME Section III (1971), Class 3, for the CRD Hydraulic System)

D - Nuclear Power Piping Code, ANSI B31.1.0-1967

E - ASME Nuclear Vessels Code Section III, Class B, Extension of Containment Code Cases 1425, 1426, and 1427 (code date and addenda as noted on Table 3.2-1 or Table 3.2-2)

F - National Fire Protection Code

G - National Plumbing Code

All instrument lines are of the same classification as the system to which they are attached, except that those that contain an excess flow check valve (EFCV) are classified as Group D beyond the EFCV (see Figure 3.2-2) Other requirements for instrument lines are contained in footnote 1a to Table 3.2-1.

TABLE 3.2-1

INDEX

Sys#	SysName	SysCode
I	Reactor System	B11
II	Nuclear Boiler System	B21
III	Recirculation System	B31
IV	CRD Hydraulic System	C11
V	Standby Liquid Control System	C41
VI	Neutron Monitoring System	C51
VII	Reactor Protection System	C71
VIII	Process Radiation Monitors	D11
IX	RHR System	E11
X	Low Pressure Core Spray	E21
XI	HPCI System	E41
XII	RCIC System	E51
XIII	Fuel Service Equipment	F11
XIV	Reactor Vessel Service Equipment	F13
XV	In-Vessel Service Equipment	F14
XVI	Refueling Equipment	F15
XVII	Storage Equipment	F16
XVIII	Radwaste System	G11
XIX	Reactor Water Cleanup System	G31
XX	Fuel Pool Cooling and Cleanup System	G41
XXI	Control Room & Remote Shutdown Panels H11	C61
XXII	Local Panels and Racks	H21
XXIII	Offgas System	M62
XXIV	Emergency Service Water	E13
XXV	RHR Service Water System	E12
XXVI	RBCCW	P42
XXVII	Well Water System	P46
XXVIII	Pneumatic Systems T48	P50
XXIX	Diesel Generator Systems	R43
XXX	Containment Atmosphere Control System	T48
XXXI	Standby Gas Treatment System	T46
XXXII	ECCS Equipment Area Cooling System	T41
XXXIII	Power Conversion System M11	M21
XXXIV	Condensate Storage and Transfer System	P11
XXXV	Essential a-c Power System R20-24 R35	R43
XXXVI	125/250 Volt d-c Power System	R42
XXXVII	River Water Supply	W10
XXXVIII	MSIV Leakage Control	B21
XXXIX	HVAC	
XXXX	Miscellaneous Components	

TABLE 3.2-1
INDEX

Sys#	SysName	SysCode
XXXVI	125/250 Volt d-c Power System	R42
XXXIV	Condensate Storage and Transfer System	P11
XXX	Containment Atmosphere Control System	T48
XXI	Control Room & Remote Shutdown PanelsH11	C61
IV	CRD Hydraulic System	C11
XXIX	Diesel Generator Systems	R43
XXXII	ECCS Equipment Area Cooling System	T41
XXIV	Emergency Service Water	E13
XXXV	Essential a-c Power System R20-24 R35	R43
XX	Fuel Pool Cooling and Cleanup System	G41
XIII	Fuel Service Equipment	F11
XI	HPCI System	E41
XXXIX	HVAC	
XV	In-Vessel Service Equipment	F14
XXII	Local Panels and Racks	H21
X	Low Pressure Core Spray	E21
XXXX	Miscellaneous Components	
XXXVIII	MSIV Leakage Control	B21
VI	Neutron Monitoring System	C51
II	Nuclear Boiler System	B21
XXIII	Offgas System	N62
XXVIII	Pneumatic Systems T48	P50
XXXIII	Power Conversion System N11	N21
VIII	Process Radiation Monitors	D11
XVIII	Radwaste System	G11
XXVI	RBCCW	P42
XII	RCIC System	E51
VII	Reactor Protection System	C71
I	Reactor System	B11
XIV	Reactor Vessel Service Equipment	F13
XIX	Reactor Water Cleanup System	G31
III	Recirculation System	B31
XVI	Refueling Equipment	F15
XXV	RHR Service Water System	E12
IX	RHR System	E11
XXXVII	River Water Supply	W10
XXXI	Standby Gas Treatment System	T46
V	Standby Liquid Control System	C41
XVII	Storage Equipment	F16
XXVII	Well Water System	P46

Table 3.2-1

DAEC Classification of Components in Systems

	Principal Component	Scope of Supply (a)	Safety Class (b)	Code Class	Construction Code (c)	Quality Group Class	Quality Assurance Req. (d)	Seismic Category (e)(f)	PO Date (g)	Equivalent ASME S & PV Code Section III (h)	Footnotes	Comments (i)	
I	Reactor System B11												
	1. Reactor vessel	GE/C	1	A	ASME Section III, 1965 Edition, Summer 1967 Addenda	A	R	I	-	1	1d	-	
	2. Reactor vessel support skirt	GE	1	A	ASME Section III, 1965 Edition, Summer 1967 Addenda	A	B	I	-	-	1d	-	
	3. Reactor vessel appurtenances, pressure retaining portions	GE	1	A	ASME Section III, 1965 Edition, Summer 1967 Addenda	A	B	I	-	1	1d	-	
	4. CRD Housing Supports (Shoot-out Steel)	GE	2	-	-	-	B	I	-	-	-	-	
	5. Reactor internal structures, engineered safety feetures	GE	2	A	ASME Section III, 1965 Edition, Summer 1967 Addenda	NA	B	I	-	-	1d,1u	-	10
	6. Reactor internal structures, other	GE	Other	-	-	NA	B	I	-	-	1u	-	
	7. Control rods	GE	2	-	-	NA	B	I	-	-	-	-	
	8. Control rod drives	GE	1	1	Section III, Class 1 appurtenances	A	B	I	-	-	-	-	
	9. Core support structure	GE	2	A	ASME Section III, 1965 Edition, Summer 1967 Addenda	NA	B	I	-	NG	1d,1u	-	
	10. Power range detector hardware	GE	2	-	-	B	B	I	-	2	1a,1b	-	
	11. Fuel assemblies	GE	2	-	-	NA	B	I	-	-	-	-	
	12. RX Vessel Stabilizer	GE	2	A	ASME Section III, 1965 Edition, Summer 1967 Addenda	NA	B	I	-	-	-	-	10
	13. Refueling bellows	GE	Other	-	-	-	-	NA	-	-	-	-	
II	Nuclear Boiler System B21												
	1. Vessels, level instrumentation condensing chambers	GE	1	-	-	A	B	I	-	1	-	-	
	2. Vessels, N2 accumulators	B	2	2	ASME Section III	-	B	I	02/26/73	2	-	-	10
	3. Piping, relief valve discharge	B	3	3	USAS B31.7-1969	C	B	I	07/30/70	3	-	-	
	4. Piping, main steam within outermost isolation valve	GE	1	-	ANSI B31.1.0 + Code Cases N-2,N-7,H-9,H-10	A	B	I	12/05/69	1	1a,1b	-	
	5. Pipe supports, main steam	GE	1	1	Requirements for Class 1 piping supports in ANSI B31.7.	A	B	I	02/26/71	1	-	-	
	6. Pipe restraints, main steam	B	2	-	-	NA	B	I	-	2	-	-	
	7. Piping, other within outermost isolation valves	B	1	1	USAS B31.7-1969	A	B	I	07/30/70	1	1a,1b	-	
	8. Piping, instrumentation beyond outermost isolation valves	B	Other	-	USAS B31.1.0-1967	-	B	-	-	-	1a,1b	-	

Table 3.2-1

DAEC Classification of Components in Systems

Principal Component	Scope of Supply (a)	Safety Class (b)	Code Class	Construction Code (c)	Quality Group Class	Quality Assurance Req. (d)	Seismic Category (e)(f)	PO Dets (g)	Equivalent ASME B & PV Code Section III (h)	Footnotes	Comments (i)
9. Safety valves	GE	1	1	ANSI B31.1.0, Addenda and applicable code cases or NDE standards of B31.1. Code Cases N2,N7,N9,N10 except that the acceptance standards for Class 1 valves in the Draft ASME Code for Pumps and Valves for Nuclear Power may be applied. Use ANSI 16.5 or MSS-SP-66 for design	A	B	I	12/30/69	1	1f	-
10. Relief valves	GE	1	1	ANSI B31.1.0, Addenda and applicable code cases or NDE standards of B31.1. Code Cases N2,N7,N9,N10 except that the acceptance standards for Class 1 valves in the Draft ASME Code for Pumps and Valves for Nuclear Power may be applied. Use ANSI 16.5 or MSS-SP-66 for design	A	B	I	12/30/69	1	1f	-
11. Valves, main steam isolation valves	GE	1	1	ANSI B31.1.0, Addenda and applicable code cases or NDE standards of B31.1. Code Cases N2,N7,N9,N10 except that the acceptance standards for Class 1 valves in the Draft ASME Code for Pumps and Valves for Nuclear Power may be applied. Use ANSI 16.5 or MSS-SP-66 for design	A	B	I	10/15/69	1	1f	-
12. Valves, other, isolation valves and within	G	1	1	ASME Code for Pumps and Valves for Nuclear Power	A	B	I	10/16/70	1	1f	-
13. Valves, instrumentation beyond outermost isolation valves	B	Other	-	USAS B31.1.0-1967	-	-	-	-	-	1a, 1b, 1f	-
14. Mechanical modules, instrumentation, with safety function	GE	2	-	-	S	G	I	-	-	1c	-
15. Electrical module with safety function	GE	2	-	-	NA	B	I	-	-	1c	-
16. Cable, with safety function	B	2	-	-	-	B	I	-	-	-	-
III Recirculation System 831											
1. Piping	GE	1	-	ANSI B31.1.0 + Code Cases N2,N7,N9,N10	A	B	I	12/05/69	1	1a, 1b	-

Table 3.2-1

DAEC Classification of Components in Systems

	Principal Component	Scope of Supply (a)	Safety Class (b)	Code Class	Construction Code (c)	Quality Group Class	Quality Assurance Req. (d)	Seismic Category (e)(f)	PO Date (g)	Equivalent ASME S & PV Code Section III (h)	Footnotes	Comments (i)
	2. Pipe suspension, recirculation line	GE	1	1	Requirements for Class 1 piping supports in ANSI B31.7.	A	B	I	02/26/71	1	-	-
	3. Pipe restraints recirculation line	GE	2	-	-	NA	B	I	-	2	-	-
	4. Pumps	GE	1	1	Draft ASME Code for Pumps and Valves for Nuclear Power or NDE and acceptance requirements of ANSI B31.1 Code Cases N7,N9,N10 + Design Guide for sizing pressure parts in ASME Boiler and Pressure Vessel Code [1968] Section III, Class C.	A	B	I	11/22/68	1	1e	-
	5. Valves	GE	1	1	Requirements for Class 1 valves in Draft ASME Code for Pumps and Valves for Nuclear Power and requirements applicable to valves in ASME Section III [1968 Edition plus addenda], articles 1 and 8.	A	B	I	03/20/70	1	1f	-
	6. Motor, pump	GE	2	-	NEMA Standards	NA	B	I	-	-	-	-
	7. Electrical modules, with safety function	GE	2	-	-	NA	B	I	-	-	1c	-
	8. Cable with safety function	B	2	-	-	-	B	I	-	-	-	-
IV	CRD Hydraulic System C11											
	1. Valves, isolation, water return line	B	1	1	ANSI B31.1.0 or ASME Code for Pumps and Valves for Nuclear Power, Class 1, or ASME Section III, 1971 Edition, Class 1	A	B	I	12/19/72	1	1f	-
	2. Valves, scram discharge volume lines	GE/B	2/2	2	ASME Code for Pumps and Valves for Nuclear Power	B/B	B/B	I/I	12/19/72	2	1f	-
	3. Valves insert and withdraw lines	GE/B	2/2	2	ANSI B31.1.0 or ASME Code for Pumps and Valves for Nuclear Power or ASME Section III, 1971 Edition, Class 1	B/B	B/B	I/I	12/19/72	2	1f	-
	4. Valves, other	B	Other	2	ASME Section III, 1971 Edition	D	D	NA	12/19/72	-	1a,1f,1i	Yes
	5. Piping, water return line within isolation valves	B	1	1	ASME Section III, 1971 Edition	A	B	I	12/19/72	1	-	-
	6. Piping, scram discharge volume lines	B	2	2	ASME Section III, 1971 Edition	B	B	I	12/19/72	2	-	-
	7. Piping, insert and withdraw lines	B	2	2	ASME Section III, 1971 Edition	B	B	I	12/19/72	2	-	-

Table 3.2-1

DAEC Classification of Components in Systems

	Principal Component	Scope of Supply (a)	Safety Class (b)	Code Class	Construction Code (c)	Quality Group Class	Quality Assurance Req. (d)	Seismic Category (e)(f)	PO Date (g)	Equivalent ASME B & PV Code Section III (h)	Footnotes	Comments (i)	
	8. Piping, other	B	Other	2	ASME Section III, 1971 Edition	D	D	NA	12/19/72	-	1e,1b,1l	Yes	10
	9. Hydraulic control unit	GE	2	-	-	Special	B	I	-	-	-	Yes	
	10. Electrical modules, with safety function	GE	2	-	-	NA	B	I	-	-	1c	-	10
	11. Cable, with safety function	B	2	-	-	-	B	I	-	-	-	-	
V	Standby Liquid Control System C41												
	1. Standby liquid control tank	GE	2	-	API-650 and ASME Section VIII, Div. 1	B	B	I	-	2	-	Yes	10
	2. Pump	GE	2	2	ASME Code for Pumps and Valves for Nuclear Power	B	B	I	-	2	1e	-	
	3. Pump motor	GE	2	-	-	NA	B	I	-	-	-	-	
	4. Valves, explosive	GE	2	2	ASME Code for Pumps and Valves for Nuclear Power	B	B	I	-	2	1f	-	
	5. Valves, isolation and within	B	1	1	ASME Code for Pumps and Valves for Nuclear Power	A	B	I	10/16/70	1	1f	-	
	6. Valves, beyond isolation valves	B	2	2	ASME Code for Pumps and Valves for Nuclear Power	B	B	I	10/16/70	2	1f	-	
	7. Piping, within isolation valves	B	1	1	USAS B31.7-1969	A	B	I	07/30/70	1	1a,1b	-	
	8. Piping, beyond isolation valves	B	2	2	USAS B31.7-1969	B	B	I	07/30/70	2	1a,1b,1m	-	
	9. Electrical modules, with safety function	GE	2	-	-	NA	B	I	-	-	1c	-	10
	10. Cable, with safety function	B	2	-	-	-	B	I	-	-	-	-	
VI	Neutron Monitoring System C51												
	1. Piping, TIP	GE	2	-	-	B	B	I	-	2	1a,1b	-	
	2. Valves, isolation, TIP subsystem	GE	2	-	-	B	B	I	-	2	1f	-	
	3. Electrical modules, IRM and APRM	GE	2	-	-	NA	B	I	-	-	1c,1w	Yes	10
	4. Cable, IRM and APRM	B	2	-	-	-	B	I	-	-	-	-	
VII	Reactor Protection System C71												
	1. Electrical modules	GE	2	-	-	NA	B	I	-	-	1c	-	
	2. Cable	B	2	-	-	-	B	I	-	-	-	-	
VIII	Process Radiation Monitors D11												
	1. Electrical modules for main steam line, reactor building ventilation and offgas stack monitors	GE	2	-	-	NA	B	I	-	-	1c	-	
	2. Cable for main steam line, reactor building ventilation, and offgas stack monitors	B	2	-	-	-	B	I	-	-	-	-	
IX	RHR System E11												
	1. Heat exchangers, primary side	GE	2	B	ASME Section III, Class B and TEMA-C	B	B	I	08/15/69	2	-	-	
	2. Heat exchangers, secondary side	GE	3	-	ASME Section VIII, Div. 1, and TEMA-C	C	B	I	08/15/69	3	-	-	
	3. Piping, within outermost LPCI & shutdown cooling isolation valves	B	1	1	USAS B31.7-1969	A	B	I	07/30/70	1	1a,1b	-	
	4. Piping, other	B	2	2	USAS B31.7-1969	B	B	I	07/30/70	2	1a,1b	-	

Table 3.2-1

DAEC Classification of Components in Systems

	Principal Component	Scope of Supply (a)	Safety Class (b)	Code Class	Construction Code (c)	Quality Group Class	Quality Assurance Req. (d)	Seismic Category (e)(f)	PO Date (g)	Equivalent ASME B & PV Code Section III (h)	Footnotes	Comments (i)
5.	Pumps	GE	2	2	Draft ASME Code for Pumps and Valves for Nuclear Power or NDE and acceptance requirements of ANSI B31.1 Code Cases N7,N9,N10 + Design Guide for sizing pressure parts in ASME Boiler and Pressure Vessel Code [1968] Section III, Class C.	B	B	I	09/17/69	2	1e	-
6.	Pump motors	GE	2	-	-	NA	B	I	-	-	-	-
7.	Valves, isolation, LPCI & shutdown cooling lines	B	1	1	ASME Code for Pumps and Valves for Nuclear Power	A	B	I	10/16/70	1	1f	-
8.	Valves, isolation, other	B	2	2	ASME Code for Pumps and Valves for Nuclear Power	B	B	I	10/16/70	1	1f	-
9.	Valves, beyond isolation valves	B	2	2	ASME Code for Pumps and Valves for Nuclear Power	B	B	I	10/16/70	2	1f	-
10.	Mechanical modules	GE	2	-	-	B	B	I	-	-	1c	-
11.	Electrical modules, with safety function	GE	2	-	-	NA	B	I	-	-	1c	-
12.	Cable, with safety function	B	2	-	-	-	B	I	-	-	-	-
	Low Pressure Core Spray E21											
1.	Piping, within outermost isolation valves	B	1	1	USAS B31.7-1969	A	B	I	07/30/70	1	1a,1b,1n	-
2.	Piping, beyond outermost isolation valves	B	2	2	USAS B31.7-1969	B	B	I	07/30/70	2	1a,1b	-
3.	Piping, floodup line to condensate storage tank	B	Other	-	USAS B31.1.0	C	B	I	-	-	1a,1b	-
4.	Pumps	GE	2	2	Draft ASME Code for Pumps and Valves for Nuclear Power or NDE and acceptance requirements of ANSI B31.1 Code Cases N7,N9,N10 + Design Guide for sizing pressure parts in ASME Boiler and Pressure Vessel Code [1968] Section III, Class C.	B	B	I	09/17/69	2	1e	-
5.	Pump motors	GE	2	-	-	NA	B	I	-	-	-	-
6.	Valves, isolation and within	B	1	1	ASME Code for Pumps and Valves for Nuclear Power	A	B	I	10/16/70	1	1f	-
7.	Valves, beyond outermost isolation valves	B	2	2	ASME Code for Pumps and Valves for Nuclear Power	B	B	I	10/16/70	2	1f	-
8.	Valves, floodup line to condensate storage tank	B	Other	-	USAS B31.1.0	C	B	I	-	-	1f	-
9.	Electrical modules with safety function	GE	2	-	-	NA	B	I	-	-	1c	-

Table 3.2-1

DAEC Classification of Components in Systems

	Principal Component	Scope of Supply (a)	Safety Class (b)	Code Class	Construction Code (c)	Quality Group Class	Quality Assurance Req. (d)	Seismic Category (e)(f)	PO Date (g)	Equivalent ASME B & PV Code Section III (h)	Footnotes	Comments (i)
	10. Cable, with safety function HPCI System E41	B	2	-	-	-	B	I	-	-	-	-
XI	1. Piping, within outermost isolation valves	B	1	1	USAS B31.7-1969	A	B	I	07/30/70	1	1e,1b	-
	2. Piping, beyond outermost isolation valves	B	2	2	USAS B31.7-1969	B	B	I	07/30/70	2	1a,1b	-
	3. Piping, return test line to condensate storage tank beyond second isolation valve	B	Other	-	USAS B31.1.0	D	D	NA	07/30/70	-	1a,1b,1r	-
	4. Pumps	GE	2	2	Draft ASME Code for Pumps and Valves for Nuclear Power or NDE and acceptance requirements of ANSI B31.1 Code Cases N7,N9,N10 + Design Guide for sizing pressure parts in ASME Boiler and Pressure Vessel Code [1968] Section III, Class C.	B	B	I	07/31/69	2	1e	-
	5. Valves, isolation and within	B	1	1	ASME Code for Pumps and Valves for Nuclear Power	A	B	I	10/16/70	1	1f	-
	6. Valves, return test line to condensate storage beyond second isolation valve	B	Other	-	USAS B31.1.0	D	D	NA	10/16/70	-	1f	-
	7. Vacuum pump discharge line to containment isolation valves	B	Other	-	USAS B31.1.0	D	D	NA	-	-	1a,1b	-
	8. Valves, other	B	2	2	ASME Code for Pumps and Valves for Nuclear Power	B	B	I	10/16/70	2	1f	
	9. Turbine	GE	2	-	NEMA Standards for Mechanical Drive Steam Turbine	NA	B	I	07/29/69	-	-	Yes
	10. Electrical modules, with safety function	GE	2	-	-	NA	B	I	-	-	1c	-
	11. Cable, with safety function RCIC System E51	B	2	-	-	-	B	I	-	-	-	-
XII	1. Piping, within outermost isolation valves	B	1	1	USAS B31.7-1969	A	B	I	07/30/70	1	1a,1b	-
	2. Piping, beyond outermost isolation valves	B	2	2	USAS B31.7-1969	B	B	I	07/30/70	2	1a,1b	-
	3. Piping, return test line to condensate storage tank beyond second isolation valve	B	Other	-	USAS B31.1.0	D	D	NA	07/30/70	-	1a,1b,1r	-

Table 3.2-1

DAEC Classification of Components in Systems

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Principal Component	Scope of Supply (a)	Safety Class (b)	Code Class	Construction Code (c)	Quality Group Class	Quality Assurance Req. (d)	Seismic Category (e)(f)	PO Date (g)	Equivalent ASME B & PV Code Section III (h)	Footnotes	Comments (i)
4. Pumps	GE	2	2	Dreft ASME Code for Pumps and Velves for Nuclear Power or NDE and ecceptance requirements of ANSI B31.1 Code Cases N7,N9,N10 + Design Guide for sizing pressure parts in ASME Boiler and Prassure Vessel Code [1968] Saction III, Class C.	B	B	I	-	2	1e	-
5. Valves, isolation and within	B	1	1	ASME Code for Pumps and Valves for Nuclear Power	A	B	I	10/16/70	1	1f	-
6. Valves, return test line to condensate storage beyond second isolation valve	B	Other	-	USAS B31.1.0	D	D	NA	10/16/70	-	1f	-
7. Vacuum pump discharge line to containment isolation velves	B	Other	-	USAS B31.1.0	D	D	NA	-	2	1a	-
8. Valves, other	B	2	2	ASME Code for Pumps and Valves for Nuclear Power	B	B	I	10/16/70	2	1f	-
9. Turbine	GE	2	-	NEMA Standards for Mechenicel Drive Steam Turbine	NA	B	I	07/29/69	-	1g	Yes
10. Electricel modules, with safety function	GE	2	-	-	NA	B	I	-	-	1c	-
11. Cable, with safety function	B	2	-	-	-	B	I	-	-	-	-
III Fuel Service Equipment F11											
1. Fuel preparetion machine	GE	3	-	-	NA	B	I	-	-	-	-
2. General purpose grapple	GE	2	-	-	NA	B	I	-	-	-	-
IV Reactor Vessel Service Equipment F13											
1. Steam line plugs	GE	3	-	-	NA	B	I	-	-	-	-
2. Dryer and separetor sling and head strongback	GE	2	-	-	NA	B	I	-	-	-	-
V In-Vessel Service Equipment F14											
1. Control rod grapple	GE	2	-	-	NA	B	I	-	-	-	-
VI Refueling Equipment F15											
1. Refueling equipment platform assembly	GE	2	-	-	NA	B	I	-	-	-	-
VII Storage Equipment F16											
1. Fuel storage racks	GE	2	-	-	NA	B	I	-	-	-	-
2. Defective fuel storage container	GE	3	-	-	-	B	I	-	-	-	-
VIII Radwaste System G11											
1. Tanks, Atmospheric	GE/S	Oth/Oth	-	API-650 or AWWA-D100 or ANSI B96.1 or equivalent plus NDE per ASME Section VIII Div. 1.	C&D	D/D	NA/NA	07/16/70	-	1h	Yes
2. Heat exchangers	GE/S	Oth/Oth	-	-	D/D	D/D	NA/NA	-	-	-	-

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Table 3.2-1

DAEC Classification of Components in Systems

	Principal Component	Scope of Supply (a)	Safety Class (b)	Code Class	Construction Code (c)	Quality Group Class	Quality Assurance Req. (d)	Seismic Category (e)(f)	PO Date (g)	Equivalent ASME S & PV Code Section III (h)	Footnotes	Comments (i)
	3. Piping and valves, containment isolation	B	2	2	USAS B31.7-1969	B	B	I	-	2	1s,1b	-
	4. Piping, other	B	Other	3	USAS B31.7-1969	C&D	D	NA	-	-	1e,1b,1j	Yes
	5. Pumps	GE	Other	3	ANSI B31.1.0 or ASME Code for Pumps and Valves for Nuclear Power, Class 3, or ASME Section III, 1971 Edition, Class 3	C&D	D	NA	07/03/72	-	1e,1j	-
	6. Valves, flow control and filter system	GE	Other	3	ASME Code for Pumps and Valves for Nuclear Power	C&D	D	NA	-	-	1f,1j	-
	7. Valves, other	B	Other	3	ANSI B31.1.0 or ASME Code for Pumps and Valves for Nuclear Power, Class 3, or ASME Section III, 1971 Edition, Class 3	C&D	D	NA	-	-	1f,1j	-
	8. Mechanical modules	GE	Other	-	-	C&D	D	NA	-	-	1c,1j	-
XIX	Reactor Water Cleanup System G31											
	1. Vessels: filter/demineralizer	GE	Other	C	ASME Section III	C	B	I	12/17/70	3	1t	-
	2. Heat exchangers	GE	Other	-	ASME Section VIII and TEMA-C	C	B	I	09/25/67	3	1t	-
	3. Piping, within outermost isolation valves	B	1	1	USAS B31.7-1969	A	B	I	07/30/70	1	1a,1b	-
	4. Piping, beyond outermost isolation valves	B	Other	3	USAS B31.7-1969	C	B	I	07/30/70	3	1s,1b,1o,1t	-
	5. Pumps	GE	Other	3	ANSI B31.1.0 or ASME Code for Pumps and Valves for Nuclear Power, Class 3, or ASME Section III, 1971 Edition, Class 3	C	B	I	12/23/69	3	1e,1t	-
	6. Valves, isolation valves and within	B	1	1	ANSI B31.1.0 or ASME Code for Pumps and Valves for Nuclear Power, Class 1, or ASME Section III, 1971 Edition, Class 1	A	B	I	-	1	1f	-
	7. Valves, beyond outermost isolation valves	GE/B	Oth/Oth	3	ANSI B31.1.0 or ASME Code for Pumps and Valves for Nuclear Power, Class 3, or ASME Section III, 1971 Edition, Class 3	C/C	B	I	-	3	1f,1o,1t	-
	8. Mechanical modules	GE	Other	-	-	-	B	I	-	-	1c,1t	-
XX	Fuel Pool Cooling and Cleanup System G41											
	1. Vessels, filter/demineralizers	GE	Other	-	ASME Section VIII, Div. 1.	C	D	NA	-	-	-	-
	2. Vessels, other	B	Other	-	ASME Section VIII, Div. 1.	C	D	NA	-	3	-	-
	3. Heat exchangers	GE	Other	-	ASME Section VIII, Div. 1, and TEMA-C	C	D	NA	12/23/69	3	-	-

Table 3.2-1

DAEC Classification of Components in Systems

Principal Component	Scope of Supply (a)	Safety Class (b)	Code Class	Construction Code (c)	Quality Group Class	Quality Assurance Req. (d)	Seismic Category (e)(f)	PO Date (g)	Equivalent ASME S & PV Code Section III (h)	Footnotes	Comments (i)	
4. Pumps	GE	Other	3	ANSI B31.1.0 or ASME Code for Pumps and Valves for Nuclear Power, Class 3, or ASME Section III, 1971 Edition, Class 3	C	D	NA	-	3	-	-	
5. Piping	B	Other	3	USAS B31.7-1969	C	D	NA	-	-	1a	-	
6. Valves	S	Other	-	ANSI B31.1.0 or ASME Code for Pumps and Valves for Nuclear Power, Class 3, or ASME Section III, 1971 Edition, Class 3	C&D	D	NA	-	-	1f	-	
XXI Control Room & Remote Shutdown Panels H11 C61												
1. Electrical modules, with safety function	GE	2	-	-	NA	S	I	-	-	1c	-	10
2. Cable, with safety function	B	2	-	-	-	B	I	-	-	-	-	
XXII Local Panels and Racks N21												
1. Electrical modules, with safety function	GE/B	2/2	-	-	B/-	S/B	I/I	-	-	1c	-	
2. Cable, with safety function	B	2	-	-	-	B	I	-	-	-	-	10
XXIII Offgas System N62												
1. Tanks	GE	Other	-	D100 or API-650	-	D	NA	10/21/71	-	1h	-	
2. Heat exchangers	GE	Other	-	Section III & TEMA-C	-	D	NA	11/20/72	-	-	-	
3. Piping	B	Other	3	USAS B31.7-1969	-	D	NA	07/27/72	-	1k	-	
4. Pumps	GE	Other	-	-	D	D	NA	-	-	1e,1k	-	
5. Valves, flow control	GE	Other	-	-	D	D	NA	-	-	1f,1k	-	
6. Valves, other	B	Other	-	-	D	D	NA	11/29/71	-	1f,1k	-	
7. Mechanical modules, with safety function	GE/B	Oth/Oth	-	-	D/D+QA	D/B	NA/I	-	-	1c,1v	Yes	10
8. Pressure vessels	GE	Other	-	-	D	D	NA	10/21/71	-	-	-	
XXIV Emergency Service Water E13												
1. Piping	B	3	3	USAS B31.7	D+QA	B	I	07/30/70	3	-	Yes	10
2. Pumps	B	3	3	ASME Code for Pumps and Valves for Nuclear Power	D+QA	B	I	-	3	1a	-	
3. Pump motors	S	3	-	-	-	B	I	-	-	-	-	
4. Valves	B	3	3	ASME Code for Pumps and Valves for Nuclear Power	D+QA	B	I	10/16/70	3	1f	-	
5. Electrical modules, with safety function	B	3	-	-	-	B	I	-	-	1c	-	
6. Cable, with safety function	B	3	-	-	-	B	I	-	-	-	-	
XXV RHR Service Water System E12												
1. Piping	B	3	3	USAS B31.7-1969	C	B	I	07/30/70	3	1p	-	10
2. Pumps	B	3	3	ANSI B31.1.0 or ASME Code for Pumps and Valves for Nuclear Power, Class 3, or ASME Section III, 1971 Edition, Class 3	C	B	I	-	3	1e	-	
3. Pump motors	B	3	-	-	-	B	I	-	-	-	-	

Table 3.2-1

DAEC Classification of Components in Systems

	Principal Component	Scope of Supply (a)	Safety Class (b)	Code Class	Construction Code (c)	Quality Group Class	Quality Assurance Req. (d)	Seismic Category (e)(f)	PO Date (g)	Equivalent ASME S & PV Code Section III (h)	Footnotes	Comments (i)	
	4. Valves	B	3	3	ASME Code for Pumps and Valves for Nuclear Power	C	B	I	10/16/70	3	1f,1p	-	10
	5. Electrical modules, with safety function	B	3	-	-	-	B	I	-	-	1c	-	
	6. Cable, with safety function	B	3	-	-	-	B	I	-	-	-	-	
XXVI	RBCCW P42												
	1. Piping, and valves forming part of primary containment boundary	B	2	B	ASME Nuclear Vessels Code Section III, Extension of Containment Code Cases 1425, 1426 & 1427	B	B	I	07/30/70	2	-	-	10
	2. Piping and valves inside drywell	B	Other	-	USAS B31.1.0	D	B	I	-	-	1a	-	
	3. Piping and valves, other	B	Other	-	-	D	B	I	-	-	1a	-	
XXVII	Well Water System P46												
	1. Piping and valves forming part of primary containment boundary	B	2	B	ASME Nuclear Vessels Code, Section III, Extension of Containment Code Cases 1425, 1426 & 1427	B	B	I	-	-	-	-	10
	2. Piping and valves inside drywell	B	Other	-	USAS B31.1.0	D	B	I	-	-	1a	-	
	3. Piping and valves, other	B	Other	-	USAS B31.1.0	D	-	NA	-	-	-	-	
XXVIII	Pneumatic Systems T48 P50												
	1. Nitrogen vessels, accumulators, supporting safety-related systems	B	2	2	ASME Section III	-	B	I	02/26/73	-	-	-	10
	2. Nitrogen piping and valves in lines between above accumulators and safety-related systems	B	2	2	ASME Section III	-	B	I	-	-	-	-	
	3. Nitrogen piping and valves forming part of containment boundary	B	2	2	ASME Section III	-	B	I	-	-	1b	-	
	4. Instrument air vessels, accumulators, supporting safety-related systems	B	3	-	-	-	B	I	02/26/73	-	-	-	
	5. Instrument air piping and valves in lines between above accumulators and safety-related systems	B	3	-	-	-	B	I	-	-	-	-	
XXIX	Diesel Generator Systems R43												
	1. Day tanks	B	3	-	API-650 or AWWA-D100 or ANSI B96.1 or equivalent plus NDE per ASME Section VIII, Div. 1.	C	B	I	-	-	-	-	10
	2. Piping and valves, fuel oil systems and diesel service water system	B	3	3	USAS B31.7 for pipe and ASME Code for Pumps and Valves for Nuclear Power	C	B	I	-	-	-	-	
	3. Pumps, fuel oil system and diesel service water system	B	3	3	ASME Code for Pumps and Valves for Nuclear Power	C	B	I	-	-	-	-	
	4. Pump motors, fuel oil system and diesel service water system	B	3	-	-	-	B	I	-	-	-	-	
	5. Diesel-generators	B	2	-	-	-	B	I	-	-	-	-	

Table 3.2-1

DAEC Classification of Components in Systems

	Principal Component	Scope of Supply (a)	Safety Class (b)	Code Class	Construction Code (c)	Quality Group Class	Quality Assurance Req. (d)	Seismic Category (e)(f)	PO Date (g)	Equivalent ASME B & PV Code Section III (h)	Footnotes	Comments (i)
	6. Electrical modules with safety function	B	3	-	-	-	B	I	-	-	1c	-
	7. Cable, with safety function	B	3	-	-	-	B	I	-	-	-	-
	8. Diesel fuel storage tanks	B	Other	-	API-650 or AWWA-D100 or ANSI B96.1 or equivalent plus NDE per ASME Section VIII, Div. 1.	C	B	I	-	-	-	-
	9. Diesel Air Start System	B	2	-	-	-	B	I	-	-	-	-
XXX	Containment Atmosphere Control System T48											
	1. Piping and valves from primary containment through outer isolation valve	B	2	B	ASME Nuclear Vessels Code Section III, Extension of Code Cases 1425, 1426 and 1427	B	B	I	07/30/70	-	-	-
XXXI	Standby Gas Treatment System T46											
	1. All components with safety function	B	3	-	-	-	B	I	-	-	-	-
XXXII	ECCS Equipment Area Cooling System T41											
	1. All components with safety functions	B	3	-	-	-	B	I	-	-	-	-
XXXIII	Power Conversion System N11 N21											
	1. Main steam piping from outboard MSIV to turbine stop valves and branch line piping up to and including first valve	B	Other	-	USAS B31.1.0	D+QA	B	I	07/30/70	-	1e	Yes
	2. Steam piping and valves, other	B	Other	-	USAS B31.1.0	D+QA	-	NA	07/30/70	-	1a	-
	3. Reactor feedwater piping and valves, RPV to outermost isolation valve	B	1	1	USAS B31.7-1969	A	B	I	07/30/70	1	1a,1b,1f	-
	4. Reactor feedwater piping and valves, other	B	Other	-	USAS B31.1.0	D+QA	-	NA	07/30/70	-	1e,1f	Yes
XXXIV	Condensate Storage and Transfer System P11											
	1. Condensate storage tank	S	Other	-	API-650 plus augmented NDE of welds	D+QA	-	NA	07/30/70	-	1i	Yes
	2. Piping and valves	B	Other	-	USAS B31.1.0	D	D	NA	-	-	1f,1q	-
	3. Other components	B	Other	-	-	D	D	NA	-	-	1q	-
XXXV	Essential a-c Power System R20-24 R35 R43											
	1. All components with safety function	B	2	-	-	-	B	I	-	-	-	-
XXXVI	125/250 Volt d-c Power System R42											
	1. All components with safety function	B	2	-	-	-	B	I	-	-	-	-
XXXVII	River Water Supply W10											
	1. Piping, pumps and valves	B	3	-	ANSI B31.1.0	-	B	I	-	-	1f	-
	2. Intake traveling screen, trash rakes	B	3	-	-	-	B	I	-	-	-	-
	3. Pump motors	B	3	-	-	-	B	I	-	-	-	-
XXXVIII	MSIV Leakage Control B21											

Table 3.2-1

DAEC Classification of Components in Systems

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	Principal Component	Scope of Supply (e)	Safety Class (b)	Code Class	Construction Code (c)	Quality Group Class	Quality Assurance Req. (d)	Seismic Category (e)(f)	PO Date (g)	Equivalent ASME B & PV Code Section III (h)	Footnotes	Comments (i)
	1. Piping and valves up to the first isolation valve of the inboard subsystem	G	1	1	ANSI B31.7	A	B	I	-	-	1e,1b,1f	-
	2. Piping and valves, other	B	2	2	ASME Section III	-	B	I	-	-	1e,1b,1f	-
	3. Blowers	GE	2	-	-	B	B	I	-	-	-	-
XXXIX	HVAC											
	1. Control room	-	3	-	-	-	G	I	-	-	-	-
	2. Pump house	-	3	-	-	-	B	I	-	-	-	-
	3. Emergency diesel generator room	-	3	-	-	-	B	I	-	-	-	-
	4. Reactor building secondary containment isolation dampers	-	3	-	-	-	B	I	-	-	-	-
	5. Battery rooms	-	3	-	-	-	B	I	-	-	-	-
	6. Intake structure	-	3	-	-	-	B	I	-	-	-	-
	7. Essential switchgear rooms	-	3	-	-	-	B	I	-	-	-	-
XXXX	Miscellaneous Components											
	1. Reactor Building Crane	B	3	-	-	-	B	I	-	-	-	-
	2. Containment Penetrations for Process Piping and Electrical	G	2	-	-	-	B	I	-	-	-	-

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IELP/Systems,Class/Systems

Table 3.2-1

DAEC Classification of Components in Systems
Footnotes

Foot#	FootNote	Systems
e	GE = General Electric; B = Bechtel; C = CB&I; IE = Iowa Electric Light & Power Co.	
b	1, 2, 3, "other" = safety classee defined in Section 3.2.4; "unc" = unclassified as defined in Section 3.2.4.	
c	The equipment shall be constructed in eccordance with the codes listed in Table 3.2-2, if no Code of Construction is provided in this table. The term "construction", es used in thie UFSAR, .incIodes provisiene fer design, materials, fabrication, erection, testing and inspection.	
d	B = The equipment shall meet the quality aesurance requirements of 10CFR50, Appendix B, in eccordance with the quality essurance progrms described in Chapter 17. D = The equipment shall be constructed in accordance with the quality assurance requirements consistont with good practice for stems power plants.	
e	I = The equipment shsll be constructed in eccordance with the seismic requirements for the safe shutdown earthquake, es described in Section 3.7, Seismic Design. The inclusion of e systms or structure within Seismic Category I dess not mean the ontire systsm or structure is Seismic Cetogory I but rather thet the system or structure hes been evaluated and those portions that lie within the definition of Seimaic Cstogory I have been appropriately enelyzed and protected for seismic response. NA = The seismic requiremente for the sefe shutdown eerthquake are not applicable to tha equipment.	10
f	Supports in portions of non-seismic category I lines passiog through rooms conteining safeguard equipment ere seiemic cstogory I.	
g	Date on the purchese order for the component. Where provided, this can be used to establish the code edition and addenda in effect for the component.	
h	This colum is for information only. The Code Class given here is that which would apply if the current edition of Section III were to be used ss the Code of Construction. The colum under the heeding "Code Class" shall be used to determins the sctual Construction Code cless of the item.	
i	A "yes" in this colum signifies there is e comment regerding the item at the and of Table 3.2-1.	
1s	The following items are applicable to inetrument, sampling or emall bere (3/4" NPS and emaller), es noted: **(1)Linea 3/4" and emaller which ere part of the reactor coolant boundary shell be Sefety Clsss 2. **(2)All instrument linss which are connected to the reector cooient pressure boundary and are utilized to ectuate safety systems shell be Safety Class 2 from the outer isoletion valve or the process shutoff valve (root valve) to the sensing instrument. **(3)All instrument linss which are connected to the reector coolont pressure boundary and ere not utilized to actuate safety systems ahall be Quality Group D from the outer isolstion valve or the process shutoff valve (root velve) to the sensing instrumentetion. **(4)All other instrument linos through the root valve shall be of the seme classificetion es the eystsm to which they ere attsched, excapt those lines that contein on excess flow check valve (EFCV) ere clasaified as Quality Group D beyand the EFCV. See Figure 3.2-2. **(5)All other instrument lines beyond the root velve, if used to ectuate a safety system, shell be the seme classification sa the system to which they are etteched. **(6) All other inetrument lines beyond the root valve, if not used to actuate a sefety system, shell be Quality Group D. **(7)All sample lines from the outer isolstion valve or the process root velve through the remsinder of the sampling system shall be Quality Group D.	I-10, II-7, II-8, II-13, II-4, III-1, IV-4, IV-8, V-7, V-8, VI-1, IX-3, IX-4, X-1, X-3, X-2, XI-3, XI-1, XI-7, XI-2, XII-7, XII-2, XII-1, XII-3, XVIII-4, XVIII-3, XIX-4, XIX-3, XX-5, XXXIII-3, XXXIII-1, XXXIII-4, XXXIII-2, XXXVIII-2, XXXVIII-1,	10
1b	ANSI B31. Code Cese 78 applies for B31.7 Clesa 1 and Clsss 2 pipa ond fittings 3/4" nominsl pipa size (NPS) and smaller.	I-10, II-7, II-8, II-13, II-4, III-1, IV-8, V-7, V-8, VI-1, IX-4, IX-3, X-1, X-3, X-2, XI-3, XI-1, XI-2, XI-7, XII-2, XII-3, XII-1, XVIII-3, XVIII-4, XIX-3, XIX-4, XXVIII-3, XXXIII-3, XXXVIII-2, XXXVIII-1,	10

Table 3.2-1

DAEC Classification of Components in Systems
Footnotes

Foot#	FootNote	Systems
1c	A module is an assembly of interconnected components which constitute an identifiable device or piece of equipment. For example, electrical modules include sensors, power supplies, and signal processors. Mechanical modules include turbines, strainers, and orifices.	II-14, II-15, III-7, IV-10, V-9, VI-3, VII-1, VIII-1, IX-10, IX-11, X-9, XI-10, XII-10, XVIII-8, XIX-8, XXI-1, XXII-1, XXIII-7, XXIV-5, XXV-5, XXIX-6,
1d	GE Specification 21A1100AS (Ref. 243) adds the following code requirements to the Reactor Vessel: The Winter 1967 Addenda to the ASME Code Section III is not to be included as a basis for purchase of this vessel, except as follows: 1)Charpy impact tests per N-331.2 of the Winter 1967 Addenda will be furnished; 2)Welds are to be ultrasonically examined using the angle beam method described by N-625 of Winter 1967 Addenda; 3)The changes to Article 4-Design by the Winter 1967 Addenda are included; 4)The addition of Appendix IX-Quality Control and Nondestructive Examination Methods is included.	I-1, I-2, I-3, I-5, I-9,
1e	For pump designs, the applicable class, section, or subsection of the referenced ASME B&PV Code is used as a guide in calculating the thickness of pressure-retaining portions of the pump and in sizing cover bolting. For example, use ASME Section III, Class C, 1968 Edition, for a design guide for Quality Group A & B pumps. For Quality Group D below 150 psig and/or 212 deg. F, manufacturer's standard pump for service intended may be used.	III-4, V-2, IX-5, X-4, XI-4, XII-4, XVIII-5, XIX-5, XXIII-4, XXIV-2, XXV-2,
1f	ANSI B16.5 or MSS-SP-66 apply for valves [Note MSS-SP-66-1964 was withdrawn from publication in favor of ANSI B16.34-1973].	II-9, II-10, II-11, II-12, II-13, III-5, IV-1, IV-2, IV-3, IV-4, V-4, V-5, V-6, VI-2, IX-8, IX-9, IX-7, X-7, X-6, X-8, XI-5, XI-6, XI-8, XII-5, XII-6, XII-8, XVIII-6, XVIII-7, XIX-6, XIX-7, XX-6, XXIII-6, XXIII-5, XXIV-4, XXV-4, XXXIII-3, XXXIII-4, XXXIV-2, XXXVII-1, XXXVIII-1, XXXVIII-2, XII-9,
1g	The RCIC turbine does not fall within the applicable design codes. To assure that the turbine is fabricated to the standards commensurate with their safety and performance requirements, General Electric has established specific design requirements for this component.	
1h	Existing API/AWWA standards and supplementary requirments apply. Tanks are to be constructed to meet the intent of API Standards 620 or 650 or AWWA Standard D100 for those fuel, oil, or water storage tanks.	XVIII-1, XXIII-1,
1i	The condensate storage tank will be designed, fabricated and tested to meet the intent of API Standard 650. In addition, the specifications for this tank will require 100% surface examination of the side wall to bottom joint and 100% volumetric examination of the side wall weld joints.	XXXIV-1,
1j	ASME Section VIII, Division 1, and USAS B31.1.0 apply downstream of the outermost isolation valves.	XVIII-4, XVIII-5, XVIII-6, XVIII-7, XVIII-8,
1k	The gaseous radwaste system piping, pumps and valves containing gaseous radwaste shall be constructed in accordance with the applicable codes of Quality Group D.	XXIII-3, XXIII-4, XXIII-5, XXIII-6,
1l	Some of this piping was also constructed to B31.1.0	
1m	Some lines, such as ECB-9 (drain to filter/demineralizer), are class 3, non-seismic.	IV-4, IV-8,
1n	This system includes reactor head spray.	V-8,
1o	Lines DCB-1 and DCB-2 are nuclear class 3, according to Bechtel Specification M-190.	X-1,
1p	The RHRSW backwash line (GBD-62 and GBD-63) is non-seismic, according to Bechtel Specification M-190, Sheet 23A.	XIX-4, XIX-7, XXV-1, XXV-4,
1q	Portions of this system which supply suction for HPCI, RCIC, and Core Spray from the condensate storage tank are seismic category I.	XXXIV-2, XXXIV-3,
1r	The return line to the condensate storage tank was classified as "Q" by Bechtel in the Q-list (Ref. 225) and was built that way by Bechtel. However, these lines are actually Quality Group D, with no QA requirement. That is the way these lines are classified in this table.	XI-3, XII-3,
1s	The Bechtel Q-list (Ref. 225, Item 2.4365) notes this item as Q. However, the entry refers to Bechtel Specification M-119 (Reference 252). This document addresses Seismic Category I supports only. Therefore, only the supports in this item have a requirement for quality assurance and are Seismic Category I.	XXVI-3, XXVI-2, XXVII-2,

Table 3.2-1

DAEC Classification of Components in Systems
Footnotes

Foot#	FootNote	Systems
1t	The Bechtel Q-list (Ref. 225, Item 2.1510) notes this item as Q. However, only pipe hangers and supports provide a specification (M-119, Ref. 252) as a reference. Therefore, only pipe hangers and supports for this item are seismic category I and have special Quality Assurance requirements.	XIX-1, XIX-2, XIX-4, XIX-5, XIX-7, XIX-8,
1u	See GE document NEDC-31853 (Ref. 2) "Duane Arnold Design Safety Standards", Appendix A, for stress and deformation limits for this item.	1-5, 1-6, 1-9,
1v	This item includes the offgas stack dilution fans.	XXIII-7,
1w	This item includes the 24 volt D.C. Power System.	VI-3,

IELP/Footnote/Footnote

Table 3.2-1

DAEC Classification of Components in Systems
Comments

Sys#/Comp#		Comments
IV	4.	1 The design and construction specifications for the hydraulic control unit (HCU) do invoke such codes and standards as can be reasonably applied to individual parts in developing required quality levels, but these codes and standards are supplemented with additional requirements for these parts and for the remaining parts and details. For example: (1) all welds are liquid-ponstront inspected; (2) all socket welds are checked for minimum engagement and and gap between pipe and socket bottom by a marking technique; (3) all welding was performed by qualified welders; (4)all work was done per written procedures. The following examples are typical of the problems associated with codes dssigned to control field-assembled components when applied to the design and production of factory fabricated specialty components: **1. The HCU nitrogen gas bottle is a spun forging that is mechanically joined to the accumulator. It stores the energy required to scram a drive at low vessel pressure. It has been code stamped since its introduction in 1966, although its size exempts it from mandatory stamping. It is constructed of a material listed by the ASME B&PV Code, Section VIII, that was selected for its strength and formability. **2. The scram accumulator is joined to the HCU by a split flange joint chosen for its compact design to facilitate both assembly and maintenance. Both the design and construction conform to the B31.1.0 piping code. This joint, which requires a design pressure of 1750 psig, has been proof tested to 10,000 psi. **3. The accumulator nitrogen shutoff valve is a 6,000 psi cartridge valve whose copper alloy material is listed in the ASME B&PV Code, Section VIII. The valve was chosen for this service partly because it is qualified by the U.S. Navy for submarine service. **4. The directional control valves are solenoid pilot-operated valves that are subplate mounted on the HCU. The valve has a body specially designed for the HCU, but the operating parts are identical to a commercial valve with a proven history of satisfactory service. The pressure retaining parts are stainless steel alloys chosen for service, fabrication and magnetic properties. The manufacturer cannot substitute a code material for that used for the solenoid core tubs. The foregoing examples are not meant to justify one pressure integrity quality level or another, but to demonstrate that the codes and standards invoked by those quality levels are not strictly applicable to special equipment and part designs. Group D classification is generally applicable because the codes and standards invoked by that classification contain clauses that permit the use of manufacturer's standards and proven design techniques that are not explicitly defined within those codes. This was supplemented by the quality control techniques described above.
IV	4.	2 Bechtel built these items to ASME Class 2 standards, based on the piping classes given on the P&ID (see paragraph 3.2.7). However, based on the QA classification of these items, they should have been Class 3. The higher class is shown on this table, although Class 3 is justifiable and would make more sense with the QA Group D designation.
IV	8.	1 The design and construction specifications for the hydraulic control unit (HCU) do invoke such codes and standards as can be reasonably applied to individual parts in developing required quality levels, but these codes and standards are supplemented with additional requirements for these parts and for the remaining parts and details. For example: (1) all welds are liquid-penetrant inspected; (2) all socket welds are checked for minimum engagement and and gap between pipe and socket bottom by a marking technique; (3) all welding was performed by qualified welders; (4)all work was done per written procedures. The following examples are typical of the problems associated with codes designed to control field-assembled components when applied to the design and production of factory fabricated specialty components: **1. The HCU nitrogen gas bottle is a spun forging that is mechanically joined to the accumulator. It stores the energy required to scram a drive at low vessel pressure. It has been code stamped since its introduction in 1966, although its size exempts it from mandatory stamping. It is constructed of a material listed by the ASME B&PV Code, Section VIII, that was selected for its strength and formability. **2. The scram accumulator is joined to the HCU by a split flange joint chosen for its compact design to facilitate both assembly and maintenance. Both the design and construction conform to the B31.1.0 piping code. This joint, which requires a design pressure of 1750 psig, has been proof tested to 10,000 psi. **3. The accumulator nitrogen shutoff valve is a 6,000 psi cartridge valve whose copper alloy material is listed in the ASME B&PV Code, Section VIII. The valve was chosen for this service partly because it is qualified by the U.S. Navy for submarine service. **4. The directional control valves are solenoid pilot-operated valves that are subplate mounted on the HCU. The valve has a body specially designed for the HCU, but the operating parts are identical to a commercial valve with a proven history of satisfactory service. The pressure retaining parts are stainless steel alloys chosen for service, fabrication and magnetic properties. The manufacturer cannot substitute a code material for that used for the solenoid core tube. The foregoing examples are not meant to justify one pressure integrity quality level or another, but to demonstrate that the codes and standards invoked by those quality levels are not strictly applicable to special equipment and part designs. Group D classification is generally applicable because the codes and standards invoked by that classification contain clauses that permit the use of manufacturer's standards and proven design techniques that are not explicitly defined within those codes. This was supplemented by the quality control techniques described above.
IV	8.	2 Bechtel built these items to ASME Class 2 standards, based on the piping classes given on the P&ID (see paragraph 3.2.7). However, based on the QA classification of these items, they should have been Class 3. The higher class is shown on this table, although Class 3 is justifiable and would make more sense with the QA Group D designation.

Table 3.2-1

DAEC Classification of Components in Systems

Comments

Sys#/Comp#			Comments
IV	9.	1	The design and construction specifications for the hydraulic control unit (HCU) do invoke such codes and standards as can be reasonably applied to individual parts in developing required quality levels, but these codes and standards are supplemented with additional requirements for these parts and for the remaining parts and details. For example: (1) all welds are liquid-penetrant inspected; (2) all socket welds are checked for minimum engagement and and gap between pipe and socket bottom by a marking technique; (3) all welding was performed by qualified welders; (4)all work was done per written procedures. The following examples are typical of the problems associated with codes designed to control field-assembled components when applied to the design and production of factory fabricated specialty components: **1. The HCU nitrogen gas bottle is a spun forging that is mechanically joined to the accumulator. It stores the energy required to scram a drive at low vessel pressure. It has been code stamped since its introduction in 1966, although its size exempts it from mandatory stamping. It is constructed of a material listed by the ASME B&PV Code, Section VIII, that was selected for its strength and formability. **2. The scram accumulator is joined to the HCU by a split flange joint chosen for its compact design to facilitate both assembly and maintenance. Both the design and construction conform to the B31.1.0 piping code. This joint, which requires a design pressure of 1750 psig, has been proof tested to 10,000 psi. **3. The accumulator nitrogen shutoff valve is a 6,000 psi cartridge valve whose copper alloy material is listed in the ASME B&PV Code, Section VIII. The valve was chosen for this service partly because it is qualified by the U.S. Navy for submarine service. **4. The directional control valves are solenoid pilot-operated valves that are subplate mounted on the HCU. The valve has a body specially designed for the HCU, but the operating parts are identical to a commercial valve with a proven history of satisfactory service. The pressure retaining parts are stainless steel alloys chosen for service, fabrication and magnetic properties. The manufacturer cannot substitute a code material for that used for the solenoid core tube. The foregoing examples are not meant to justify one pressure integrity quality level or another, but to demonstrate that the codes and standards invoked by those quality levels are not strictly applicable to special equipment and part designs. Group D classification is generally applicable because the codes and standards invoked by that classification contain clauses that permit the use of manufacturer's standards and proven design techniques that are not explicitly defined within those codes. This was supplemented by the quality control techniques described above.
V	1.	1	The standby liquid control storage tank is designed, fabricated, inspected, and tested to meet the intent of API Standard 650 and the ASME B&PV Code, Section VIII, Division 1. All butt welds are given spot radiographic examination. Liquid-penetrant inspection is conducted per the ASME Code, Section VIII, Division 1, on the following welds: **(1)All tank nozzle welds below and including the overflow nozzle are examined internally and externally to the tank. **(2)All fillet and socket welds receive a random examination.
V	1.	2	The construction of the accumulator is in accordance with the requirements of the ASME B&PV Code, Section VIII, Division 1. An ASME stamp is required. Other codes applied to the accumulator are as follows: **(1)ANSI B16.11 "Forged Steel Fittings, Socket Welded and Threaded". **(2)AND 10050 "Bosses, Standard Dimensions for Gasket Seal Straight Thread".
VI	3.	1	See IELP letter to the USNRC, NG-91-2652, dated 8/27/91, for inclusion of the 24 V D. C. Power Supply with this item.
XI	9.	1	The HPCI turbine is categorized as machinery and thus does not fall within the classification groups as earlier identified. To ensure that the turbine was fabricated to the standards commensurate with its performance requirements, General Electric has established specific design requirements for this component, as follows: **(1)All welding was qualified in accordance with Section IX of the ASME B&PV Code. **(2)All pressure retaining castings and fabrications were hydrotested to 1.5 x design pressure. **(3)All high pressure castings were radiographed according to ASTM E-94 (20% coverage, minimum), ASTM E-142 (severity level 3), ASTM-71, ASTM 186, or ASTM-280. **(4)As-cast surfaces were magnetic particle or liquid-penetrant tested according to the ASME B&PV Code, Section III, 1968 Edition, paragraph N323.3 or N323.4. **(5)Wheel and shaft forgings were ultrasonically tested according to ASTM A388. **(6)Butt welds were radiographed according to the ASME B&PV Code, Section III, 1968 Edition, paragraph N626 or N627. **(7)Notification made on any major repairs and records maintained. **(8)Record system and traceability according to the ASME B&PV Code, Section III, 1968 Edition, IX-225. **(9)Control and identification according to the ASME B&PV Code, Section III, 1968 Edition, IX-226. **(10)Procedures conform to the ASME B&PV Code, Section III, 1968 Edition, IX-300. **(11)Inspection personnel are qualified according to the ASME B&PV Code, Section III, 1968 Edition, IX-400.
XII	9.	1	The RCIC turbine is categorized as machinary and thus does not fall within the classification groups as earlier identified. To ensure that the turbine was fabricated to the standards commensurate with its performance requirements, General Electric has established specific design requirments for this component, as follows: **(1)All welding was qualified in accordance with Section IX of the ASME B&PV Code. **(2)All pressure retaining castings and fabrications were hydrotested to 1.5 x design pressure. **(3)All high pressure castings were radiographed according to ASTM E-94 (20% coverage, minimum), ASTM E-142 (severity level 3), ASTM-71, ASTM-186, or ASTM-280. **(4)As-cast surfaces were magnetic particle or liquid-ponstrent tested according to the ASME B&PV Code, Section III, 1968 Edition, paragraph N323.3 or N323.4. **(5)Wheel and shaft forgings were ultrasonically tested according to ASTM A388. **(6)Butt welds were radiographed according to the ASME B&PV Code, Section III, 1968 Edition, paragraph N626 or N627. **(7)Notification made on any major repairs and records maintained. **(8)Record system and traceability according to the ASME B&PV Code, Section III, 1968 Edition, IX-225. **(9)Control and identification according to the ASME B&PV Code, Section III, 1968 Edition, IX-226. **(10)Procedures conform to the ASME B&PV Code, Section III, 1968 Edition, IX-300. **(11)Inspection personnel are qualified according to the ASME B&PV Code, Section III, 1968 Edition, IX-400.

Table 3.2-1

DAEC Classification of Components in Systems

Comments

Sys#/Comp#		Comments	
XVIII	1.	1 Unprocessed liquid radioactive wasts piping and equipment pressura parts installed prior to January 1, 1983, were classified as Quality Group C. Unprocessed liquid radioactive waste piping and equipment pressura parts installed subsequent to January 1, 1983, may be included in Quality Group D with added quality control (D+QA) in accordance with the dasign guidance contained in Reguletory Guide 1.143, Revision 1, modified as follows: **(1)Paregraphs C.1.1.3, C.2.1.3, and C.3.1.3 - The commitment is limited to the seismic dasign methods used in the original construction of the DAEC and is not uprgraded to Regulatory Guide 1.143, Revision 1, requirements. **(2)Paragraph C.4.3 - Systems will be fabricated in accordance with gond operability, maintenance, and repairability practicee. **(3)Peragraph C.6 - All of paregraph C.6 is repleced in its entirety by the following sentanca. "All safety ralated systems or portions of systems shall be designed, fobricsted and installed in accordanco with Quality Level II requirements."	10
XVIII	4.	1 Unprccessed liquid redioactivo waste piping and equipment pressure parts installed prior to January 1, 1983, wore classified as Quality Group C. Unprocessed liquid redioactive weste piping ond equipment preasure parts installed subsequent to January 1, 1983, may bo included in Quality Group D with added quality control (D+QA) in accordenco with the design guidance contained in Regulatory Guide 1.143, Revision 1, modified as follows: **(1)Paregraphs C.1.1.3, C.2.1.3, and C.3.1.3 - The commitment is limited to the seismic design mathods used in the originsl construction of the DAEC and is not uprgraded to Regulatory Guide 1.143, Revision 1, requirements. **(2)Paragraph C.4.3 - Systems will be fabriceted in accordanco with good operability, maintenance, ond repairability practices. **(3)Psragraph C.6 - All of peragraph C.6 is replecad in its entirety by the following santance. "All safety related systems or portions of systems shell be designed, fabriceted and inetelled in eccordance with Quality Level II requirements."	
XXIII	7.	1 The offgss etack dilutian faus are Seimaic Class 1 and must meet the total Quality Assurance Progrem.	
XXIV	1.	1 Emergency service uater system meets the pressure intogrity requirements of Quality Group D, including the additional quality assurance requirements for "critical" piping, es stated in Section 17.1.8.1. All inspection records will be reteined eccording to the Quality Assurance Progrem of Chepter 17. Thesa records inclode data parteining to the qualification procedures and exsmination results.	10
XXXIII	1.	1 For Main Steam and Turbine Bypass piping and valves, ell inspection racords were retsined according to the Quality Assurance Program of Chapter 17. These records inclode dsts porteining to the qualification of inspection parsonnel, exsmination procedures, and examination rasults.	10
XXXIII	1.	2 Turbina Stop, Control, and Bypass Velves: A certification wes obtsined frem the vendors of thesa valves indicating that all cast pressura-retaining parts of a size and configuretion for which volumetric exsaminstion mathods sre effectivo have been examined by rediegraphic mathods by qualified porsonnel. Ultrsaonic exemination to equivslent stendords ere used as on alternstive to radiographic mathods.	10
XXXIII	1.	3 The main steam piping botween the outermost conteinment isoletion valves up to the turbins stop vslves, tho main turbina bypass piping up to the turbine bypass valves and all brench line connected to these portions of the main steem and turbine bypass piping up to the first valve capable of timely octustion ere clessified es Quality Group D and meet the additional quality assurance requirements for "criticel" piping, as stated in Section 17.1.8.1, Schadule IV.	10
XXXIII	1.	4 The first velve capabla of timely actuetion in branch linas connected to the main steam lines between tho outermost containment isolation valves and turbina etop valves and connected to the turbine bypass valves meets sll of the pressure integrity requirements of Quality Group D, including the additionel quality essurance requirements for "critical" piping, as stated in Sactian 17.1.8.1, Schadule IV.	10
XXXIII	1.	5 All inspection records for the main steam ond turbins bypass piping and the first valve in the branch lines connected to this piping were retained according to the Quality Assurance Progrsm of Chapter 17. These records inclode deta porteining to the qualification of inspection personnel, exsminatian procedures, ond exmsination results.	10
XXXIII	4.	1 Materisle used in feedwater control vslves ere ss follows: **(1)Valve body is ASTM A105 Gr. II. **(2)Velve bonnet is ASTM A105 Gr. II and A234 Gr. WPB.	10
XXXIII	4.	2 Exeminatian and testing requirements for the feedueter control velves ere as follows: **(1)All pressure retaining castings are rediegraphed, after final heat trastment, in eccordance with the ASME B&PV Code, Sectian III, Appendix IX, paragraph 330 and ASTM E142. Discontinuities sre judged by ABTM E71, E186, and E280. **(2)All accessible surfeces of ell pressuro rataining castings are examined in finished condition, after final hast treatment, by either liquid penatrant mathods par paragraph N323.4 or magnetic particle mathode par peragraph N323.3, with ecceptenca criteria par paragraph N323.4 of the Summer 1969 addenda to ASME Section III. **(3)All pressure retaining forgings are exmained in the as-furnished condition by the ultrasonic mathod per paragraph N322 of the Summer 1969 Addenda to ASME, Section III.	10
XXXIV	1.	1 The condensate storage tank wes dssigned, fabricated, end teated to meet the intont of API Standerd 650. In addition, the specifications for this tank require (1) 100% aurfece exeminstion of the side wall to bettom joint and (2) 100% volumetric examination of the side wall weld joints.	10
XXXIV	1.	2 Page T3.2-5 of the UFSAR (Ref. 233) ssys thet the CST is non-seismic.	
GENERAL		1 B31.1.0 and B31.7 were originslly published as USA Stendords (USAS), but are now designated as ANSI Standards.	
GENERAL		2 See additionel material exeminstion requirements of Section 17.1.8.1 for piping and valves.	
GENERAL		3 Code effective dete is obteined by the Purchase Ordsr dete for the particular component (see Toblo 3.2-1) or by referring to Table 3.2-2.	

Table 3.2-2
CLASSIFICATION AND CODE COMPLIANCE REQUIREMENTS

For items which do not have a specific construction code listed in Table 3.2-1, the following codes, including their addenda and applicable code cases, in effect at the time of component purchase order date, have been applied. In case of a conflict between this table and Table 3.2-1, Table 3.2-1 shall govern.

Safety Class (SC) or Quality Group Classification[c]	Components[d]	Components Ordered Before Jan. 1, 1970	Components Ordered on or After Jan. 1, 1970 and before July 1, 1971	Components Ordered on or After July 1, 1971
SC-1 Group A	Vessels	ASME Section III, '68 Ed., Classes A, C;	ASME Section III, '68 Ed., Class A;	ASME Section III, '71 Ed., Class 1;
	Piping	USAS B31.1.0;[a][l]	USAS B.31.7, Class 1;[b][k][l][b]	NA&NB subsections;[h]
	Pumps[a] & valves[g]	USAS B31.1.0;[a][l]	ASME NP&VC Class 1;[m]	
	Heat exchangers	TEMA Code[f]	TEMA Code[f]	TEMA Code[f]
SC-2 Group B	Vessels	ASME Section III, '68 Ed., Classes B, C;[l]	ASME Section III, '68 Ed., Classes B, C;[l]	ASME Section III, '71 Ed., Classes MC[l] or 2;
	Piping	USAS B31.1.0;[a][l]	USAS B31.7, Class II;[b][k][l]	NA&NC subsections;
	Pumps[a] & Valves[g]	USAS B31.1.0;[a][l]	NP&VC Class III;[m]	
	Heat exchangers	TEMA Code;[f]	TEMA Code[f]	TEMA Code[f]
	Tanks	[l]	[l]	[l]
SC-3 Group C	Vessels	ASME Section VIII, '68 Ed., Div. 1;	ASME Section VIII, '68 Ed., Div. 1;	ASME Section III, '71 Ed., Class 3;
	Piping	USAS B31.1.0;[a][l]	USAS B31.7, Class III[b][k][l]	NA&ND subsections;
	Pumps[a] & valves[g]	USAS B31.1.0[a][l]	NP&VC Class III;[m]	
	Heat Exchangers	TEMA Code[f]	TEMA Code[f]	TEMA Code[f]
	Tanks	[l]	[l]	[l]
Power Plant (piping systems) Group D	Vessels	ASME Section VIII, '68 Ed., Div. 1;	ASME Section VIII, '68 Ed., Div. 1;	ASME Section VIII, '71 Ed., Div. 1;
	Piping	USAS B31.1.0;[a][l]	USAS B31.1.0;[a][l]	USAS B31.1.0[a][l]
	Pumps[a] & valves[g]	USAS B31.1.0;[a][l]	USAS B31.1.0;[a][l]	USAS B31.1.0[a][l]
	Heat exchangers	TEMA Code[f]	TEMA Code[f]	TEMA Code[f]
	Tanks	[l]	[l]	[l]

Note: Footnotes on following page.

Table 3.2-2
CLASSIFICATION AND CODE COMPLIANCE REQUIREMENTS

a USAS B31.1.0-1967 plus applicable code cases. Requirements of ANSI Nuclear Code Cases N-2, N-7, N-9, and N-10 are applicable for Group A (RCPB) components ordered before January 1, 1970.

b USAS B31.7-1969 plus applicable code cases

c For detailed piping/equipment classification, refer to Table 3.2-1.

d Components required to be stamped to Section III of the ASME B&PV Code are stamped with the applicable ASME Code symbol, and the required third-party inspection was performed by an authorized inspector.

e For pump designs, the applicable class, section, or subsection of the referenced ASME B&PV Code is used as a guide in calculating the thickness of pressure-retaining portions of the pump and in sizing cover bolting. For example, use ASME Section III, Class C for Group A&B pump design guide. For Group D below 150 psig and/or 212°F, Manufacturer's Standard pump for service intended may be used.

f Tubular Exchanger Manufacturer's Association (TEMA) Code Requirements were applied using classes appropriate to each heat exchanger's duty cycle.

g ANSI B16.5 or MSS-66 apply for valves (note MSS-SD-66-1964 was withdrawn from publication in favor of ANSI B16.34-1973).

h Class 1 nuclear piping, pumps, and valves purchased after January 1, 1970, will meet the provision of ASME B&PV Code Section III, paragraph N-153 for stamping and third-party inspection.

i Metal containment vessel and penetrations (extensions of containment) are ASME, Section III, stamped Class B or MC (subsection NA&NE), and the required third-party inspection shall be performed by an authorized inspector.

j Existing API/AWWA standards and supplementary requirements apply. Tanks are to be designed, fabricated, constructed, and tested to meet the intent of API Standards 620 (Recommended Rules for Design and Construction of Large Welded Low Pressure Storage Tanks) or 650 (Welded Steel Tanks for Oil Storage) or AWWA Standard D100 (standard for steel tanks, stand pipes, reservoirs, and elevated tanks for water storage) for these fuel, oil, or water storage tanks.

k ANSI B31. Code Case 78 applies for B31.7 Class I and Class II pipe and fittings 3/4 inch nominal pipe size and smaller.

l These codes were originally published as USA Standards (USAS), but are now designated as ANSI Standards.

m ASME Code for Pumps and Valves for Nuclear Power (or Nuclear Pump and Valve Code). This was incorporated into ASME Section III after the construction of DAEC.

Table 3.2-3

SEISMIC CATEGORY I STRUCTURES

Reactor Building

Drywell (including reactor vessel pedestal)

Wetwell (torus)

Control Building

Intake Structure

Turbine Building (portion containing emergency diesel generators)

Pump House (portion containing residual heat removal and emergency service water systems)

Offgas Stack

Notes:

(a) Structures, systems, and components not listed as Seismic Category I in Table 3.2-1 or above are nonseismic.

(b) 10 CFR 50 Appendix B QA program is applied to Seismic Category I structures. | 10

Table 3.2-4

DESIGN REQUIREMENTS FOR SAFETY CLASSES 2 AND 3 ELECTRIC SYSTEMS AND COMPONENTS

PROTECTION				CLASS 1E								
Components	Modules	Sensors	Systems (a)	Cable	Connectors	Switch Gear	Transformers	Diesel	Systems	Motors	Valve Actuators	Penetrations
IEEE-323	IEEE-323 IEEE-344	IEEE-323 IEEE-344	IEEE-279	(b)	(b)	IEEE-344	IEEE-344	(b)	IEEE-308	IEEE-323 IEEE-334(c) IEEE-344	IEEE-323	IEEE-344

Notes:

(a) IEEE-279 shall apply only to those Safety Class 2 or 3 systems and components which actuate reactor trip or, in the event of a serious reactor accident, actuate engineered safeguards.

(b) Design requirements had not been developed for this Condition of Design by the applicable code at the time DAEC was designed. Design requirements are to be developed for the specific component.

(c) GE Scope of Supply

Table 3.2-5

SUMMARY OF SAFETY CLASS DESIGN REQUIREMENTS

Design Requirements	Safety Class 1	2	3	Other	
Quality Group Classification[a]	A	B	C or D + QA	D + QA	C or D
Quality Assurance Requirement[b]	B	B	B	B	B or D
Seismic Category[c]	I	I	I	NA	I or NA

Notes:

(a) The equipment shall be constructed in accordance with the indicated code listed in Table 3.2-1 or 3.2-2.

(b) B - The equipment shall be constructed in accordance with the quality assurance requirements of 10CFR50 Appendix B and the Quality Assurance Program described in Chapter 17.

D - The equipment shall be constructed in accordance with the Quality Assurance requirements consistent with good practice for steam power plants.

(c) I - The equipment of this seismic category shall be constructed in accordance with the seismic requirements of the safe shutdown earthquake as described in Subsection 3.2.1 and Section 3.7.

NA - The seismic requirements for the safe shutdown earthquake are not applicable to the equipment of this classification.